thermokon®

HOME OF SENSOR TECHNOLOGY



PRODUCTS

VALID FROM 1ST MAY 2019 – WORLD EDITION

THE EFFECTIVE SENSOR MANUFACTURER FROM GERMANY

THERMOKON AT A GLANCE



USE



SR06 LCD



JOY



thanos

novos

THE NEW ROOM SERIES BY THERMOKON®

The new Room Sensors and Operating Units by Thermokon®



New Company Headquarters since January 1, 2014



SMD Assembly Line



Former Company Headquarters in Mittenaar-Bicken

» 2020

2019 **Launch** of the new room sensors and operating units – **NOVOS**
2017 **Company Anniversary** 30 Years Thermokon Sensortechnik GmbH
2016 **Premiere** of the new and innovative enclosure „USE“
2015 **Launch** of the new design room operating unit „JOY“
2015 **Launch** of the solar-powered room operating unit SR06 LCD
2015 **Investment** into a new SMD assembly line
2015 **Establishing** Thermokon Sensor Technology Nederland B.V., Netherlands
2014 **Establishing** Thermokon Norge AS, Norway
2013 **New Company Headquarters** in Mittenaar-Offenbach
2013 **Establishing** Thermokon Americas LP, USA
2013 **Establishing** Thermokon Sensortechnik Switzerland AG
2012 **A reason to celebrate:** 25 Years Thermokon Sensortechnik GmbH
2011 **Establishing** Thermokon Automation Equipment Co. Ltd., China
2011 **Launch of the** high-end touch room operating unit thanos

» 2010

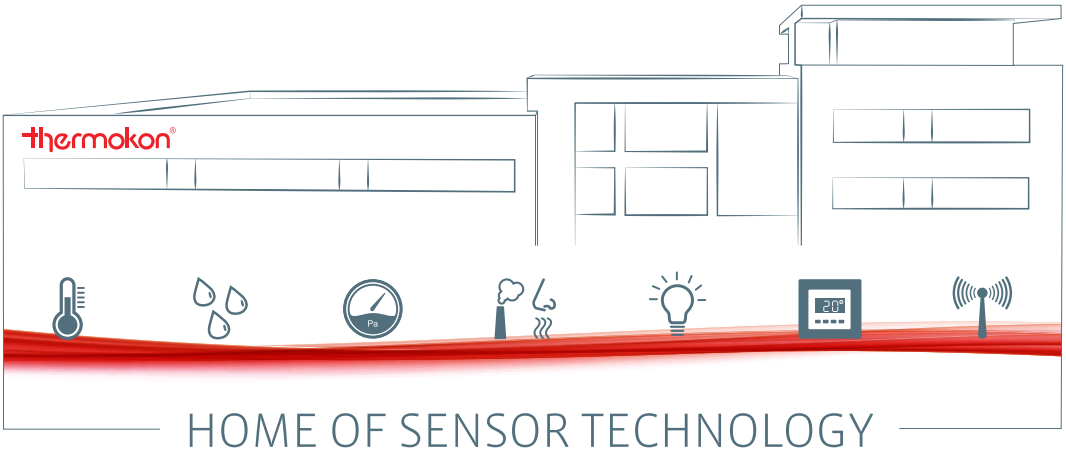
2009 **Extension** of the product portfolio to sensors with BACnet interface
2007 **Further extension** of the company building by 600 m²
2005 **Launch** of the design room operating unit WRF08
2005 **Extension** of the product portfolio to sensors with Modbus interface
2004 **Launch** of the innovative wireless sensor system EasySens®
2002 **Launch** of the surface mounted room operating unit WRF04
2002 **Establishing** Thermokon-Danelko Elektronik AB, Sweden
2002 **Anniversary** 15 Years Thermokon Sensortechnik GmbH
2000 **Further extension** of the company building to 2.000 m²

» 2000

1998 **Establishing** Thermokon Components GmbH, Austria
1997 **Extension** of the company building in in Mittenaar-Bicken
1995 **First production** of humidity sensors
1995 **Extension** of the product portfolio to sensors with LON interface
1995 **First production** of mixed gas and brightness sensors
1995 **Launch** of a quality management system according to DIN EN ISO 9001
1994 **New company building** in Mittenaar-Bicken

» 1990

1987 **Development and production** of temperature sensors for the heating industry
1987 **Company foundation** of Thermokon Sensortechnik GmbH by Harald Zygan



HOME OF SENSOR TECHNOLOGY

FROM A SINGLE PRODUCT TO A SYSTEM SOLUTION

» ENERGY-EFFICIENT HIGH-TECH PRODUCTS

What started with the foundation of Thermokon Sensortechnik GmbH by Harald Zygan in 1987 has evolved to a success story quickly: The initial specialization on temperature sensors for the boiler industry was soon followed by an extension of the portfolio to sensor solutions for the detection of relative humidity, air quality and brightness. Those products laid the foundation for energy-efficient products within our systems and solutions.

Nowadays, we are contributing actively to the sustainability of buildings as well as the reduction of CO2 emissions. When developing our high-tech products we pay especially attention to a lean and plug & play design so that our systems are “easy to install”. Of course, a time and cost-saving configuration is considered as well.

» CONTINUOUS GROWTH

Our growth to a Global Player involves a consequent optimization of our headquarters and included a new building in Mittenaar-Bicken in 1994. This building was continuously extended in the following years. In 2014 we moved our headquarters to a new location in Mittenaar-Offenbach.

A generous construction, latest technologies and ideal production conditions give us the flexibility and creativity for the development and production of advanced sensor solutions.

MADE IN GERMANY

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INTEROPERABLE SYSTEM INTEGRATION

Intelligent building technology requires a communication between all components. When developing new solutions we take care that our products are compatible with all common BUS systems so to enable an easy interoperable system integration

Modbus

Since its development in the year 1979 the Modbus protocol had become a standard in the industrial communication and plays an important role as an application protocol for data transmission. As the Modbus TCP type, it had significantly advanced the Ethernet communication in the automation. The combination of manufacturer independent data visualization via Modbus and the universal network standard TCP/IP and the Ethernet enable the open exchange of process data.

BACnet

The communication protocol BACnet, which is independent of manufacturers, is especially designed for applications in the building automation. The objective of BACnet is the allocation of uniform, non-committed standards for data communication. In Europe BACnet is represented by the BACnet Interest Group Europe (BIG-EU), the industrial association for the use of global BACnet standards according to ISO 16484-5. BACnet distinguishes itself by high transfer rates.

LON

The idea of LON technology (Local Operating Network), a worldwide standardized communication and automation protocol, is the interoperability, a high application width and a comprehensive possibility of field applications enabling the realization of global building automation solutions. Data transmission is made directly from device to device. A central control system is not needed.

COMPATIBILITY IS THE ASSET

KNX

The KNX technology has established well as a worldwide standard for all applications in the field of home and building system technology – from energy management, HVAC applications or security systems via lighting and shutter control up to the operation of household appliances and audio/video solutions. KNX is based on the installation tool ETS which is independent of manufacturers and products. ETS is equipped with a full set of transmission media as well as a configuration mode enabling an overall use.

digitalSTROM

digitalSTROM networks all electrical devices in a household via the existing circuit lines and enables a new dimension of living comfort.From individual light changes up to more energy efficiency and security at home, there is almost nothing that cannot be easily and comfortably be controlled and automated with digitalSTROM. All necessary components can be mounted everywhere fast and clean. All applications can be controlled via switch or virtually via PC and smart phone. digitalSTROM is the future of your current – but can be used today already.

.

EasySens®

The use of innovative technology makes it possible: The wireless EnOcean based system EasySens® enables a networked building automation – self-powered, intelligent and maintenance-free. Thus, EasySens® offers best possible flexibility for realizing individual requirements in new buildings and refurbishments.

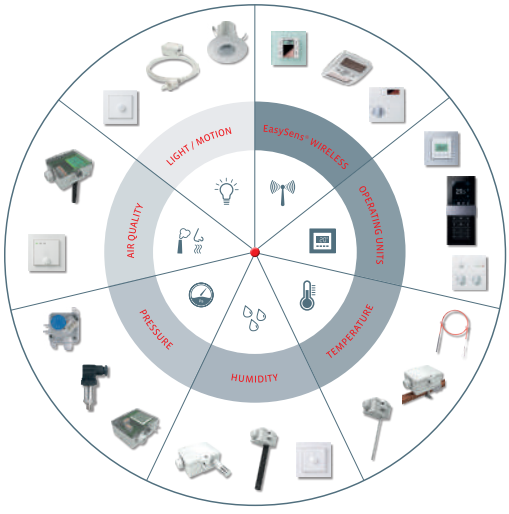
The Effective Sensor Manufacturer for an Efficient Partnership

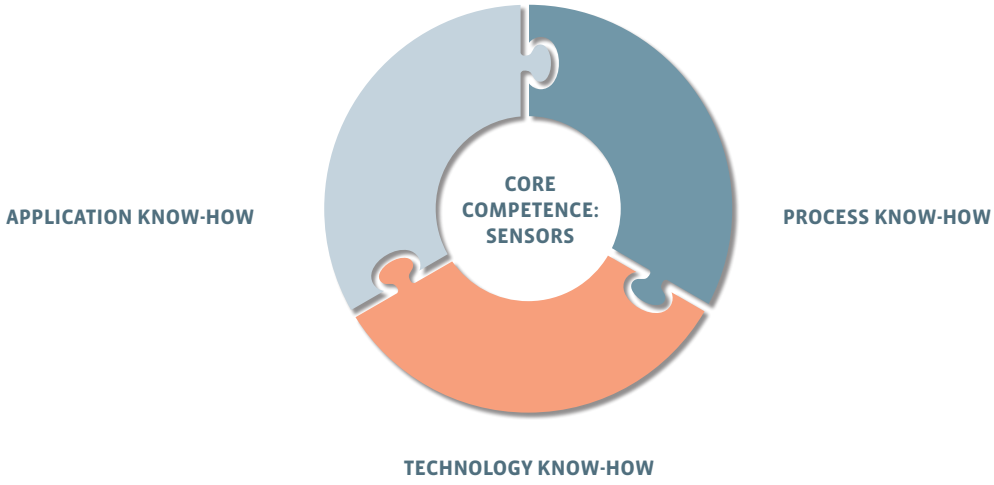


OUR EXPERTISE – YOUR SUCCESS

For more than 30 years, THERMOKON is recognized worldwide for leveraging standards in intelligent buildings with engineering, innovation and quality “Made in Germany”. Thanks to the development and production of sophisticaed sensors and sensor systems we are creating an additional benefit for our customers all over the world. We focus on efficiency, sustainability and openness to new fields of technology as well as a close cooperation and thorough dialogue with our clients.

As a leader for innovation with a broad scope of applications we are continuously developing our portfolio further and offer decisive benefits with regards to product-related values, customized solutions and engineering. Our complete range of products is designed to energy-efficient buildings striving for an "A" classification according to DIN EN 15232.





QUALIFIED, RELIABLE, EFFICIENT

As the “Home of Sensor Technology” for building automation and HVAC Thermokon offers the essential knowledge to combine quality with efficiency to create customers’ benefit by innovative solutions. Your success is guaranteed by our expertise. Thanks to well-engineered and high-grade products, a 5-year warranty with accommodating exceptions and proactive initiation of new innovations, you can rely on us at any time.

Efficiency is an additional strength. We offer an excellent cost-performance ratio which pays off in terms of quality and service. Comprehensive sensor solutions are offered from a single source.

» APPLICATION KNOW-HOW

We know and understand your applications – thus we consult and act goal-oriented.

» TECHNOLOGY KNOW-HOW

We have the necessary technology know-how to offer customized products and service.

» PROCESS KNOW-HOW

We anticipate your processes and make them more lean and efficient, enabling you to save time and money.



Worldwide Subsidiaries and Distributors

FROM MITTENAAR ACROSS THE GLOBE

» GLOBAL PLAYER WITH REGIONAL ROOTS

Trend-setting sensors and sensor systems are developed and produced at our headquarters in Mittenaar-Offenbach with currently 200 employees. Besides our core values – safety, openness to new technologies and sustainability as well as our daily motivation striving for excellence in sensors, we established an own R&D department, an in-house test laboratory, a climatic chamber as well as an own SMD assembly line for our PCBs.

In addition, our finished goods warehouse ensures our delivery ability at any time. The responsible handling of resources in all corporate sectors is self-evident.

» REPRESENTED IN MORE THAN 80 COUNTRIES

Our clients are manufacturers, system integrators, controller companies and strategic distributors in the HVAC industry and building automation. Our products and systems are exported all over the world.

A local support and presence is guaranteed by branches in Austria, Sweden, China, Switzerland, Finland and the the Netherlands as well as a sales agency in Russia. Due to a complementary cooperation with distributors in many parts of the world our product portfolio is available in more than 80 countries.



novos

THE NEW ROOM SERIES BY THERMOKON®

The uniform design of the “NOVOS” series with various configuration options and the smart enclosure, which is especially targeting design-oriented applications, underlines that NOVOS meets highest customer demands.

The flat fingerprint insensitive cover offers possibilities to adopt the wall design by coosing a custom coloured cover film.

The portfolio of room units and sensors can be applied to various applications for modern building automation by detecting temperature, humidity, CO_2 or VOC gases to control room air conditioning, brightness and shading.



NOVOS Touch

NOVOS 7

AVAILABLE TYPES

» NOVOS Touch

- » Controlling room climate, lights and shutters
- » Individually configurable scenes
- » Up to four integrated sensors (temperature, relative humidity, CO2 and VOC)
- » Clear visualization of values with trends and traffic light indication
- » 4,8” Touchscreen, glass surface
- » RS485 Modbus interface

» NOVOS 7

- » Controlling room climate, lights and shutters
- » Individually configurable scenes
- » Up to four integrated sensors (temperature, relative humidity, CO2 and VOC)
- » Clear visualization of values with trends and traffic light indication
- » 3,5” TFT display, push-and-rotary switch, four user defined buttons
- » RS485 Modbus interface

Modbus



NOVOS 5 x Design NOVOS 3 x NOVOS 5 Design NOVOS 3

» NOVOS 5 x / 3 x

- » Integrated temperature sensor
- » Outputs: passive, 0..10 V, 4..20 mA or RS485 Modbus
- » Setpoint adjuster, rotary switch and button with integrated RGB LED
- » Optionally with RGB display
- » Optionally with design cover (aluminium or black)

» NOVOS 5 / 3

- » Measuring of: Temperature, relative humidity, CO_2 or VOC
- » Outputs: passive, 0..10 V, 4..20 mA or RS485 Modbus
- » Optionally with RGB display
- » Optionally with design cover (aluminium or black)

passive | 0..10 V | 4..20 mA

Modbus

» Discover NOVOS online!
www.thermokon.de/en/product-highlights/novos



NOVOS Touch

» GENERAL INFORMATION

Thanks to the high-resolution 4,8" touch screen and its precious glass surface, "NOVOS Touch" is the highlight among the new room operating units of Thermokon. The intuitive smartphone-like touch interface is easy to operate and provides status messages in the display as well as a dashboard to view all values in one.

Moreover, "NOVOS Touch" provides up to four integrated sensors, that enable the simultaneous detection of temperature, humidity, CO_2 and VOC.

The control of blinds is comfortable by simple up/down commands, venetian blind adjustments or precise blind positions by slider elements.

In addition to numerical values the range of value can be indicated by traffic light function. Furthermore, floor plans can be uploaded to easily control peripherals. The RS485 Modbus interface is perfectly enhancing the capabilities of the new NOVOS Touch.

» ADVANTAGES AND HIGHLIGHTS

- » Intuitive and comfortable user interface to control room climate, lighting and shading
- » Individual scenes can be defined and called
- » Integration of up to four sensors in one device (temperature, relative humidity, CO_2 and VOC)
- » ECO mode for an energy-efficient room control
- » Clear visualization of values with trends and traffic light indication
- » High-resolution 4,8" Touch screen with a real glass surface
- » Digital input for external devices/sensors
- » RS485 Modbus interface

Modbus



novos Touch



original size



NOVOS 7

» GENERAL INFORMATION

A majority of the features integrated in the NOVOS Touch are also available for the NOVOS 7 – the second landmark room unit within the NOVOS family.

The powerful room unit with a 3,5“ TFT display impresses with an easy-to-navigate user interface by means of a push-and-rotary switch. In addition four configurable touch buttons allow quick access of frequently used functions or scenes.

» ADVANTAGES AND HIGHLIGHTS

- » Intuitive and comfortable user interface to control room climate, lighting and shading
- » Individual scenes can be defined and called
- » Integration of up to four sensors in one device (temperature, relative humidity, CO_2 and VOC)
- » Clear visualization of values with trends and traffic light indication
- » Push-and-rotary switch for an intuitive menu navigation
- » Four configurable touch buttons
- » High-quality 3,5” TFT display
- » RS485 Modbus interface

Modbus



novos 7



original size



NOVOS 5 x / 3 x

» GENERAL INFORMATION

Room units with a neat design and haptics. Main functionalities required in the efficient building automation are available by means of temperature setpoint adjustment, rotary switch for fan stage adjustment and presence button with an integrated RGB LED for status indication.

The optional RGB display offers a better visualization of measured values and indicate the status in case values have exceeded a defined threshold. All devices are available either with a passive output, 0..10 V signals, 4..20 mA live-zero signals or a Modbus interface.

Further, all NOVOS products can be customized by means of a design cover (aluminium or black) and complement the numerous possibilities with NOVOS 5 x and NOVOS 3 x.

» ADVANTAGES AND HIGHLIGHTS

» Integrated temperature sensor

» Outputs:
Passive, 0..10 V, 4..20 mA or RS485 Modbus

» **NOVOS 5 x:**
Setpoint adjuster, rotary switch and integrated LED-button, optionally equipped with an RGB display

» **NOVOS 3 x:**
Setpoint adjuster and integrated LED button

» Optionally available with design cover (aluminium or black)

passive | 0..10 V | 4..20 mA

Modbus



novos
5 x / 3 x





NOVOS 5 / 3

» GENERAL INFORMATION

NOVOS 5 and NOVOS 3 complement the new room unit series for a reliable and precise measurement of all values required for an efficient room automation. Sensors available for the NOVOS family comprise temperature, relative humdity, CO2 and VOC.

By means of the optional RGB display, the NOVOS 5 can provide an immediate indication in case thresholds have been exceeded as well as displaying status messages. The NOVOS 3 is able to indicate threshold exceedance by changing colours (red, yellow, green) in the LED button (RGB) for example for monitoring CO2 or VOC levels.

Based on individual preferences, the NOVOS family can be customized with different design films and specified with common signals such as RTDs, 0..10 V or 4..20 mA signals as well as an RS485 Modbus interface.

» ADVANTAGES AND HIGHLIGHTS

» Different versions available for measuring temperature, relative humidity, CO2 and VOC

» Outputs:
Passive, 0..10 V, 4..20 mA or RS485 Modbus

» Freely configurable threshold values via Modbus or NOVOSapp

» **NOVOS 5:**
RGB display with traffic light indication for status feedback

» **NOVOS 3:**
Optionally available with traffic light indication via RGB LED for types with CO2 and VOC

» Optionally available with design film (aluminium or black)

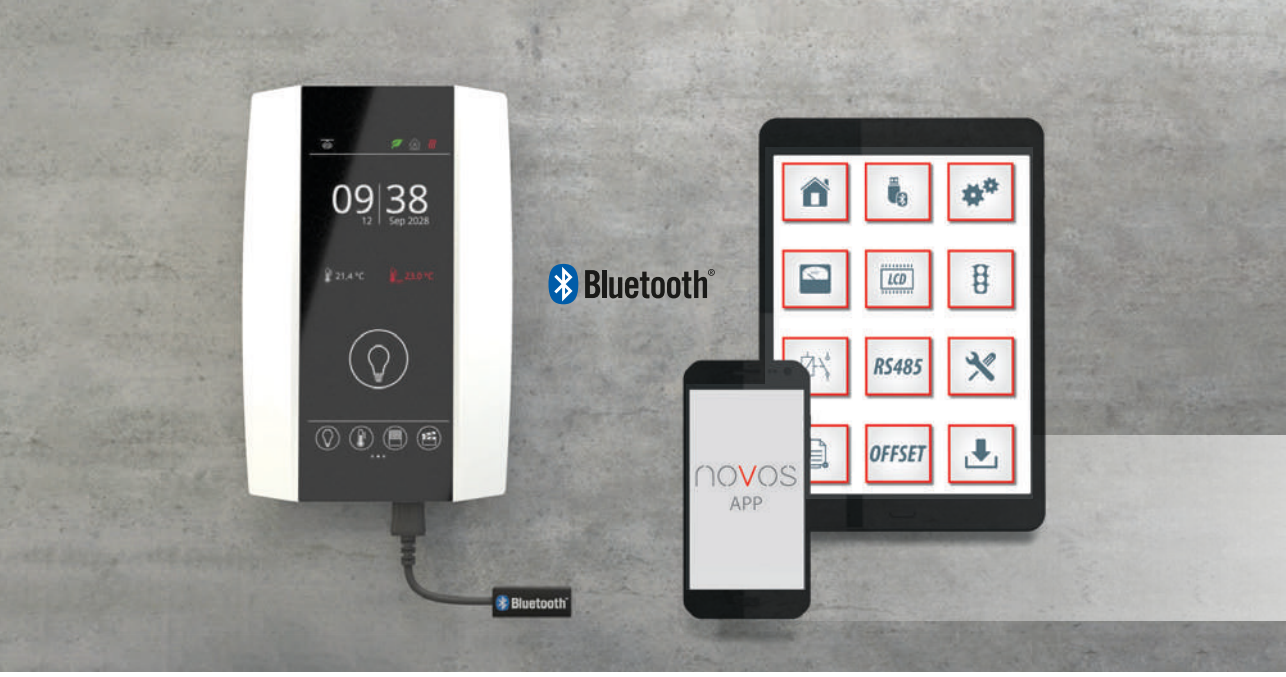
passive | 0..10 V | 4..20 mA

Modbus



novos 5 / 3





NOVOSapp

» GENERAL INFORMATION

Although every NOVOS will come with a standard configuration that matches the majority of typical applications in room automation, the devices can be further customized with an individual configuration to suit also complex applications by means of the new NOVOSapp, which also simplifies the integration.

Additionally, each device can be customized post-integration to further extend the functionality to suit new requirements – from changing measuring ranges to setting maintenance intervals, adjustment of offset values or adjusting thresholds for the traffic light indication.

The communication between the NOVOS devices and a mobile end device is enabled by a Bluetooth dongle, that is connected temporarily to the device.

» FUNCTIONS

» Individual configuration of output signals

» Adjustment of display features and values

» Parameterizing the traffic light indication for sensor values and thresholds

» Setting individual measuring ranges and maintenance intervals

» Parameterization of live-zero signals (e.g. 1..10 V etc.)

» Subsequent setting of offset values to compensate external temperature influencing factors

» Communication via Bluetooth® Low-Energy module (pluggable, compatible with USE devices as well)

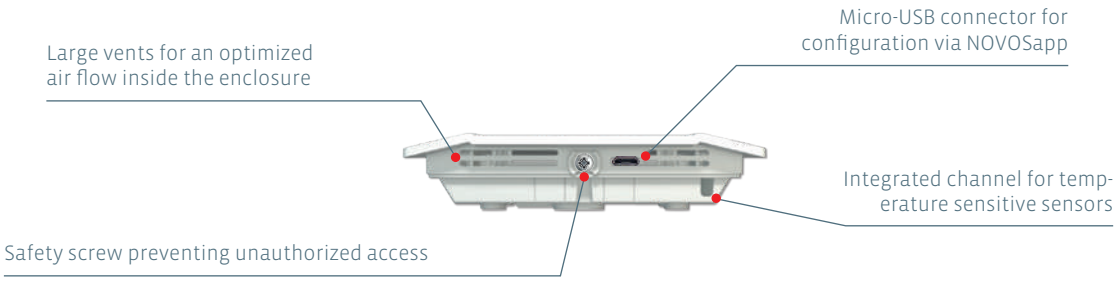
» Modbus address offset
(extendable up to 247 addresses)

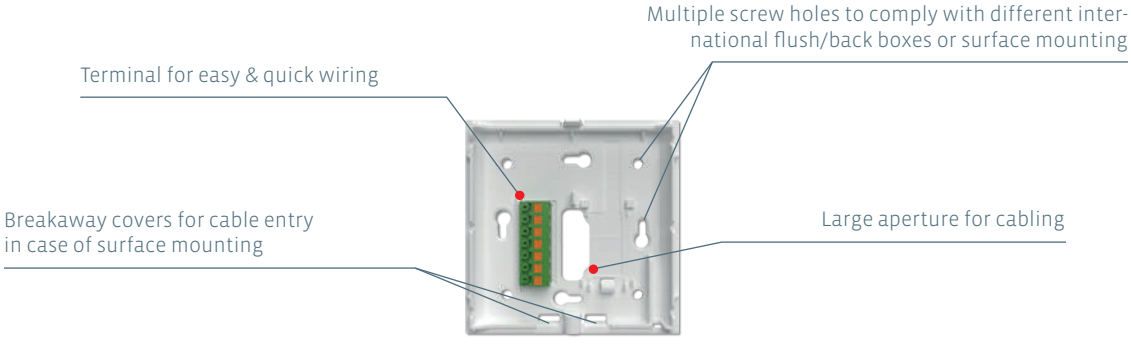


novos

THE NEW ROOM SERIES BY THERMOKON®

NOVOS – TECHNICAL HIGHLIGHTS







Realization of flexible and individual building automation for new buildings and retrofit projects

EasySens® – THE SELF-POWERED INTELLIGENT WIRELESS SYSTEM

The use of innovative technology makes it possible: The wireless EnOcean based system EasySens® enables a networked building automation – self-powered, intelligent and maintenance-free. Thus, EasySens® offers best possible flexibility for realizing individual requirements in new buildings and refurbishments.

THE BENEFITS

- Cost saving thanks to Energy Harvesting
- Flexibility with sensor location – quick and easy mounting and commissioning
- Easy, wireless integration in existing buildings as well as retrofit adaptions to changed room layouts
- Reduction of fire load
- Direct mounting to representative measuring points
- Compatibility and interoperability with different manufacturers by using international standards (IEC 14543-3-10)

SELF-POWERED

Thanks to EasySens® wired power supplies and the change of batteries are things of the past. The Energy Harvesting technology enables a self-powered operation of products.

- Energy is extracted by using integrated solar cells and kinetic energy of the sensor environment.

INTELLIGENT

Using the approved international frequencies, EasySens® based transmitters and receivers communicate autonomously in the building automation.

- Status synchronization and triggering of different control commands based on defined parameters
- Bidirectional communication of self-powered devices by means of SmartACKNOWLEDGE

WIRELESS

Thanks to EasySens® variable room layouts, reconstructions during running hotel operation or renovations in heritage-protected buildings are pretty simple.

- No time-consuming works – no wiring
- Low costs of material enabling cost-effective system solutions



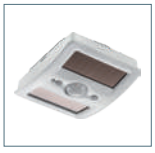
EasySens®

The Self-Powered, Intelligent Wireless System

SYSTEM OVERVIEW







TRANSMITTERS

RECEIVERS (TRANSCEIVER)







TOOLBOX

airConfig

airScan

INTEROPERABLE SYSTEM INTEGRATION

BACnet

digitalSTROM

ETHERNET

KNX

LON
LOCAL OPERATING NETWORK

Modbus

Parameterization without direct interaction of the corresponding EasySens® device (Remote Commissioning)



airConfig – COMMISSIONING MADE EASY!

The use of EnOcean RF telegrams and the airScan USB transceiver make it possible: airConfig enables comfortable parameterization of your EasySens® devices by means of special remote commissioning commands.

No more direct interaction and tiresome accessing of devices in buildings. Benefit by a significant time-saving. Thus, the communication of your devices is guaranteed.

» COMFORT INCLUSIVE: INSTALLATION + CONFIGURATION

- Individual designation of sensors
- Configuration of measured values (EEP) and sensor parameters
- Learning-in of sensors by means of Drag & Drop via RF (Remote Management)
- Saving of time (configuration via Copy&Paste)
- Remote access to product and project information

» THE BENEFITS

- Simple seamlessly learning-in, configuration and deletion of devices via RF technology
- Adjustment of configuration parameters – e.g. waking-up cycles or measuring ranges – in the device settings
- Saving of configuration parameters
- Transparent and central availability system information
- Uncomplicated handling of maintenance and support works

» FLEXIBILITY AND SAFETY

- Structured product presentation thanks to device ID
- Change of product configurations even at inaccessible mounting places
- Change of specifications and parameterization on-site or via remote access
- Password protected configuration of actuators
- Identification via visual and acoustic feedback




19.5
POWDER
STOR.
PROVIDE 4 FEET LONG
1.5" THICK SQUASH BLOCK
TYP.
+355.20
2-2x10
3-2x10
CONT.

» *Field strength measuring instrument for easy planning and realization of EasySens® projects*



airScan – MEASURING AND MONITORING

You would like to plan and realize EasySens projects simply? Then airScan, the field strength measuring instrument of Thermokon, is the right tool for you: The traffic light indication (RSSI) displays the signal strengths received and shows reliably the optimal mounting place for transmitters and receivers.

Even in daily use the work with airScan cannot be easier. On the well-structured surface all telegrams received are clearly listed and allocated to the corresponding product.

» THE BENEFITS

- Find the best location for your device
- Monitoring function for easy evaluation of RF telegrams
- Logging, repeater function and possibility of remote maintenance
- Data export for further process/analysis in CSV-, XML- or XLS data formats
- Generation and transmission of EnOcean telegrams
- Status detection of product ID, field strength and manufacturers of integrated products
- Full support of EEP2.6.3. standards

» GENERATION OF TELEGRAMS – EASY, FLEXIBLE, UNCOMPLICATED

- Taking-over of desired EnOcean profile from a pre-defined EEP selection
- Definition of telegram content via input fields
- Easy and fast generation and transmission of telegrams

» CLEAR VISUAL STRUCTURE

- Translation of various available measuring values
- Reliable information on signal quality or RSSI value of telegrams by colour indicator (traffic light system) or graphs

» PROFESSIONAL MULTI-PURPOSE EVALUATION

- Detailed evaluation of telegrams (data bytes, RSSI value, sub-telegrams etc.)
- Decoding of measuring values
- Background saving of received telegrams
- Possibility of data export as well as automated forwarding to a FTP server or an e-mail account







SmartACKNOWLEDGE – BIDIRECTIONALITY IS SMART

By means of SmartACKNOWLEDGE EnOcean based self-powered devices can communicate bidirectionally. They are transmitting the measuring values detected to the building control technology in regularly intervals. In addition to the important status information, the display indicates a centrally controlled reset to default set points. There is no smarter way.

For example our bidirectional room operating units SR06 LCD: In regular intervals the device wakes-up from its sleeping mode and transmits its data and measuring values to a bidirectional receiver or a gateway within some miliseconds. Milliseconds later, SR06 LCD is waking-up again and sends a so-called reclaim telegram to signalize its readiness for receiving. Now, the gateway can transmit the ready data and information to the operating unit.

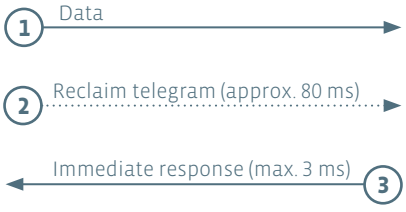
» THE BENEFITS

- » Comfort solution for the bidirectional communication of room operating units and building control technology
- » Comfort on-site control of room parameters by means of the keyboard
- » User guidance by means of clear display hints (e.g. information about opened windows)
- » Increase of energy efficiency enabled by the possibility to restore the defined basic set points
- » Self-powered operation via solar cell

Please note:

- » The use of repeaters is not feasible with SmartACKNOWLEDGE as the signal running time is delayed indefinitely.
- » Most of Thermokon gateways are capable of SmartACKNOWLEDGE. Latest information can be obtained by your personal contact.









ENERGY HARVESTING – RESOURCE FRIENDLY AND MOST FLEXIBLE

Thanks to Energy Harvesting your sensors are not powered by socket outlet but is gained directly from the sensors themselves, either by an integrated solar cell or by the use of movement as a natural energy source – e.g. upon actuation of operating elements.

Thus, your sensors are self-powered and can be freely placed in a room. No batteries are needed at all. The resources gained are used skillfully and economically so that a long lifetime of the sensors is guaranteed.

At present, the products of the following fields are available as battery- and wireless sensors:

- Temperatur sensors
- Humidity sensors
- Light and motion sensors
- Window contacts and handles
- Switches for light and blind

EnOcean ALLIANCE

Almost 40% of the total energy requirements is needed by houses and buildings. This fact can be changed by means of the EnOcean based technology.

More than 300 worldwide leading companies of the building control technology formed the EnOcean Alliance in 2008 with the target to establish the battery- and wireless technology for flexible and maintenance-free sensor solutions in residential, commercial and industrial properties to get sustainable buildings. New standards shall be set by the creation of interoperable system solutions.

enocean alliance Member

As a founder member we support the further development of a wide range of fully compatible and wireless products enabling the monitoring and control of home and building technology so to ensure the future of this innovative sensor technology.

Worldwide, EnOcean is the first and major ISO/IEC RF standard which optimizes solutions with a significant low energy consumption and energy harvesting.



THE **USE** FAMILY FOR EASY AND FAST MOUNTING

» THE ENCLOSURE FOR MOUNTING EFFICIENCY

The innovative enclosures of the **USE** family are setting new standards: Mounting of sensors is easier, faster and more comfortable than ever before. **USE** makes the decisive difference.

UNIVERSALLY MOUNTABLE

SAVING TIME

EASY TO INSTALL

» UNIVERSAL MOUNTING

USE – an intelligent and flexible mounting solution - no matter if for temperature, humidity, air quality or pressure sensors: the **USE** devices enable various mounting methods: with clip, base, flange or even on a DIN rail.

For best possible application flexibility the enclosures of the **USE** family have various modular inserts and cable glands as well as corresponding changeable sealing inserts.

» become a USER | The Thermokon® USE Family



UNIVERSALLY MOUNTABLE

» Intelligent and flexible mounting solutions for temperature, humidity, air quality, pressure sensors and others

» Various modular inserts and cable glands (M16, M20, M25) as well as different changeable sealing inserts for different cable cross-sections





SAVING OF TIME

(up to 50% less installation time)*

» No tools needed for opening, closing or wiring

» High mounting flexibility

» Removable cable glands

EASY TO INSTALL

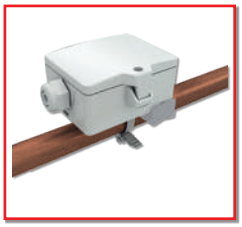
» Hinged-over (captive) with quick release fastener

» Fast connection thanks to removable terminal clamps

» Pre-assembly possible

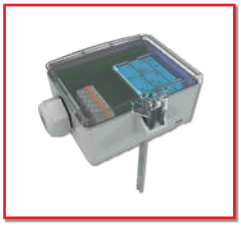


*compared to the pre-assembly of previous enclosure types











THE 8 BENEFITS OF THE **USE** FAMILY

» (1) HIGH-RESOLUTION COLOURED DISPLAY

- » Easy to read Matrix-LCD
- » Displaying up to 4 Sensor Values simultaneously, individual selection
- » Status indicaton (maintenance, failure etc.)
- » Status-dependent RGB background illumination (red, green, blue, white)
- » Dimmable luminosity
- » Horizontal or vertical display possible
- » Configurable via "**USE**app"



» (2) APPLICATION-SPECIFIC, EXCHANGEABLE INSERTS AND CABLE GLANDS

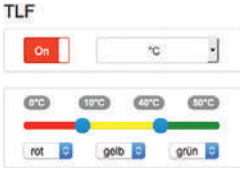
- » Cable glands Flextherm M16 (Ø=3..7 mm), M20, M25
- » Differential pressure entries: 2-fold, 4-fold (for 2 measurements)
- » Blind cover for EasySens® wireless applications
- » Multiple sealing inserts for different cables and cable diameters







» (3) VISUALIZATION OF DEVICE STATUS AND MEASURED VALUES USING TRAFFIC LIGHT FUNCTION (TLF)

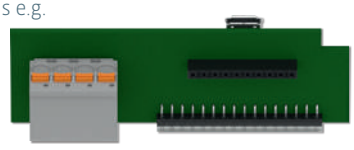


» Predefined measuring ranges and devices status are indicated using different background illumination
» Individual configuration possible using the "**USE**app" (only in case standard configuration is not suitable)

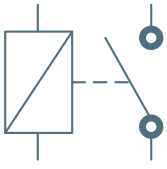
» (4) MODULAR PLATFORM CONSISTING OF BASE AND OPTION PCBs

By means of the base PCB, the **USE** family offers multiple option PCBs to extend functionality of every device in order to customize to specific applications e.g.

- Display/traffic light function (TLF)
- 4..20 mA (with/without display)
- BUS systems (with/without display)
- Relay (with/without display)



» (5) THRESHOLD SWITCHES



» Two relays (5A) to switch in case of exceeding/falling below predefined threshold values
» Protection mechanism to remain below set limit values
» Individual configuration possible using the "**USE**app"



ALWAYS THE BEST SOLUTION

» (6) LIVE ZERO SIGNAL (0..5 V, 1..5 V, 0..10 V, 1..10 V, 2..10 V)

- » Increase in system reliability by means of quick detection of failures and drop-outs.(e.g. defective cables)
- » The value „zero“ (0 V) will not be read as a normed signal (e.g. 1..10 V for 0..50 °C)
- » Configuration via "**USE**app" possible

» (7) BUS COMPATIBILITY

- » All products in **USE** M and **USE** L enclosures are compatible with **Modbus**, **BACnet** and **LON (NEW)**
- » Strainless BUS-settings via Dip-switches possible
- » Modbus-Address extension using "**USE** app"
- » Indication of Modbus-Address in the LCD
- » Separated cable glands for BUS communication

Modbus

BACnet

LON
LOCAL OPERATING NETWORK

NEW

» (8) OUTPUT SIGNALS 0..10 V AND 4..20 mA

- » Adaptation of output signals to DDC inputs
- » All products in the **USE** M and **USE** L enclosure offer default 0..10 V outputs
- » All types V and VV are also available with 4..20 mA outputs (A / AA)



Bluetooth®

THERMOKON® **USE**app – FOR INDIVIDUAL CONFIGURATION

» HIGHLIGHTS AND FEATURES

- » Communication via Bluetooth® Low-Energy-Module (BLE)
- » For use on mobile terminals (Android and iOS)
- » Individual configuration of output signals
- » Setting of different measuring ranges

- » Additional adjustment of offset values
- » Parameterization of Live-Zero-Signal (1...10 V etc.)
- » Setting options for display indications
- » Customized parameterization of traffic-light function (TLF)

- » Setting of relay performance and thresholds
- » Modbus address offset (extension)
- » Possibility of firmware updates on-the-go (OTG)
- » Adjustment of maintenance intervals

All "**USE**app" based products are supplied with a fully functional standard configuration for direct mounting/installation. Via the "**USE**app" it is feasible to extend the range of use and to adapt the configuration individually to application requirements.

Thermokon® USEapp

Download on the App Store

GET IT ON Google Play

Multi-function with appealing design
JOY SR Fancoil – JOY SR HC – JOY Fancoil – JOY HC



	GENERAL				
Type	Buttons temperature	Buttons fan control	RS485 Modbus	EasySens®	Configuration via
Joy Fancoil 5DO	■	■			SD Card
Joy Fancoil 5DO RS485 Modbus	■	■	■		SD Card, BUS
Joy Fancoil EC AO2DO	■	■			SD Card
Joy Fancoil EC AO2DO RS485 Modbus	■	■	■		SD Card, BUS
Joy HC AO2DO	■				SD Card
Joy HC AO2DO RS485 Modbus	■		■		SD Card, BUS
Joy SR HC AO2DO RS485 Modbus	■		■	■	SD Card, BUS
Joy Fancoil EC 3AO	■	■			SD Card
Joy Fancoil EC 3AO RS485 Modbus	■	■	■		SD Card, BUS
Joy SR Fancoil EC 3AO RS485 Modbus	■	■	■	■	SD Card, BUS
Joy HC 3AO	■				SD Card
Joy HC 3AO RS485 Modbus	■		■		SD Card, BUS
Joy SR HC 3AO RS485 Modbus	■		■	■	SD Card, BUS





	INPUTS	OUTPUTS				
Power supply	Universal (configurable)	3x digital (fan)	2x digital (heating/cooling)	1x analogue (EC fan)	1x analogue (6-way valve)	2x analogue (heating/cooling)
230 V	3x	■	■			
230 V	2x	■	■			
230 V	3x		■	■		
230 V	2x		■	■		
230 V	3x		■		■	
230 V	2x		■		■	
230 V	2x		■		■	
24 V	3x			■	■*	■
24 V	2x			■	■*	■
24 V	2x			■	■*	■
24 V	3x				■	■
24 V	2x				■	■
24 V	2x				■	■

* Instead of 2x analogue (heating/cooling)





KaDeWe
Berlin, Germany



European Central Bank, New Building
Frankfurt, Germany



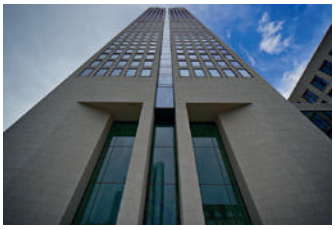
European Patent Office
Munich, Germany



Scandic
Berlin, Germany



Fairmont Hotel Vier Jahreszeiten
Hamburg, Germany



Opera Tower
Frankfurt, Germany



Waldorf Astoria
Berlin, Germany



Semperoper
Dresden, Germany



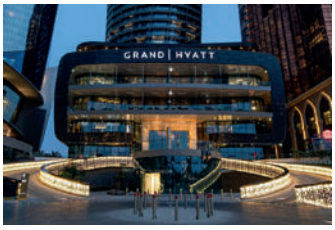
Liebfrauenkirche (Cultural Heritage)
Trier, Germany



Generali Insurance, Headquarter
Triest, Italy



Star Arctic Hotel
Saariselkä, Finland



Grand Hyatt
Dubai, UAE





Fondation Louis Vuitton
Paris, France



University of Oslo
Oslo, Norway



Tomson Riviera Apartment Towers
Shanghai, China



4 Towers Business Area
Madrid, Spain



Flughafen Roissy Charles de Gaulle
Paris, France



The National Gallery of Art
Washington D.C., USA



State Opera
Vienna, Austria



Ascot Racecourse
Ascot, England



Prime Tower
Zurich, Switzerland



University of Canterbury
Christchurch, New Zealand



Changi City Point Shopping Mall
Singapore



First Rand Bank,
Mumbai, India



5-YEAR WARRANTY

» LASTING RELIABILITY

Due to high quality and durability of our products we offer a 5-year warranty from date of production for all products produced as of 01.01.2014.



You are interested in details? Please visit:
www.thermokon.de/en/product-highlights/5-years-warranty/

SI-PROTECTION

» FOR NON-CORRODING SENSORS



If the ambient temperature fluctuates around dew-point, condensatation might appear. For your sensors condensate can have unpleasant consequences: Humidity penetrates into the soldering point of the sensor, the sensor oxidizes and begins to corrode. Thus, the measuring result becomes unreliable.

SI-Protection offers you a safe protection against corrosion damages, vibrations and measuring inaccuracies. The contact points of the sensors are first coated with epoxy resin and with a casting compound afterwards.

Due to the permanent connection with the insulation material of the wire a closed unit is established protecting the sensor reliably against vibration and humidity. This effect is additionally supported by the rolled pocket.

PROTECTION AGAINST VIBRATION AND HUMIDITY
SI-Protection

EasySens® Transmitter

Innovative self-powered wireless technology generates energy by means of harvesting ambient light or motion. Interoperable, cost-effective and energy-efficient solutions in building automation are available using our wireless sensor system EasySens®.





Sample applications 42

Room operating units

thanos SR	Touch room operating unit	50
JOY SR Fancoil	Fancoil controller	54
JOY SR HC	Room controller (heating/cooling)	56
SR06 LCD	Surface mount room operating unit	58
SR07 x	Surface mount room operating unit	63
SR04 x	Surface mount room operating unit	66

Temperature

SR07	Surface mount temperature sensor	70
SR04	Surface mount temperature sensor	72
SR04 IR	Surface mount temperature sensor	73
LC-SR04	Surface mount temperature sensor	74
SR65	Outdoor temperature sensor	75
SR65 AKF	Duct temperature sensor	76
SR65 TF	Cable temperature sensor	78
SR65 VFG	Contact temperature sensor	80

Humidity

SR07 rH	Room sensor temp. + humidity	81
SR04 rH	Room sensor temp. + humidity	83
LC-SR04 rH	Room sensor temp. + humidity	84
SR65 rH	Outdoor sensor temp. + humidity	85

Air quality

SR04 CO2	Surface mount air quality sensor	86

Light & Motion

SR-MDS	Ceiling multi sensor	88
SR-MDS Solar	Solar ceiling multi sensor	89
SR-MOC Solar	Solar ceiling motion sensor	90
SR-MOW Solar	Wall motion sensor	91
SR65 Li	Outdoor light sensor	92

Input modules

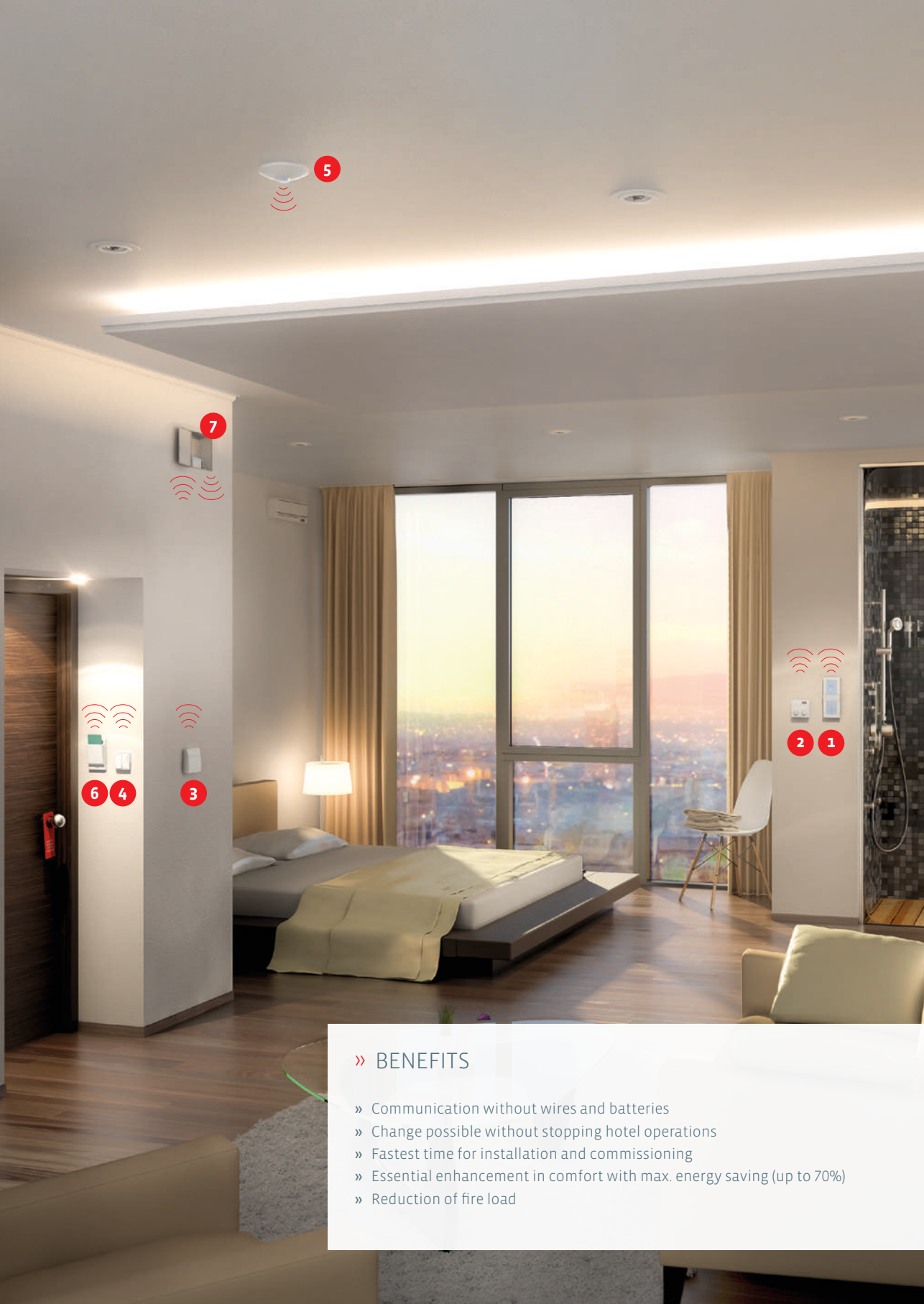
SR-MI	Smart meter evaluations S0	93
SR65-3AI	Wireless module 3 inputs 0..10 V	94
SR65 DI	Binary wireless module	95

Window-/door contacts

SRG02	Batteryless window handle	96
SRW02	Batteryless window contact	97

Switches

Mini	Radio switch without battery	98
55x55	Radio switch without battery	100
BJ 63x63	Radio switch without battery	102
Jung LS990	Radio switch without battery	104
Hand-held	Hand-held switch	106
SR-KCS02	Wireless key card room control	107



» BENEFITS

- » Communication without wires and batteries
- » Change possible without stopping hotel operations
- » Fastest time for installation and commissioning
- » Essential enhancement in comfort with max. energy saving (up to 70%)
- » Reduction of fire load

1



thanos L

High-end touch screen room operating unit, types available for wireless or BUS systems or wireless+BUS system

2



SR04

Surface-mounted wireless room sensor for temperature & rel. humidity
Available with various control elements and features

3



SR04 CO2

Room sensor CO2/temperature/ rel. humidity
Available with display and traffic light function

4



Mini

Wireless switch 2-/4-channel lighting/blinds
Available in various colours

5



SR-MDS

Ceiling multi sensor for light and motion detection for room/space applications

6



SR-KCS02

Wireless switch for key card activation to regulate lighting and air-conditioning e.g. in hotel rooms

7



BACnet
KNX
LON
LOCAL OPERATING NETWORK
Modbus

STC65-BUS

Gateway for evaluation of EasySens transmitters/switches and connection to the defined BUS system

PLACE TO FEEL COMFORTABLE – YOUR HOTEL

**All EasySens® devices wirelessly communicate via EnOcean radio. Temperature, set point, air quality, occupancy and switching signals are received and transmitted to superior communication protocols such as KNX, BACnet, LON or RS485 Modbus.
This system ensures the possibility to reset all used automation elements to standard values.**



» BENEFITS

- » Communication without wires and batteries
- » Change possible without stopping building operations
- » Fastest time for installation and commissioning
- » Essential enhancement in comfort with max. energy saving (up to 70%)



SR06 LCD 2T/4T
Self powered room operation unit, for setpoint and fan stage adjustment, switch 55x55 mm of various manufacturers possible



Mini
Wireless switch 2-/4-channel lighting/blinds, available in various colours



SRG02
Wireless window handle for status monitoring, available in various colours



SRW02
Wireless window contact for status monitoring of windows and doors



SR-MDS Solar
Ceiling multi sensor detecting light and motion in space/office applications

BACnet
KNX
LON
LOCAL OPERATING NETWORK
Modbus

COMFORT AT WORK

All EasySens® devices wirelessly communicate via EnOcean radio. Temperature, set point, air quality, occupancy and switching signals are received and transmitted to superior communication protocols such as KNX, BACnet, LON or RS485 Modbus. This system ensures the possibility to reset all used automation elements to standard values.

thanos SR

DATA SHEETS

The wireless touch room operating unit is used for temperature and humidity measurement (optional) as well as for integrated operation of HVAC, lighting, blinds and other switching options in individual room control. Due to the bidirectional communication and the permanent power supply the thanos can communicate directly with EasySens® actuators SAB+/SAB05 and build up a control management. Additionally thanos has a clock with a shift schedule for setting comfort times. Due to the high-quality optics, the device is particularly suitable for design-oriented facilities. The operating functions can be flexibly used depending on the room requirement.



thanos SR S white



thanos SR S black



thanos SR L white



thanos SR L black



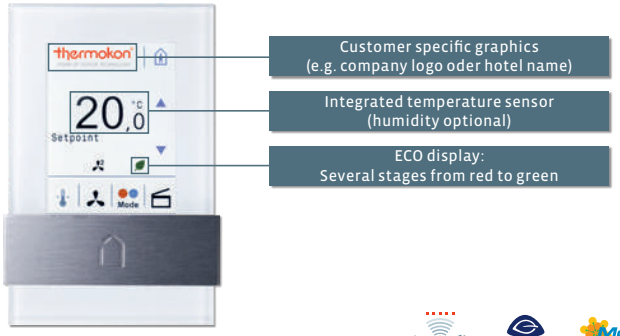
thanos SR LQ white



thanos SR LQ black

for thanos without radio please refer to 'Room Operating Units'

Highlights *(type standard / type RS485 Modbus)*



airConfig enocean Modbus LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature, humidity, depending on the device
Network technology	LON FT (free topology), RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	airConfig ready, all types without BUS
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV, 240 V: 100..240 V ~
Power consumption	typ. 2,0 W (24 V =) | 4,0 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±3% between 20..80% rH (typ. at 21 °C)
Inputs	RS485 Modbus:, digital, 4x, individual configuration for window contact, dew point guard, key card switch, room frequency, alarm, event
Control functions	occupancy signalling light ON/OFF/DIM setup scenarios blinds UP/DOWN/SET fan stages setpoint
Clip	anodized aluminium
No. of buttons	type L/LQ min. 8 capacitive touch sensor buttons
Labelling	type L/LQ flexible insert (for up to 8 touch buttons below/beside clip)
Display	TFT 3,5", 320x240 px, capacitive touch technology showing room temperature, setpoint, operation mode, fan stage, occupancy, alarm, date and time, ... ECO note (several steps, red to green; not available for LON) graphic and photo: Instead of date and time individual colour graphics (175x50 or 240x320 pixel) can be shown (e.g. company logo or hotel name; not available for LON)
Colour	white or black
Enclosure	PC and glass
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Delivery contents	software for configuration (freeware via download)
Notes	you'll find the software description at www.thermokon.com to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Item description: product | model | colour | BUS

thanos SR

Radio touch screen room operating unit temperature – 15..24 V	ES1
Item description	Item No.
thanos SR L black	471596
thanos SR L white	471589
thanos SR LQ black	471619
thanos SR LQ white	471602
thanos SR S black	471633
thanos SR S white	471626

Radio touch screen room operating unit temperature – 100..240 V	ES1
Item description	Item No.
thanos SR L black MVolt	493024
thanos SR L white MVolt	493017
thanos SR LQ black MVolt	493048
thanos SR LQ white MVolt	493031
thanos SR S black MVolt	493062
thanos SR S white MVolt	493055

LON
LOCAL OPERATING NETWORK

Radio touch screen room operating unit temperature – LON	ES1
Item description	Item No.
thanos SR L black LON	471879
thanos SR L white LON	471862
thanos SR LQ black LON	471893
thanos SR LQ white LON	471886
thanos SR S black LON	471923
thanos SR S white LON	471916

Modbus

Radio touch screen room operating unit temperature – RS485 Modbus	ES1
Item description	Item No.
thanos SR L black RS485 Modbus	472425
thanos SR L white RS485 Modbus	472418
thanos SR LQ black RS485 Modbus	472449
thanos SR LQ white RS485 Modbus	472432
thanos SR S black RS485 Modbus	472463
thanos SR S white RS485 Modbus	472456

Item description: product | humidity (rH) | model | colour | BUS

thanos SR

Radio touch screen room operating unit temperature + humidity – 15..24 V		ES1
Item description	Item No.	
thanos SR rH L black	471664	
thanos SR rH L white	471640	
thanos SR rH LQ black	471688	
thanos SR rH LQ white	471671	
thanos SR rH S black	471718	
thanos SR rH S white	471695	

Radio touch screen room operating unit temperature + humidity – 100..240 V		ES1
Item description	Item No.	
thanos SR rH L black MVolt	523103	
thanos SR rH L white MVolt	523110	
thanos SR rH LQ black MVolt	523127	
thanos SR rH LQ white MVolt	523134	
thanos SR rH S black MVolt	523141	
thanos SR rH S white MVolt	523158	

LON
LOCAL OPERATING NETWORK

Radio touch screen room operating unit temperature + humidity – LON		ES1
Item description	Item No.	
thanos SR rH L black LON	471985	
thanos SR rH L white LON	471978	
thanos SR rH LQ black LON	472012	
thanos SR rH LQ white LON	472005	
thanos SR rH S black LON	472043	
thanos SR rH S white LON	472036	

Modbus

Radio touch screen room operating unit temperature + humidity – RS485 Modbus		ES1
Item description	Item No.	
thanos SR rH L black RS485 Modbus	472487	
thanos SR rH L white RS485 Modbus	472470	
thanos SR rH LQ black RS485 Modbus	472500	
thanos SR rH LQ white RS485 Modbus	472494	
thanos SR rH S black RS485 Modbus	472524	
thanos SR rH S white RS485 Modbus	472517	

Accessories		AS1
Item description	Item No.	On stock
Software/Plug-In for configuration (free via www. thermokon.com)		
SD card (2 GB)	500098	⛁
airConfig (freeware via www.thermokon.com)		
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	⛁

JOY SR Fancoil

DATA SHEETS

The fancoil controller with radio receiver in high-quality design is used for individual temperature control and control of fancoil units in hotels, offices and living rooms. The device is designed for four- or two-pipe systems with changeover. Two configurable inputs can be used as sensor input, room occupancy or energy lock. In addition to wired continuous valve actuators (also 6-way valve) and a 0..10 V EC motor, sensors and actuators can also be controlled by radio. In addition, as an alternative to wired sensors, an external radio temperature sensor, radio motion detector, a radio temperature sensor for changeover function and radio window contacts/handles can be learnt in. The override by radio is possible by means of higher-level controller profile and cable-bound via Modbus. Radio and wired sensors and actuators are processed identically and can be used in any combination. This guarantees individual and energy-efficient room air conditioning. The device (front of acrylic glass in white or black) has a monochrome display and touch-sensitive control buttons. It has a timer with three time channels of four time periods each. Mounting is designed for a flush-mounted box. For hotel applications, the device offers the option of an additional zone (bathroom heating) in conjunction with room temperature sensor and radio actuator SAB+/SAB05.





Function overview on page 40

TECHNICAL DATA	
Measuring values	temperature
Output voltage	3x 0..10 V = (to control EC fan, heating & cooling or to control 6-way control valve)
Network technology	RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 2 VA
Measuring range temp.	0..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	1x input for floating contact, 1x input for NTC10k or floating contact
Control functions	setpoint 0..+50 °C
Functions	built-in PI controller, MSG-Server for 2nd zone
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, pure white, black, glass
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², inputs: terminal block, max. 1,0 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Radio fancoil controller temperature – active RS485 Modbus 24 V		ES1
Item description	Item No.	
JOY SR Fancoil EC 3AO RS485 Modbus pure white 24 V	701020	
JOY SR Fancoil EC 3AO RS485 Modbus black 24 V	701037	

Accessories		AS1
Item description	Item No.	On stock
Software/Plug-In for configuration (free via www. thermokon.com)		
SD card (2 GB)	500098	
Decorative frame pure white for JOY	681452	

JOY SR HC

DATA SHEETS

The 24 V supplied type 3AO has three 0..10 V outputs for controlling heating/cooling valves or a 6-way valve. The 230 V supplied type AO2DO controls the 230 V heating and cooling valve as a 2-point or thermal 230 V actuator via PWM. The analog output is also used to control a 6-way valve. Two configurable inputs can be used as sensor input, room occupancy or energy lock. In addition to wired valve drives and sensors, sensors and actuators can also be controlled by radio. In addition, as an alternative to wired sensors, an external radio temperature sensor, radio motion detector, a radio temperature sensor for changeover function and radio window contacts/handles can be learnt in. The override by radio is possible by means of higher-level controller profile and cable-bound via Modbus. Radio and wired sensors and actuators are processed identically and can be used in any combination. This guarantees individual and energy-efficient room air conditioning. The device (front of acrylic glass in white or black) has a monochrome display and touch-sensitive control buttons. It has a timer with three time channels of four time periods each. Mounting is designed for a flush-mounted box. For hotel applications, the device offers the option of an additional zone (bathroom heating) in conjunction with room temperature sensor and radio actuator SAB+/SAB05.





Function overview on page 40

TECHNICAL DATA	
Measuring values	temperature
Output voltage	types AO2DO: 0..10 V = (to control 6-way control valve), types 3AO: 3x 0..10 V = (to control 6-way control valve, heating & cooling)
Output switch contact	types AO2DO: 2x contact NO (1x heating, 1x cooling)
Network technology	RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	100..240 V ~, types 3AO: 15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 2 VA
Measuring range temp.	0..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	1x input for floating contact, 1x input for NTC10k or floating contact
Control functions	setpoint 0..+50 °C
Functions	integrated PI and two-/three-position controller, MSG-Server for 2nd zone
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, pure white, black, glass
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², inputs: terminal block, max. 1,0 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Radio room controller heating/cooling – active RS485 Modbus 100..240 V		ES1
Item description	Item No.	
JOY SR HC AO2DO RS485 Modbus pure white MVolt	703178	
JOY SR HC AO2DO RS485 Modbus black MVolt	703185	

Radio room controller heating/cooling – active RS485 Modbus 24 V		ES1
Item description	Item No.	
JOY SR HC 3AO RS485 Modbus pure white 24 V	700993	
JOY SR HC 3AO RS485 Modbus black 24 V	701006	

Accessories		AS1
Item description	Item No.	On stock
Software/Plug-In for configuration (free via www. thermokon.com)		
SD card (2 GB)	500098	
Decorative frame pure white for JOY	681452	

SR06 LCD

DATA SHEETS

Energy-harvesting design room operating unit for integrated measurement of temperature and relative humidity (rH version). Depending on version and type, temperature setpoint, fan levels, room occupancy, lighting or blinds can be adjusted or switched via the buttons on the device. The device sends its measured values to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit. Using the SmartACKNOWLEDGE Protocol, setpoint, fan level and room occupancy of the bidirectionally operating wireless room operating unit can be externally overwritten and shown in the integrated display. The room control unit is parameterised via radio using airConfig software or alternatively via the optionally available USB programming interface. By using this interface the energy storage can be additionally charged. The device, mounted via adhesive pads or screws, can be integrated into most 55x55 mm switch ranges. This allows to choose from many high quality designs.



SR06 LCD 4T pure white brilliant, switch range Gira E2 pure white



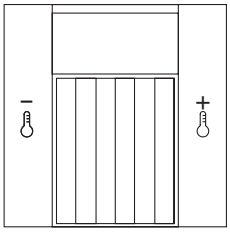
SR06 LCD 2T+Light aluminium, switch range Gira E2 aluminium



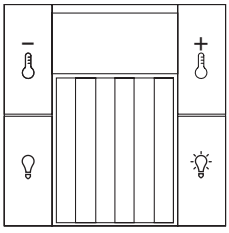
SR06 LCD 2T+Blind anthracite, switch range Gira E2 anthracite

LABELLING TYPES

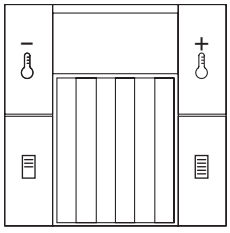
Standard labelling for model 2T



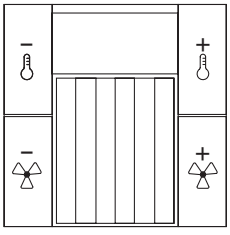
Standard labelling for model 2T+Light



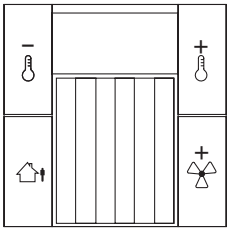
Standard labelling for model 2T+Blind



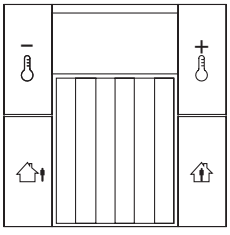
Labelling type 1 (ltype1) for model 4T



Labelling type 2 (ltype2) for model 4T



Labelling type 3 (ltype3) for model 4T



airConfig SmartACK enocean

TECHNICAL DATA	
Measuring values	temperature, humidity, depending on the device
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	bidirectional SmartACK (SmartACKNOWLEDGE) airConfig ready
Power supply	solar cell LiPo-battery, maintenance-free optional: backup battery CR1632
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 240 sec. (default) heartbeat cycle = every 10th wakeup optionally configurable via airConfig or SR06ConfigSW
Switch range Berker	S.1, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue *
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Plan, M-Pure
Control functions	occupancy signalling fan stages setpoint
No. of buttons	2T: 2 buttons, 4T: 4 buttons
Display	LCD 29x12 mm, monochrome
Set point range	+15..+30 °C ±1..10 °C optionally configurable via airConfig or SR06ConfigSW
Enclosure	PC, pure white brilliant, aluminium, Jung aluminium (suitable for switch ranges Jung), anthracite
Protection	IP20 according to EN 60529
Ambient condition	0..+40 °C
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	* in switch program with intermediate frame integrated coin cell backup possibility for usage in dimly lit rooms for configuration an optional programming interface is available (refer to accessories) energy storage can be recharged with a separate USB-cable to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

NEW: WITH SIGNIFICANTLY IMPROVED ENERGY BALANCE

Item description: product | humidity (rH) | number of buttons | labelling type | switch range | colour

SR06 LCD Temp

Radio room operating unit temperature 2T	ES2
Item description	Item No.
SR06 LCD 2T pure white brilliant without frame	728843
SR06 LCD 2T aluminium without frame	728881
SR06 LCD 2T Jung aluminium without frame	728966
SR06 LCD 2T anthracite without frame	728928

Radio room operating unit temperature 2T+Light	ES2
Item description	Item No.
SR06 LCD 2T+Light pure white brilliant without frame	728850
SR06 LCD 2T+Light aluminium without frame	728898
SR06 LCD 2T+Light Jung aluminium without frame	729000
SR06 LCD 2T+Light anthracite without frame	728935

Radio room operating unit temperature 2T+Blind	ES2
Item description	Item No.
SR06 LCD 2T+Blind pure white brilliant without frame	731836
SR06 LCD 2T+Blind aluminium without frame	728904
SR06 LCD 2T+Blind Jung aluminium without frame	729017
SR06 LCD 2T+Blind anthracite without frame	728942

Radio room operating unit temperature 4T	ES2
Item description	Item No.
SR06 LCD 4T ltype1 pure white brilliant without frame	728874
SR06 LCD 4T ltype1 aluminium without frame	728911
SR06 LCD 4T ltype1 Jung aluminium without frame	729024
SR06 LCD 4T ltype1 anthracite without frame	728959

SR06 LCD Temp_rH

Radio room operating unit temperature + humidity 2T	ES2
Item description	Item No.
SR06 LCD rH 2T pure white brilliant without frame	729031
SR06 LCD rH 2T aluminium without frame	729062
SR06 LCD rH 2T Jung aluminium without frame	729109
SR06 LCD rH 2T anthracite without frame	729147

Radio room operating unit temperature + humidity 2T+Light	ES2
Item description	Item No.
SR06 LCD rH 2T+Light pure white brilliant without frame	693035
SR06 LCD rH 2T+Light aluminium without frame	729079
SR06 LCD rH 2T+Light Jung aluminium without frame	729116
SR06 LCD rH 2T+Light anthracite without frame	729154

Item description: product | number of buttons | labelling type | switch range | colour

SR06 LCD Temp_rH

Radio room operating unit temperature + humidity 2T+Blind		ES2
Item description	Item No.	
SR06 LCD rH 2T+Blind pure white brilliant without frame	729048	
SR06 LCD rH 2T+Blind aluminium without frame	729086	
SR06 LCD rH 2T+Blind Jung aluminium without frame	729123	
SR06 LCD rH 2T+Blind anthracite without frame	729161	

Radio room operating unit temperature + humidity 4T		ES2
Item description	Item No.	
SR06 LCD rH 4T ltype1 pure white brilliant without frame	729055	
SR06 LCD rH 4T ltype1 aluminium without frame	729093	
SR06 LCD rH 4T ltype1 Jung aluminium without frame	729130	
SR06 LCD rH 4T ltype1 anthracite without frame	729178	

Options
Item description
Labelling type 2 (ltype2)
Labelling type 3 (ltype3)

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Accessories		AS1
Item description	Item No.	On stock
Coin cell CR1632	597814	
Programming interface for configuration and charging (SR06 LCD)	597838	
airConfig (freeware via www.thermokon.com)		
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	

SR06 LCD

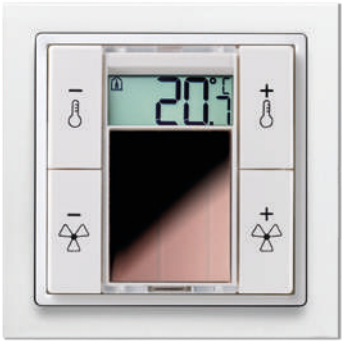
Example designs



SR06 LCD 4T Itype1 pure white brilliant,
switch range Gira Esprit glass mint



SR06 LCD 2T anthracite,
switch range Jung A Creation anthracite



SR06 LCD 4T Itype1 pure white brilliant,
switch range Busch-Jaeger future® linear studio white



SR06 LCD 4T Itype3 aluminium,
switch range Gira Event aluminium

SR07 x

DATA SHEETS

Energy-harvesting design room operating unit for integrated measurement of temperature and relative humidity (rH version) in living and office spaces. Also available with slide switch (for example "Day/Night") or occupancy button. The device sends its values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit. The device, which can be mounted using an adhesive pad or screws, can be integrated into a wide range of standard switch ranges. This allows to choose from many high quality designs.



SR07 P aluminium, switch range Gira E2



SR07 PT pure white brilliant, switch range Gira E2



SR07 PMS (day/night) anthracite, switch range Gira E2

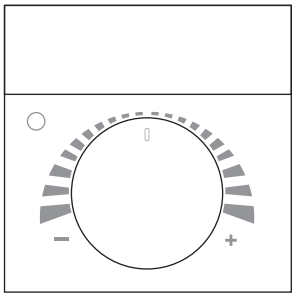
enocean

TECHNICAL DATA	
Measuring values	temperature, humidity, depending on the device
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery CR1632
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K or >1,6% rH, otherwise every 1000 sec.
Switch range Berker	S.1, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue *
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Plan, M-Pure
Set point (P)	potentiometer
Slide switch (MS)	I/0, day/night
Button (T)	for presence detection
Enclosure	PC, pure white brilliant, aluminium, Jung aluminium (suitable for switch ranges Jung), anthracite
Protection	IP20 according to EN 60529
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	* in switch program with intermediate frame integrated coin cell backup possibility for usage in dimly lit rooms

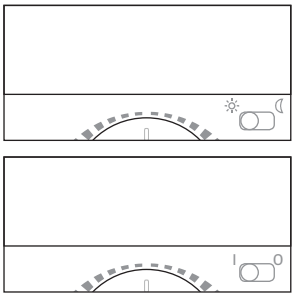
SR07 x

Labelling types

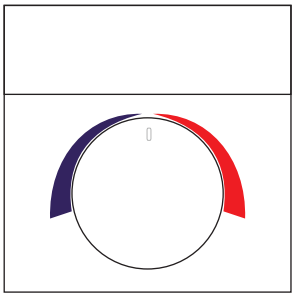
SR07 PT



SR07 PMS (day/night)
SR07 PMS (I / 0)



SR07 P
standard labelling colour
(refer to options – ltypeSC)



Item description: product | operating elements | switch range | colour

SR07 x Temp

Radio room operating unit temperature type P	ES2
Item description	Item No.
SR07 P pure white brilliant without frame	634113
SR07 P aluminium without frame	729246
SR07 P Jung aluminium without frame	729314
SR07 P anthracite without frame	729376

Radio room operating unit temperature type PT	ES2
Item description	Item No.
SR07 PT pure white brilliant without frame	729185
SR07 PT aluminium without frame	729260
SR07 PT Jung aluminium without frame	729321
SR07 PT anthracite without frame	729383

Radio room operating unit temperature type PMS (day/night)	ES2
Item description	Item No.
SR07 PMS (day/night) pure white brilliant without frame	729192
SR07 PMS (day/night) aluminium without frame	729277
SR07 PMS (day/night) Jung aluminium without frame	729338
SR07 PMS (day/night) anthracite without frame	729390

Item description: product | operating elements | humidity (rH) | switch range | colour

SR07 x Temp_rH

Radio room operating unit temperature + humidity type P		ES2
Item description	Item No.	
SR07 P rH pure white brilliant without frame	729208	
SR07 P rH aluminium without frame	729284	
SR07 P rH Jung aluminium without frame	729345	
SR07 P rH anthracite without frame	729406	

Radio room operating unit temperature + humidity type PT		ES2
Item description	Item No.	
SR07 PT rH pure white brilliant without frame	729215	
SR07 PT rH aluminium without frame	729291	
SR07 PT rH Jung aluminium without frame	729352	
SR07 PT rH anthracite without frame	729413	

Radio room operating unit temperature + humidity type PMS (day/night)		ES2
Item description	Item No.	
SR07 PMS rH (day/night) pure white brilliant without frame	729239	
SR07 PMS rH (day/night) aluminium without frame	729307	
SR07 PMS rH (day/night) Jung aluminium without frame	729369	
SR07 PMS rH (day/night) anthracite without frame	729420	

Options
Item description
Default labelling P colour red+blue (ltypeSC)
Default labelling MS I/0

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Accessories			AS1
Item description	Item No.	On stock	
Coin cell CR1632	597814		

SR04 x

DATA SHEETS

Energy-harvesting room operating unit for integrated measurement of temperature and relative humidity (rH version) in residential and office spaces. Also available with rotary switch for fan level adjustment, slide switch (for example, "Day/Night") or occupancy button. The device is mounted via adhesive pad or screws and sends its values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit.



SR04 P



SR04 PMS (day/night)



SR04 PST

enocean

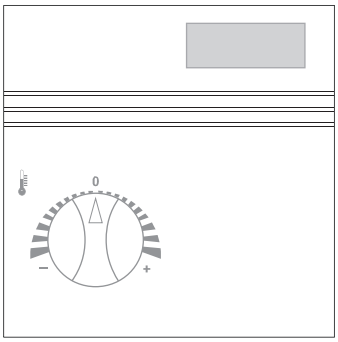
TECHNICAL DATA	
Measuring values	temperature, humidity, depending on the device
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas), 928 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K, otherwise every 1000 sec. adjustable via jumper
Set point (P)	potentiometer
Slide switch (MS)	I/0, day/night
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III), 2-stages (0,I), 3-stages (0,I,II), 4-stages (0,I,II,III)
Button (T)	for presence detection
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	integrated battery backup possibility for usage in dimly lit rooms

SR04 x

Types with standard labelling

special labelling refer to p. 472

SR04 P

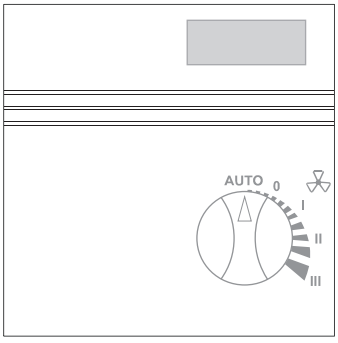


Legend:

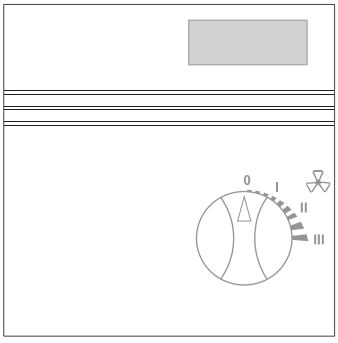
P = potentiometer
S = rotary switch
T = button
D = LED
FSx = number of fan stages

for sensor types refer to items,
SR04 without operating elements refer to p. 72

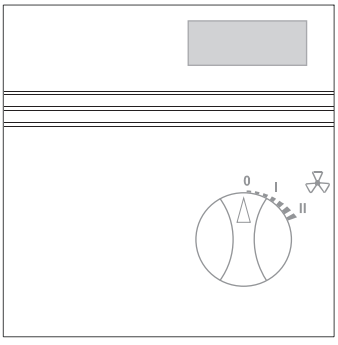
SR04 S with 5 fan stages
(FS5, standard)



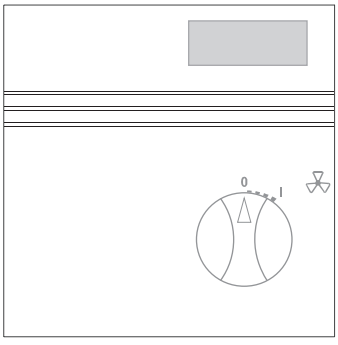
SR04 S with 4 fan stages
(FS4, refer to options)



SR04 S with 3 fan stages
(FS3, refer to options)

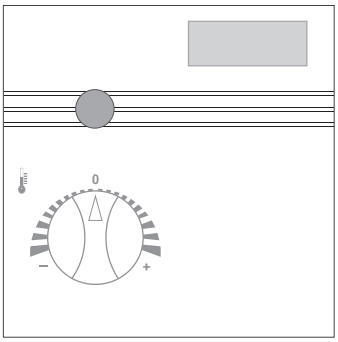


SR04 S with 2 fan stages
(FS2, refer to options)



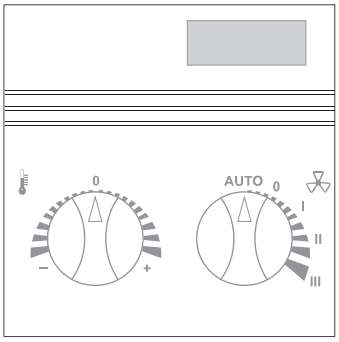
SR04 x

SR04 PT

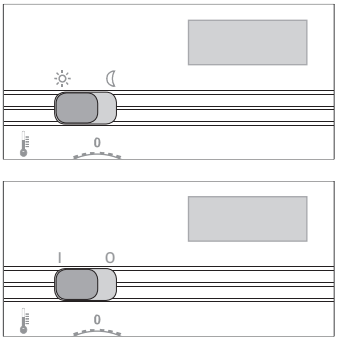


SR04 PS with 5 fan stages

FS5, also available with FS4, FS3 and FS2

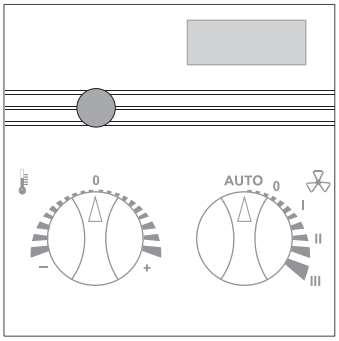


SR04 PMS (day/night) | SR04 PMS (I / O)



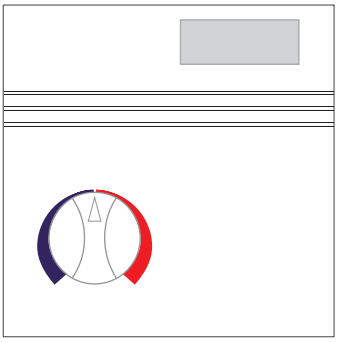
SR04 PST with 5 fan stages

FS5, also available with FS4, FS3 and FS2



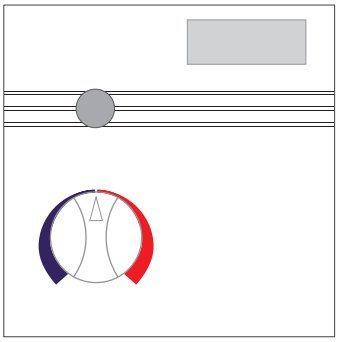
SR04 P standard labelling colour

(refer to options)



SR04 PT standard labelling colour

(refer to options)



Item description: product | operating elements | fan stages

SR04 x

Radio room operating unit temperature			ES2
Item description	Item No.	On stock	
SR04 P	226172	●	
SR04 S, FS5	693110		
SR04 T	229968		
SR04 PT	227353	●	
SR04 PS, FS5	250900		
SR04 PMS (day/night)	312219		
SR04 PMS (I/0)	267854		
SR04 PST, FS5	226851		

Item description: product | operating elements | humidity (rH)

Radio room operating unit temperature + humidity			ES2
Item description	Item No.	On stock	
SR04 P rH	252331	●	
SR04 PT rH	261593		
SR04 PMS rH (day/night)	361644		
SR04 PMS rH (I/0)	269469		

Options
Item description
Rotary switch S with 4 fan stages (FS4)
Rotary switch S with 3 fan stages (FS3)
Rotary switch S with 2 fan stages (FS2)
Default labelling P colour red+blue (ItypeSC)

Order example for different items:
SR04 | PST | FS4 | standard labelling colour red-blue

SR04 = product
PST = potentiometer, rotary switch, button
FS4 = rotary switch (S) with 4 fan stages
Labelling = standard labelling colour red-blue

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098	●	

SR07

DATA SHEETS

Energy-harvesting high quality designed radio room sensor for measuring temperature in living and office space. The device sends its measured values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit. It can be integrated into a wide range of popular switch ranges, allowing you to choose from many high-quality designs. To be mounted using an adhesive pad or screws.



SR07 pure white brilliant,
switch range Gira E2



SR07 aluminium,
switch range Gira E2



SR07 anthracite,
switch range Gira E2

enocean

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery CR1632
Measuring range temp.	0..+40 °C
Accuracy temperature	±0,4 K (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K otherwise every 1000 sec.
Switch range Berker	S.1, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue *
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Plan, M-Pure
Enclosure	PC, pure white brilliant, aluminium, Jung aluminium (suitable for switch ranges Jung), anthracite
Protection	IP20 according to EN 60529
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	* in switch program with intermediate frame integrated coin cell backup possibility for usage in dimly lit rooms for devices with operating elements please refer to product SR07 x

Item description: product | switch range | colour

SR07

Radio room sensor temperature		ES2
Item description	Item No.	
SR07 Temp pure white brilliant without frame	729437	
SR07 Temp aluminium without frame	729444	
SR07 Temp Jung aluminium without frame	729451	
SR07 Temp anthracite without frame	729468	

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Accessories			AS1
Item description	Item No.	On stock	
Coin cell CR1632	597814		

SR04

DATA SHEETS

Energy-harvesting radio room sensor for measuring temperature in living and office spaces. To be mounted via adhesive pad or screws the device sends its measured values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit.



enocean

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas), 928 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range temp.	0..+40 °C
Accuracy temperature	±0,4 K (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K, otherwise every 1000 sec. adjustable via jumper
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	integrated battery backup possibility for usage in dimly lit rooms for devices with operating elements please refer to product SR04 x

Radio room sensor temperature			ES2
Item description	Item No.	On stock	
SR04	228848		

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098		

SR04 IR

DATA SHEETS

Energy-harvesting radio room sensor with two sensors for balanced measurement of room temperature and effectively acting radiation component (for example of radiant ceiling panels and infrared heaters) in living and office spaces. To be mounted via adhesive pad or screws the device sends its measured values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit.



enocean

TECHNICAL DATA	
Measuring values	radiation temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range temp.	0..+40 °C
Accuracy temperature	±0,4 K (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K, otherwise every 1000 sec. adjustable via jumper
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	integrated battery backup possibility for usage in dimly lit rooms

Radio room sensor radiation temperature		ES2
Item description	Item No.	
SR04 IR	649346	

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098	●	

LC-SR04

DATA SHEETS

Energy-harvesting radio room sensor for measuring temperature in living and office spaces. To be mounted via adhesive pad or screws the device sends its measured values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit. Transmission interval and wake-up time are fixed, a battery can not be integrated.



enocean

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas), 928 MHz
Power supply	solar cell, internal super cap, maintenance-free
Measuring range temp.	0..+40 °C
Accuracy temperature	±0,5 K (typ. at range +17..+27 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K, otherwise every 1000 sec.
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	for device with operating elements, adjustable telegram intervals and battery backup please refer to product SR04|SR04 rH

Radio room sensor temperature		ES2
Item description	Item No.	
LC-SR04	566698	

SR65

DATA SHEETS

Energy-harvesting radio sensor for detecting temperature in the outdoor or industrial environment (for example in cold stores, production halls and warehouses). The airConfig software can be used to easily parameterize measuring range, transmission interval and wake-up time. When used in dark places, a battery can be retrofitted.



airConfig enocean

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	-20..+60 °C, optionally configurable via airConfig
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default), heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Pocket	stainless steel V4A, Ø=6 mm, L=40 mm
Ambient condition	-25..+65 °C, max. 85% rH short term condensation
Notes	integrated battery backup possibility for usage in dimly lit rooms to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Radio outdoor sensor temperature			ES2
Item description	Item No.	On stock	
SR65	230001		

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098		
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704		

SR65 AKF

DATA SHEETS

Self powered wireless EnOcean duct sensor to measure the temperature in gaseous media of heating, ventilation and air-conditioning systems. Configured via airConfig.



airConfig enocean

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas), 928 MHz
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	-40..+130 °C (A5-02-xx EEPs) optionally configurable via airConfig
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Pocket	stainless steel V4A, Ø=6 mm, L=100 mm mounting lengths available: 50 | 100 | 150 | 200 | 250 | 300 | 450 mm
Ambient condition	-25..+65 °C, max. 85% rH short term condensation
Notes	integrated battery backup possibility for usage in dimly lit rooms other probe lengths on request to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Item description: product | pocket (length.Ø)

SR65 AKF

Radio duct/immersion sensor temperature		ES2
Item description	Item No.	
SR65 AKF 100.06	630566	

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098	●	
Mounting flange MF6DS flexible (suitable for Ø=6 mm; AS2)	669016	●	
Mounting flange MF6 (brass)	3407	●	
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●	

Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm					AS2
Item description	Length	Pocket length	Item No.	On stock	
MS-thermowell pocket 100 mm type THMSDS100	100 mm	86 mm	611008	●	

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm					AS2
Item description	Length	Pocket length	Item No.	On stock	
VA-thermowell pocket 100 mm type THVADS100	100 mm	86 mm	611817	●	
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS (10 pcs)			666473	●	

SR65 TF

DATA SHEETS

Self-powered wireless EnOcean sensor to measure the temperature in gaseous media of heating, ventilation and air-conditioning systems. Configured via airConfig.



airConfig enocean

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	-20..+60 °C optionally configurable via airConfig
Operating temperature range	-40..+130 °C
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Pocket	stainless steel V4A, Ø=6 mm, L=50 mm mounting lengths available: 50 | 100 | 150 | 200 | 250 mm
Ambient condition	-25..+65 °C, max. 85% rH short term condensation
Notes	integrated battery backup possibility for usage in dimly lit rooms other probe lengths on request to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Item description: product | pocket (length.Ø) | cable length (L)

SR65 TF

Radio cable sensor temperature		ES2
Item description	Item No.	
SR65 TF 050.06 L1000	245647	

Options
Item description
Add per meter of connection cable -50..+180 °C

Order example for different items:
SR65 TF | 050.06 | L2000

SR65 TF = product
050.06 = pocket (length.Ø)
L2000 = cable length (mm)

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098		
Mounting flange MF6DS flexible (suitable for Ø=6 mm; AS2)	669016		
Mounting flange MF6 (brass)	3407		
KL6VA – Compression fittings G 1/4" for Ø=6 mm with cutting ring VA, stainless steel	103213		
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704		

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	36 mm	611152	
VA-thermowell pocket 100 mm type THVADS100	100 mm	86 mm	611817	
VA-thermowell pocket 150 mm type THVADS150	150 mm	136 mm	611824	
VA-thermowell pocket 200 mm type THVADS200	200 mm	186 mm	611848	
VA-thermowell pocket 250 mm type THVADS250	250 mm	236 mm	611862	

Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	36 mm	610995	
MS-thermowell pocket 100 mm type THMSDS100	100 mm	86 mm	611008	
MS-thermowell pocket 150 mm type THMSDS150	150 mm	136 mm	611015	
MS-thermowell pocket 200 mm type THMSDS200	200 mm	186 mm	611022	
MS-thermowell pocket 250 mm type THMSDS250	250 mm	236 mm	611985	

SR65 VFG

DATA SHEETS



Self-powered wireless EnOcean clamp on pipe temperature sensor. Configured via airConfig.

airConfig enocean

TECHNICAL DATA	
Measuring values	temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	+10..+90 °C optionally configurable via airConfig
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Pocket	brass, spring loaded sensor
Ambient condition	-25..+65 °C, max. 85% rH short term condensation
Notes	integrated battery backup possibility for usage in dimly lit rooms to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Radio contact sensors temperature		ES2
Item description	Item No.	
SR65 VFG	239615	

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098	●	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	●	
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	●	
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071	●	
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●	

SR07 rH

DATA SHEETS

Energy-harvesting high quality designed radio room sensor for measuring temperature and relative humidity in living and office space. The device sends its measured values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit. It can be integrated into a wide range of popular switch ranges, allowing you to choose from many high-quality designs. To be mounted using an adhesive pad or screws.



SR07 rH pure white brilliant, switch range Gira E2



SR07 rH aluminium, switch range Gira E2



SR07 rH anthracite, switch range Gira E2

enocean

TECHNICAL DATA	
Measuring values	humidity, temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery CR1632
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K or >1,6% rH, otherwise every 1000 sec.
Switch range Berker	S.1, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue *
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	A 500, AS 500, A plus, A creation
Switch range Merten	M-Smart, M-Plan, M-Pure
Enclosure	PC, pure white brilliant, aluminium, Jung aluminium (suitable for switch ranges Jung), anthracite
Protection	IP20 according to EN 60529
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	* in switch program with intermediate frame integrated coin cell backup possibility for usage in dimly lit rooms for devices with operating elements please refer to product SR07 x

Item description: product | switch range | colour

SR07 rH

Radio room sensor temperature + humidity		ES2
Item description	Item No.	
SR07 Temp_rH pure white brilliant without frame	729550	
SR07 Temp_rH aluminium without frame	729567	
SR07 Temp_rH Jung aluminium without frame	729581	
SR07 Temp_rH anthracite without frame	729598	

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Accessories		AS1
Item description	Item No.	On stock
Coin cell CR1632	597814	



SR04 rH

DATA SHEETS

Energy-harvesting radio room sensor for measuring temperature and relative humidity in living and office spaces. To be mounted via adhesive pad or screws the device sends its measured values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit.

enocean

TECHNICAL DATA	
Measuring values	humidity, temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas), 928 MHz
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,8 K or >1,6% rH, otherwise every 1000 sec. adjustable via jumper
Set point (P)	potentiometer, optional
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	integrated battery backup possibility for usage in dimly lit rooms for devices with operating elements please refer to product SR04 x

Radio room sensor temperature + humidity			ES2
Item description	Item No.	On stock	
SR04 rH	252317		

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098		



LC-SR04 rH

DATA SHEETS

Room sensor for humidity and temperature detection in illuminated room/space applications. For device with operating elements, adjustable telegram intervals and battery backup please refer to product SR04 rH.

TECHNICAL DATA	
Measuring values	humidity, temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Power supply	solar cell, internal super cap, maintenance-free
Measuring range temp.	0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at range +17..+27 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Transmission interval	every 100 sec. at change >0,8 K or >1,6% rH, otherwise every 1000 sec.
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Delivery contents	adhesive foil
Notes	for device with operating elements, adjustable telegram intervals and battery backup please refer to product SR04|SR04 rH

Radio room sensor temperature + humidity	ES2
Item description	Item No.
LC-SR04 rH	555975

SR65 rH

DATA SHEETS



Energy-harvesting radio sensor for detecting temperature and relative humidity in the outdoor or industrial environment (for example in cold stores, production halls and warehouses). The airConfig software can be used to easily parameterize measuring range, transmission interval and wake-up time. When used in dark places, a battery can be retrofitted.

airConfig enocean

TECHNICAL DATA	
Measuring values	humidity, temperature
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range temp.	-20..+60 °C, optionally configurable via airConfig
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Accuracy humidity	±5% between 30..70% rH (typ. at 21 °C)
Measuring intervall	WakeUp time = 100 sec. (default) heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Ambient condition	-20..+70 °C, max. 85% rH short term condensation
Delivery contents	incl. rain protection PA6, white
Notes	integrated battery backup possibility for usage in dimly lit rooms to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Radio outdoor sensor temperature + humidity			ES2
Item description	Item No.	On stock	
SR65 rH	540391		

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098		
Rawlplugs and screws (2 pcs. each)	102209		
Filter stainless steel, wire mesh (spare part)	231169		
Sun/rain protection PA6 white for outdoor humidity sensors	587709		
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704		

SR04 CO2

DATA SHEETS

Radio room sensor for measuring CO2 content, temperature and relative humidity (optionally) in living and office spaces. The device to be mounted via adhesive pad or screws sends its measured values unidirectionally to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit.



SR04 CO2



SR04 CO2 LCD TLF



SR04 CO2 LCD / SR04 CO2 TLF

enocean

TECHNICAL DATA	
Measuring values	CO2, temperature, humidity, depending on the device
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 1,5 W (24 V =) | 3,6 VA (24 V ~)
Measuring range temp.	0..+51 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2550 ppm
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Accuracy humidity	±3% between 20..80% rH (typ. at 21 °C)
Accuracy CO2	±75 ppm, >750 ppm: ±10% (typ. at 21 °C, 1015 hPa)
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >1 K or >2,5% rH or 50 ppm, otherwise every 1000 sec. adjustable via jumper
Calibration	self-calibration, Dual Channel
Sensor	CO2: NDIR (non-dispersive, infrared)
Display	LCD 29x12 mm, monochrome, optional 3 LEDs indicating air quality (CO2, traffic light function 'TLF'), optional
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) screw mounted onto flat surface
Notes	optional with display "LCD" optional with traffic light function "TLF"

Item description: product | LCD | TLF (traffic light function)

SR04 CO2

Radio room sensor temperature + CO2			ES2
Item description	Item No.	On stock	
SR04 CO2	442510	●	
SR04 CO2 LCD	467131		
SR04 CO2 TLF	436557		
SR04 CO2 LCD TLF	630634		

Radio room sensor temperature + humidity + CO2			ES2
Item description	Item No.		
SR04 CO2 rH	434768		
SR04 CO2 rH LCD	462228		
SR04 CO2 rH TLF	516143		
SR04 CO2 rH LCD TLF	474757		

Accessories			AS1
Item description	Item No.	On stock	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	

SR-MDS

DATA SHEETS



Ceiling multi sensor for light and motion detection using EnOcean radio technology.

TECHNICAL DATA	
Measuring values	luminosity, motion
Radio technology	EnOcean (IEC 14543-3-10), STM
Frequency	868 MHz
Power supply	SR-MDS: flex. 15..240 V =/~ SR-MDS BAT: 3x battery LS14250, 3,6 V
Power consumption	typ. 0,8 W (24 V =) | 1,2 VA (24 V ~)
Measuring range light	0..510 Lux
Measuring intervall	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change of brightness >10 lux in case of detected motion, every 1000 sec. at change of brightness <10 lux in case of no motion detected, every 100 sec. at change of brightness <10 lux in case of detected motion, every 10 sec. at change of brightness >10 lux in case of detected motion, immediately at status change from no motion to motion or reverse after expiring of the follow-up time (approx. 1000 sec.), adjustable via jumper
Dectection range	Ø=5 m at a sensor height of approx. 2,5 m
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Ambient condition	-10..+50 °C, max. 85% rH non-condensing
Notes	appropriate for constant light control

Item description: product | BAT (battery)

Radio ceiling sensor light + motion		ES2
Item description	Item No.	On stock
SR-MDS	396486	
SR-MDS BAT	396462	

Accessories		AS1
Item description	Item No.	On stock
Battery LS14250	315098	
Enclosure for surface mounting SR-MDS pure white	514439	
Mounting ring for hollow ceiling with retaining clips to be used with SR-MDS	627825	

SR-MDS Solar

DATA SHEETS



The EnOcean self powered multi sensor detects light and motion. No battery or wiring necessary.

airConfig enocean

TECHNICAL DATA	
Measuring values	luminosity, motion
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	airConfig ready
Power supply	solar cell, internal super cap, maintenance-free optional: backup battery LS14250 (3,6 V)
Measuring range light	0..510 Lux (standard), 0..1000 Lux (10 Bit), 0..1020 Lux optionally configurable via airConfig
Transmission interval	occupancy (30, 60 sec., 10, 15 min.), light (10, 20, 30, 60 sec. when value changes), configured via airConfig, immediately at status change from no motion to motion or reverse after expiring of the follow-up time or at change of brightness > 2% FS
Dectection range	Ø=5 m at a sensor height of approx. 2,8 m, 102° x 92°
Sensor	PIR (passive infrared)
Enclosure	PC, pure white
Protection	IP50 according to EN 60529
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	screw mounted onto flat surface
Notes	integrated battery backup possibility for usage in dimly lit rooms, to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Radio ceiling sensor light + motion			ES2
Item description	Item No.	On stock	
SR-MDS Solar	591577		

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098		
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704		

SR-MOC Solar

DATA SHEETS



Solar ceiling sensor with battery backup (optional) for motion detection using EnOcean radio technology.

TECHNICAL DATA	
Measuring values	motion
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free Battery: Coin cell CR2032 (optional) terminal block for external power supply 3..5 V =
Transmission interval	during occupancy: every 2 min., no occupancy: after 10 and 30 min., immediately at status change from no motion to motion, every hour as heartbeat (optional)
Dectection range	Ø=5 m at a sensor height of approx. 2,5 m
Sensor	PIR (passive infrared)
Enclosure	PC, white
Protection	IP50 according to EN 60529
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	surface mounting, to be mounted flat onto the surface using adhesive foil (included) or screws

Radio ceiling sensor motion			ES2
Item description	Item No.	On stock	
SR-MOC Solar	566070		

Accessories			AS1
Item description	Item No.	On stock	
Coin cell CR2032	347013		
Rawlplugs and screws (2 pcs. each)	102209		



SR-MOW Solar

DATA SHEETS

Wireless solar wall sensor with battery backup (optional) for motion detection using EnOcean radio technology.

TECHNICAL DATA	
Measuring values	motion
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free Battery: Coin cell CR2032 (optional) terminal block for external power supply 3..5 V =
Transmission interval	immediately at status change from no motion to motion, during occupancy: every 2 min., no occupancy: after 10 and 30 min., every hour as heartbeat (optional)
Dectection range	Wide angle lens up to 15 m, field lens up to 30 m when mounted at height 2,10 m
Sensor	PIR (passive infrared)
Enclosure	PC, white
Protection	IP20 according to EN 60529
Ambient condition	-10..+40 °C
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws

Radio wall sensor motion			ES2
Item description	Item No.	On stock	
SR-MOW Solar	566094		

Accessories			AS1
Item description	Item No.	On stock	
Coin cell CR2032	347013		
Rawlplugs and screws (2 pcs. each)	102209		

SR65 Li

DATA SHEETS



Wireless light sensor for blind systems. Can also be used to control light at sunset. Configured via airConfig.

TECHNICAL DATA	
Measuring values	luminosity
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	airConfig ready
Power supply	solar cell, internal super cap optional: backup battery LS14250 (3,6 V)
Measuring range light	0..510 Lux, 0..1000 Lux (10 Bit), 0..1020 Lux, 300..30.000 Lux, 600..60.000 Lux optionally configurable via airConfig
Measuring intervall	WakeUp time = 100 sec. (default), heartbeat cycle = every 10th wakeup configured via airConfig
Enclosure	PA6.6, pure white, cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Ambient condition	-20..+70 °C, max. 85% rH short term condensation
Notes	resolution: 8 bit or 10 bit, to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Radio outdoor sensor light		ES2
Item description	Item No.	
SR65 Li	598354	

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098	●	
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●	



SR-MI

DATA SHEETS

Wireless module for evaluation of pulse signals for gas, water, electric and BTU meters with S0 interfaces.

enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting antenna with magnetic holding
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,2 W (24 V =) | 0,4 VA (24 V ~)
Inputs	3x S0-interface
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting antenna 2,5 m with magnetic holding

Wireless module		ES2
Item description	Item No.	
SR-MI	471428	

Accessories		AS1
Item description	Item No.	On stock
Antenna extension 10 m	257206	
Antenna extension 20 m	257213	
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097	



SR65-3AI

DATA SHEETS

The module has 3x 0..10 V inputs. The input values are transmitted wirelessly to an EasySens® receiver. This allows standard analogue signals to simply integrate into a wireless EnOcean network.

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,2 W (24 V =) | 0,4 VA (24 V ~)
Measuring intervall	WakeUp time = 100 sec. (default), heartbeat cycle = every 10th wakeup adjustable via jumper
Inputs	3x analog input, 0..10 V
Enclosure	PA6.6, pure white, cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	plug-in terminal, max. 1,5 mm²
Ambient condition	-25..+65 °C, max. 85% rH short term condensation

Wireless module	ES2
Item description	Item No.
SR65-3AI	527071

SR65 DI

DATA SHEETS



Radio binary module for transmitting binary switching states. The status of the digital input is sent via EnOcean telegram to corresponding remote stations in the EnOcean network. Often used as a signal generator for night reduction of heating controllers or ECO/comfort switching.

airConfig enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	airConfig ready
Power supply	solar cell, internal super cap, battery LS14250 (3,6 V)
Measuring intervall	WakeUp time = 100 sec. (default), heartbeat cycle = every 10th wakeup configured via airConfig
Inputs	1x input for floating contact, contact resistance max. 1000 Ω
Enclosure	PA6.6, pure white, cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-25..+65 °C, max. 85% rH short term condensation
Delivery contents	1x battery LS14250
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Radio module		ES2
Item description	Item No.	
SR65 DI	267731	

Accessories			AS1
Item description	Item No.	On stock	
Battery LS14250	315098	●	
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●	

SRG02

DATA SHEETS

Batteryless window handle for status monitoring of windows (option lockable available) with EnOcean technology. When actuated, the handle transmits a radio signal with the handle position to an actuator or central control unit in order, for example, to activate an energy lock. This can be used to optimize energy consumption in the building, since the heating or ventilation is deactivated when the windows are open. Square spindle with variable lengths for tread depth 32..42 mm usable in various window frames.



SRG02 aluminium pure white



SRG02 aluminium steel grey



SRG02 stainless steel

enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	internal transmitting antenna
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	turning the window handle
Enclosure	aluminium pure white painted, aluminium steel grey, stainless steel
Ambient condition	+5..+40 °C, max. 80% rH non-condensing
Mounting	Square spindle, variable lengths (for tread depth 32..42 mm)
Notes	lockable (option), also available as sliding door handle (on request), sideways with position precision

Radio window handle			ES1
Item description	Item No.	On stock	
SRG02 aluminium pure white	730747		
SRG02 aluminium steel grey	730730		
SRG02 stainless steel	730723		

Radio window handle, lockable			ES1
Item description	Item No.	On stock	
SRG02 lockable aluminium pure white	730716		
SRG02 lockable aluminium steel grey	730709		

SRW02

DATA SHEETS

Window contact for status monitoring of windows and doors.



SRW02



SRW02 (902 MHz)

enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal transmitting/receiving antenna
Power supply	solar cell, internal super cap, maintenance-free coin cell CR1225 (optional)
Transmission interval	at status change, otherwise every 1000 sec.
Sensor	Reed contact and magnet
Enclosure	PC/ABS, pure white
Protection	IP40 according to EN 60529
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws

Radio window/door contact			ES1
Item description	Item No.	On stock	
SRW02	727297		

Accessories			AS1
Item description	Item No.	On stock	
Coin cell CR1225	727310		

Radio switch Mini

DATA SHEETS

Battery-less radio control for lighting and blind. The self powered wireless technology enables flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



4-channel blinds, pure white brilliant



2-channel light, aluminium



2-channel blinds, anthracite

enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Control functions	actuation force 7 N, actuation range 2 mm, operating cycle quantity › 50.000
No. of buttons	2-channel (1 switch), 4-channel (2 switches)
Labelling	O, I (version light), ▲▼ (version blinds), special printing available on request
Enclosure	dimensions: 61x61x15 mm incl. frame, pure white brilliant, aluminium, anthracite
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	prices including frame

Radio switch Mini

Item description: product | number of buttons | model light | colour

Radio switches 2-channel light	ES2
Item description	Item No.
Mini 2-channel light pure white brilliant	430647
Mini 2-channel light aluminium varnished	430661
Mini 2-channel light anthracite	430623

Radio switches 4-channel light	ES2
Item description	Item No.
Mini 4-channel light pure white brilliant	430838
Mini 4-channel light aluminium varnished	430852
Mini 4-channel light anthracite	430814

Item description: product | number of buttons | model shutters | colour

Radio switches 2-channel blind	ES2
Item description	Item No.
Mini 2-channel blind pure white brilliant	430630
Mini 2-channel blind aluminium varnished	430654
Mini 2-channel blind anthracite	430302

Radio switches 4-channel blind	ES2
Item description	Item No.
Mini 4-channel blind pure white brilliant	430821
Mini 4-channel blind aluminium varnished	430845
Mini 4-channel blind anthracite	430807

Radio switch 55x55

DATA SHEETS

Light and blind control. The wireless technology enables a flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



2-channel blinds,
Gira E2 pure white



4-channel light,
Gira E2 aluminium



4-channel blinds,
Gira E2 anthracite

enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Switch range Berker	S.1 *, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI *
Switch range Feller	EDIZIOdue *
Switch range Gira	E2 *, E3 *, Standard 55 *, Esprit *, Event *, F100 *
Switch range Jung	A 500 *, AS 500 *, A creation *
Switch range Merten	M-Smart *, M-Plan *, M-Pure *, 1-M, Atelier-M, Artec *, Antik *
Switch range Peha	AURA, AURA glass
Control functions	actuation force 7 N actuation range 2 mm operating cycle quantity › 50.000
No. of buttons	2-channel (1 switch), 4-channel (2 switches)
Labelling	O, I (version light) ▲▼ (version blinds) special printing available on request
Enclosure	PC, pure white brilliant, pure white matt, aluminium, Jung aluminium (suitable for switch ranges Jung), anthracite luminescent intermediate frame, yellow, green phosphorescent available (see accessories); can easily be used instead of the intermediate frame, guideline: with an illumination of 400 lux for 20-30 minutes the frame will glow about 12 hours
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	* in switch program with intermediate frame, when ordering other switch programmes, please specify colour

Item description: number of buttons | model light | switch range | colour

Radio switch 55x55

Radio switches 2-channel light	ES1
Item description	Item No.
2-channel light 55x55 pure white matt without frame	730167
2-channel light 55x55 pure white brilliant without frame	730372
2-channel light 55x55 aluminium without frame	730419
2-channel light 55x55 Jung aluminium without frame	730457
2-channel light 55x55 anthracite without frame	730495

Radio switches 4-channel light	ES1
Item description	Item No.
4-channel light 55x55 pure white matt without frame	730181
4-channel light 55x55 pure white brilliant without frame	730389
4-channel light 55x55 aluminium without frame	730426
4-channel light 55x55 Jung aluminium without frame	730464
4-channel light 55x55 anthracite without frame	730501

Item description: number of buttons | model shutters | switch range | colour

Radio switches 2-channel blind	ES1
Item description	Item No.
2-channel blind 55x55 pure white matt without frame	730235
2-channel blind 55x55 pure white brilliant without frame	730396
2-channel blind 55x55 aluminium without frame	730433
2-channel blind 55x55 Jung aluminium without frame	730471
2-channel blind 55x55 anthracite without frame	730518

Radio switches 4-channel blind	ES1
Item description	Item No.
4-channel blind 55x55 pure white matt without frame	730365
4-channel blind 55x55 pure white brilliant without frame	730402
4-channel blind 55x55 aluminium without frame	730440
4-channel blind 55x55 Jung aluminium without frame	730488
4-channel blind 55x55 anthracite without frame	730525

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Radio switch BJ 63x63

DATA SHEETS

Battery-free radio switch lighting and blind control for Busch-Jaeger switch ranges with 63x63 mm inner diameter. The self powered wireless technology enables flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



4-channel blinds,
future® linear studio white



4-channel light,
future® linear aluminium silver



2-channel blinds,
future® linear anthracite

enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Switch range Busch-Jaeger	solo®, future® linear, Busch-axcent®
Control functions	actuation force 7 N actuation range 2 mm operating cycle quantity > 50.000
No. of buttons	2-channel (1 switch) 4-channel (2 switches)
Labelling	O, I (version light) ▲▼ (version blinds) special printing available on request
Enclosure	anthracite, studio white, ivory white, aluminium silver
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	frame designs Solo, Future and Axcent at the same price, ask for Carat, white (studio) and matt black available on request, Busch-balance® SI see Radio control 55x55

Item description: number of buttons | model light | switch range | colour

Radio switch BJ 63x63

Radio switches 2-channel light	ES1
Item description	Item No.
2-channel light BJ63x63 studio white without frame	730532
2-channel light BJ63x63 ivory white without frame	730570
2-channel light BJ63x63 aluminium silver without frame	730631
2-channel light BJ63x63 anthracite without frame	730754

Radio switches 4-channel light	ES1
Item description	Item No.
4-channel light BJ63x63 studio white without frame	730549
4-channel light BJ63x63 ivory white without frame	730587
4-channel light BJ63x63 aluminium silver without frame	730648
4-channel light BJ63x63 anthracite without frame	730761

Item description: number of buttons | model shutters | switch range | colour

Radio switches 2-channel blind	ES1
Item description	Item No.
2-channel blind BJ63x63 studio white without frame	730556
2-channel blind BJ63x63 ivory white without frame	730594
2-channel blind BJ63x63 aluminium silver without frame	730655
2-channel blind BJ63x63 anthracite without frame	730778

Radio switches 4-channel blind	ES1
Item description	Item No.
4-channel blind BJ63x63 studio white without frame	730563
4-channel blind BJ63x63 ivory white without frame	730600
4-channel blind BJ63x63 aluminium silver without frame	730693
4-channel blind BJ63x63 anthracite without frame	730785

Options
Item description
Switch ranges Busch-Jaeger future® linear | solo® | Busch-axcent®

Order example for different items:
4-channel | shutters | Busch-Jaeger solo®

4-channel = number of buttons
shutters = model
Busch-Jaeger solo® = switch range Glas

Radio switch Jung LS 990

DATA SHEETS

Lighting and blind control. The self powered wireless technology enables flexible installation on glass and wall plaster via double-sided adhesive pads or screws.



4-channel light,
LS 990 alpin white



2-channel light,
LS 990 light grey



4-channel blinds,
LS 990 white

enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Switch range Jung	LS 990
Control functions	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000
No. of buttons	2-channel (1 switch), 4-channel (2 switches)
Labelling	O, I (version light), ▲▼ (version blinds)
Enclosure	white, alpin white, light grey
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	prices incl. frame LS990, LS 990 aluminium varnished and stainless steel varnished on request. Switch programme LS-design on request

Item description: number of buttons | model light | switch range | colour

Radio switch Jung LS 990

Radio switches 2-channel light	ES1
Item description	Item No.
2-channel light Jung LS 990 white	435390
2-channel light Jung LS 990 alpin white	435376
2-channel light Jung LS 990 light grey	435413

Radio switches 4-channel light	ES1
Item description	Item No.
4-channel light Jung LS 990 white	435475
4-channel light Jung LS 990 alpin white	435451
4-channel light Jung LS 990 light grey	435499

Item description: number of buttons | model shutters | switch range | colour

Radio switches 2-channel blind	ES1
Item description	Item No.
2-channel blind Jung LS 990 white	435406
2-channel blind Jung LS 990 alpin white	435383
2-channel blind Jung LS 990 light grey	435420

Radio switches 4-channel blind	ES1
Item description	Item No.
4-channel blind Jung LS 990 white	435482
4-channel blind Jung LS 990 alpin white	435468
4-channel blind Jung LS 990 light grey	435505

Hand-held

DATA SHEETS

The EasySens® hand-held switch provides remote function for switch signals based on the self powered EnOcean technology.



enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas), 928 MHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pushing the buttons
Control functions	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000
No. of buttons	4-channel (4 buttons)
Labelling	A, B, C, D
Enclosure	black
Ambient condition	-25..+65 °C, max. 85% rH non-condensing

Hand-held switch	ES1
Item description	Item No.
Hand-held switch 4 channel	314602

SR-KCS02

DATA SHEETS

Wireless EasySens® switch for controls of lighting and air-conditioning applications in rooms using key card activation. The self-powered wireless technology enables a flexible installation on glass or wall plaster via double-sided adhesive pads or screws.

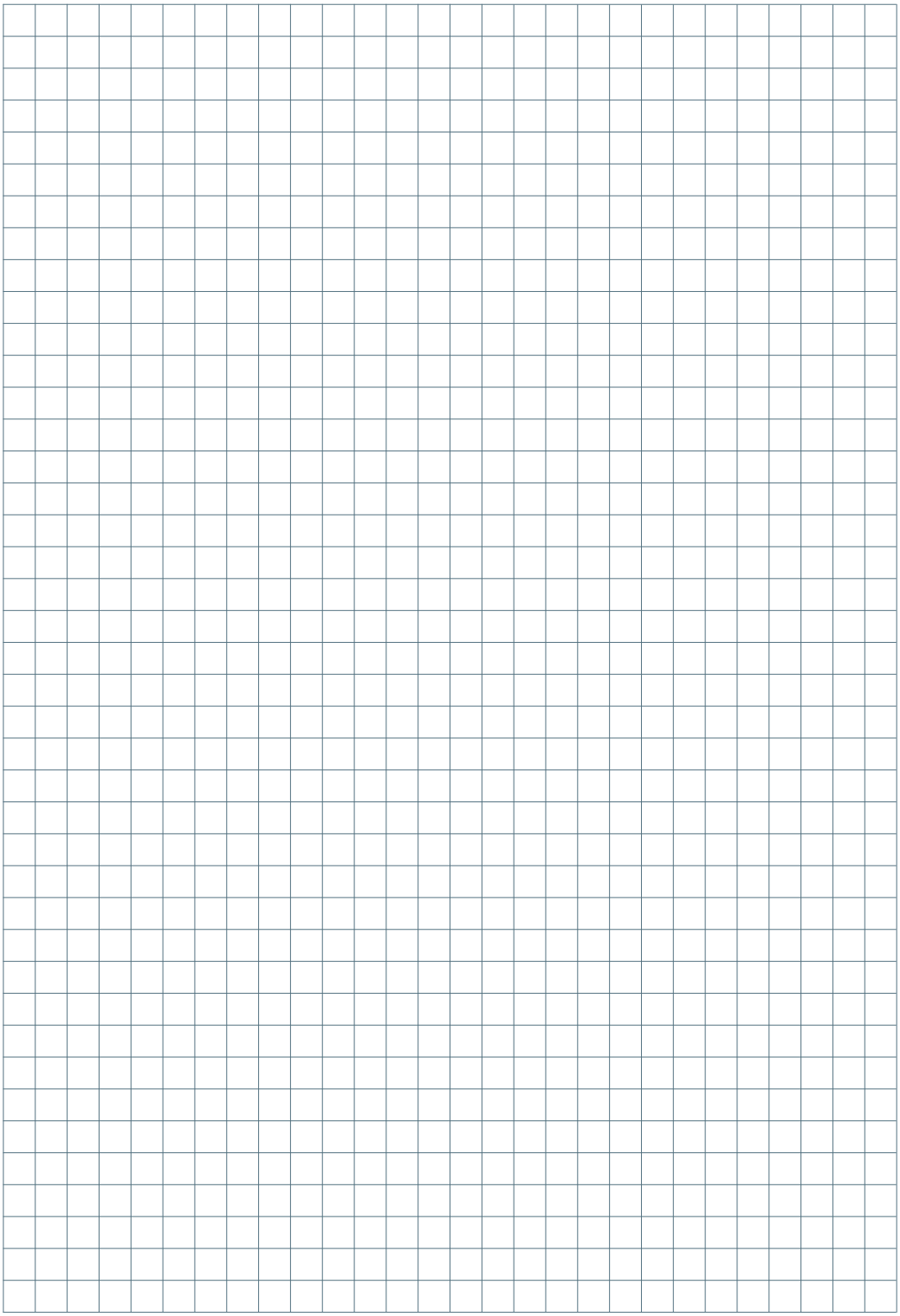




enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	at status change
Enclosure	PC, pure white
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws

Wireless card switch	ES2
Item description	Item No.
SR-KCS02	691413



EasySens® Receiver

Innovative self-powered wireless technology generates energy by means of harvesting ambient light or motion. Interoperable, cost-effective and energy-efficient solutions in building automation is available using our wireless sensor system EasySens®.





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» BENEFITS

- » Communication without batteries or cables
- » Interoperable
- » Energy-efficient control of heating and lighting
- » High working and learning comfort through air conditioning and blind-control as required

1



SR04 CO2

Room sensor CO2/temperature/ rel. humidity
Available with display and traffic light function

2



SR04

Surface-mounted wireless room sensor for temperature & rel. humidity
Available with various control elements and features

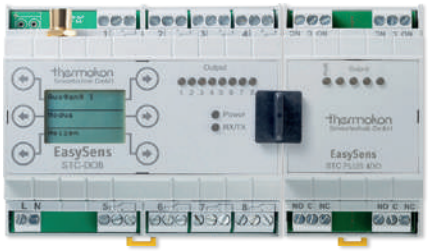
3



Mini

Wireless switch 2-/4-channel lighting/blinds
Available in various colours

4



STC-DO8 / STC-PLUS 4DO

Universal receiver with 8 digital outputs, with expansion module STC-PLUS 4DO for control of heating/cooling/ fan coils, for switching lights/ blinds, signal contact and more.

5





STC-DO / SRC-AO

Flush-mounted receiver (24 V or 230 V) with digital or analogue outputs for control of thermostats, humidistats, fans or temperature, for switching of lights or blinds, and more

BACnet KNX LON LOCAL OPERATING NETWORK enocean Modbus digitalSTROM

CONCENTRATION

All devices communicate wireless via EnOcean technology. Temperature, set point, air quality, occupancy and switch signals for lighting and blinds, are transmitted via bidirectional receivers, STC-DO8/ STC-PLUS 4DO resp. STC-DO/ SRC-AO as standalone with local digital or analogue outputs or to superior communication protocols such as KNX, BACnet, LON or Modbus. This system allows a substantial increase in comfort along with optimum energy savings.

STC65-RS485 Modbus

DATA SHEETS



Bidirectional gateway with interface RS485, Modbus protocol, IP42-enclosure. For evaluation of up to 32 EasySens® sensors or wireless switches. Transmission of field-programmed telegrams to 32 addresses and 32 channels for bidirectional communication with SAB+/ SAB05. Incl. ext. transmitting/receiving antenna (2.5 m).

SmartACK enocean Modbus

TECHNICAL DATA	
Network technology	RS485 Modbus
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas), 928 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, SmartACK (SmartACKNOWLEDGE)
Receive channels	32 (SAB) + 32 (Rx)
Transmit channels	32 (SAB) + 32 (Tx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,6 W (24 V =) | 1,5 VA (24 V ~)
Display	4 LEDs for showing state of device
Enclosure	PA6.6, pure white, cover PC, transparent, with quick lock screws
Protection	IP42 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm, seal insert for double cable entry for wire max Ø=6 mm
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, software for configuration (freeware via download)
Notes	up to 15 SmartACKNOWLEDGE devices (SmartACK), magnetic antenna plate recommended to improve radio coverage

Modbus

Gateway – EnOcean <-> RS485 Modbus			ES2
Item description	Item No.	On stock	
STC65-RS485 Modbus	385695		

Accessories			AS1
Item description	Item No.	On stock	
Antenna extension 10 m	257206		
Antenna extension 20 m	257213		
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097		

STC65-RS485 EVC

DATA SHEETS



Bidirectional gateway with serial interface RS485, bi-directional interface „Multiple Access“, IP42-enclosure. For connection of up to 64 EasySens® sensors or wireless switches to different controllers with RS485 interface. Transmission of field-programmed telegrams to 127 addresses. Incl. ext. transmitting/receiving antenna (2,5 m).

SmartACK enocean

TECHNICAL DATA	
Network technology	RS485 EVC
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, SmartACK (SmartACKNOWLEDGE)
Receive channels	filter mode: 64 (Rx), Gateway mode: ∞ (Rx)
Transmit channels	filter mode: 128 (Tx), Gateway mode: 128 (Tx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,8 W (24 V =) | 2 VA (24 V ~)
Display	4 LEDs for showing state of device
Enclosure	PA6.6, pure white, cover PC, transparent, with quick lock screws
Protection	IP42 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm, seal insert for double cable entry for wire max Ø=6 mm
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, software for configuration (freeware via download)
Notes	up to 15 SmartACKNOWLEDGE devices (SmartACK), magnetic antenna plate recommended to improve radio coverage

Gateway – EnOcean <-> RS485 EVC			ES2
Item description	Item No.	On stock	
STC65-RS485 EVC	393898	●	

Accessories			AS1
Item description	Item No.	On stock	
Antenna extension 10 m	257206	●	
Antenna extension 20 m	257213	●	
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097	●	

STC65-FTT LON

DATA SHEETS



Bidirectional gateway for EnOcean-based Sensors and actuators as well as controllers and control systems with LON interface. The STC65-FTT enables the receipt and transmission of radio telegrams corresponding to the EnOcean communication protocol. With predefined sensor objects (sensor, switch, ...) and corresponding output variables (SNVT) for communication in a LON system.

enocean® LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Network technology	LON FT (free topology)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Receive channels	11 (Rx)
Transmit channels	11 (Tx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,5 W (24 V =) | 0,82 VA (24 V ~)
Display	2 LEDs + service LED
Enclosure	PA6.6, pure white, cover PC, transparent, with quick lock screws
Protection	IP42 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm², seal insert for double cable entry for wire max Ø=6 mm
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, incl. plug-in for turbo LONmaker
Notes	magnetic antenna plate recommended to improve radio coverage

LON LOCAL OPERATING NETWORK

Gateway – EnOcean <-> FTT LON		ES2
Item description	Item No.	On stock
STC65-FTT LON	393904	

Accessories		AS1
Item description	Item No.	On stock
Antenna extension 10 m	257206	
Antenna extension 20 m	257213	
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097	



STC04-FTT LON

DATA SHEETS

Bidirectional gateway for EnOcean-based sensors and actuators as well as controllers and control systems with LON interface. The STC04-FTT enables the receipt and transmission of radio telegrams corresponding to the EnOcean communication protocol. With predefined sensor objects (sensor, switch, ...) and corresponding output variables (SNVT) for communication in a LON system.

enocean LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Network technology	LON FT (free topology)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	enclosure antenna
Data transmission	bidirectional
Receive channels	11 (Rx)
Transmit channels	11 (Tx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,5 W (24 V =) | 0,82 VA (24 V ~)
Display	LED „Valid“ to show valid EnOcean telegrams
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Mounting	surface mounted on flush-mounting box (Ø=60 mm)
Delivery contents	incl. plug-in for turbo LONmaker

LON LOCAL OPERATING NETWORK

Gateway – EnOcean <-> FTT LON			ES2
Item description		Item No.	On stock
STC65-FTT LON		393904	

STC-BACnet IP

DATA SHEETS



The EnOcean-BACnet IP gateway is designed for bidirectional communication between EasySens® sensors and actuators and controllers and control systems with BACnet IP interface. To be configured easily via EasySens® airConfig software tool. Details of the communication protocol are described in the software documentation. The scope of delivery already includes an external transmit/receive antenna for the best possible range.

airConfig enocean BACnet

TECHNICAL DATA	
Network technology	BACnet IP
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, airConfig ready
Receive channels	no limit
Transmit channels	128 (Tx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 3 W (24 V =) | 5 VA (24 V ~)
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, software for configuration (freeware via download)
Notes	for network connection use a shielded standard Ethernet cable CAT 5, to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz), magnetic antenna plate recommended to improve radio coverage

BACnet

Gateway – EnOcean <-> BACnet IP		ES1
Item description	Item No.	
STC-BACnet IP V2	696470	

Accessories			AS1
Item description	Item No.	On stock	
Antenna extension 10 m	257206	●	
Antenna extension 20 m	257213	●	
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097	●	
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●	

SRC65-BACnet MS/TP

DATA SHEETS



The unidirectional EnOcean-BACnet MS/TP receiver enables the acquisition of information from EasySens® sensors, pushbuttons and room control units. Details of the communication protocol are described in the software documentation. The scope of delivery already includes an external transmit/receive antenna for the best possible range.

TECHNICAL DATA	
Network technology	BACnet MS/TP
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external receiving antenna with magnetic holding
Data transmission	unidirectional
Receive channels	32 (Rx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =) | 1,3 VA (24 V ~)
Display	4 LEDs for showing state of device
Enclosure	PA6.6, pure white, cover PC, transparent, with quick lock screws
Protection	IP42 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm² seal insert for double cable entry for wire max Ø=6 mm
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Delivery contents	incl. external receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

Gateway – EnOcean -› BACnet MS/TP		ES1
Item description	Item No.	
SRC65-BACnet MS/TP	396431	

Accessories			AS1
Item description	Item No.	On stock	
Antenna extension 10 m	257206		
Antenna extension 20 m	257213		
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097		

STC-EnOcean-IP

DATA SHEETS



The bidirectional wireless gateway enables seamless integration of EasySens® sensors and actuators into the Internet of Things (IoT). The new EnOcean-over-IP standard uses a JSON stream- or line-oriented (Command-Line) interface. The uncomplicated commissioning and administration is done via a browser interface. The graphical, data flow-oriented processing of the EnOcean information is carried out by the integrated Node-RED editor (https://nodered.org/) and enables simple, rule-based evaluation as well as notification via SMS/e-mail alerting, if values fall above or below thresholds. EasySens® devices can be integrated very easily into online applications. Suited for connecting to IP-based controller and display systems.

TECHNICAL DATA	
Network technology	TCP/IP
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Receive channels	no limit
Transmit channels	SAB 128 (Tx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 3 W (24 V =) | 5 VA (24 V ~)
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, software for configuration (freeware via download)
Notes	magnetic antenna plate recommended to improve radio coverage

Gateway – EnOcean ↔ IP		ES1
Item description	Item No.	
STC-EnOcean-IP	737814	

Accessories			AS1
Item description	Item No.	On stock	
Antenna extension 10 m	257206		
Antenna extension 20 m	257213		
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097		

STC-Ethernet

DATA SHEETS



Bidirectional gateway with IP/Ethernet interface for evaluation of up to 30 EasySens® sensors or wireless switches. Incl. external transmitting/receiving antenna (2,5 m).

TECHNICAL DATA	
Network technology	Ethernet, data port: RJ45
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Receive channels	filter mode: 30 (Rx), Gateway mode: ∞ (Rx)
Transmit channels	filter mode: 128 (Tx), Gateway mode: 128 (Tx)
Power supply	80..240 V ~, 15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 5 VA (..240 V ~)
Display	LED „Valid“ to show valid EnOcean telegrams
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external receiving antenna 2,5 m with magnetic holding, software for configuration (freeware via download)
Notes	magnetic antenna plate recommended to improve radio coverage

Gateway – EnOcean <-> Ethernet			ES2
Item description	Item No.	On stock	
STC-Ethernet 80..240 V	403191		
STC-Ethernet 24 V	550109		

Accessories			AS1
Item description	Item No.	On stock	
Antenna extension 10 m	257206		
Antenna extension 20 m	257213		
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097		



STC-KNX

DATA SHEETS

Bidirectional gateway for connection of up to 32 EasySens® sensors or wireless switches to the EIB/KNX-Bus. The device offers additional logic and control functions, which can be set to: switch and dimming, blind UP/DOWN, presence button/switch, set point adjustment, step switch, humidity sensor, window contact/handle, binary input, light sensor and motion sensor.

TECHNICAL DATA	
Network technology	KNX (TP)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Data transmission	bidirectional
Receive channels	32 (Rx)
Transmit channels	32 (Tx)
Power supply	supply via BUS
Power consumption	max. 12 mA
Display	graphic display monochrome (internal)
Enclosure	PC, white
Protection	IP20 according to EN 60529
Connection electrical	KNX terminal block rd/bl (WAGO 243-212)
Ambient condition	-5..+45 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm)
Notes	product database for ETS4/5 (freeware via download)

Gateway – EnOcean <-> KNX			ES1
Item description	Item No.	On stock	
STC-KNX	698948		

STC-KNX UP

DATA SHEETS



Bidirectional gateway between EasySens® wireless sensors and the EIB/KNX bus for mounting in a standard flush-mounted box. The device has 8 receive and transmit channels and 8 channels for logic and control functions that can be assigned with the functions switch, dimming, blinds up/down, presence, set point adjustment, step switch, humidity sensor, window handle/contact, binary input, light sensor and motion sensor.

TECHNICAL DATA	
Network technology	KNX (TP)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Data transmission	bidirectional
Receive channels	8 (Rx)
Transmit channels	8 (Tx)
Power supply	supply via BUS
Power consumption	max. 12 mA
Enclosure	ABS, blue
Protection	IP20 according to EN 60529
Connection electrical	KNX terminal block rd/bl (WAGO 243-212)
Ambient condition	-5..+45 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	product database for ETS4/5 (freeware via download)

Gateway – EnOcean ‹-› KNX			ES1
Item description	Item No.	On stock	
STC-KNX UP	725132		

STC-dS

DATA SHEETS



Bidirectional gateway to extend a digitalSTROM system with EasySens® devices like sensors, units for controlling indoor climate, valve actuators, radio switches, wireless window contacts and window handles. The devices are integrated seamlessly and for the user they are used as easily as standard digitalSTROM components. The connection is made via ethernet network connection.

TECHNICAL DATA	
Network technology	digitalSTROM (dS)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Power supply	external power supply (USB micro), 5 V =, 1 A
Power consumption	typ. 3,2 W (5 V =)
Enclosure	PC, ABS, white
Protection	IP20 according to EN 60529
Connection electrical	USB Micro, RJ45 Ethernet (8P8C), 10/100 MBit/s
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, incl. external power supply, Ethernet cable 1,5 m (CAT 5)
Notes	magnetic antenna plate recommended to improve radio coverage

Gateway – EnOcean <-> digitalSTROM		DS1
Item description	Item No.	
STC-dS	637442	

STC-dS HS

DATA SHEETS



Bidirectional gateway to extend a digitalSTROM system with EasySens® devices like sensors, units for controlling indoor climate, valve actuators, radio switches, wireless window contacts and window handles prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715. The devices are integrated seamlessly and for the user they are used as easily as standard digitalSTROM components. The connection is made via ethernet network connection.

TECHNICAL DATA	
Network technology	digitalSTROM (dS)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 3 W (24 V =) | 5 VA (24 V ~)
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	removable plug-in terminal, max. 2,5 mm², RJ45 Ethernet (8P8C), 10/100 MBit/s
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

Gateway – EnOcean <·> digitalSTROM		DS1
Item description	Item No.	
STC-dS HS	711340	

STC-DO

DATA SHEETS

The bidirectional flush-mounted radio receiver for EasySens® devices with relay output. The basic function can be configured individually by the user for heating with PWM, heating on/off, signal contact, hygrostat control, heating/cooling with PWM, light on/off or for fan release using the free Thermokon airConfig software as required.



STC-DO 24 V



STC-DO 240 V

TECHNICAL DATA	
Output switch contact	changeover contact 24 V: floating, load max. 3 A 240 V: non-floating, load max. 10 A
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional, airConfig ready
Power supply	24 V: 15..24 V = (±10%) or 24 V ~ (±10%) SELV 240 V: 100..240 V ~
Power consumption	24 V: typ. 1,5 W (24 V =) | 3,4 VA (24 V ~) 240 V: max. 0,5 VA (standby)
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Wireless receiver – multifunctional actor		ES2
Item description	Item No.	
STC-DO airConfig 24 V	593731	
STC-DO airConfig 100..240 V	593748	

Accessories		
Item description	Item No.	On stock
airConfig (freeware via www.thermokon.com)		
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●

STC-DO Light

DATA SHEETS



Bidirectional flush mounted radio receiver module for EnOcean switch telegrams to switch lighting sources (for example staircase control, time switch). The functions can be parameterized via a programming key.

enocean

TECHNICAL DATA	
Output switch contact	max. 10 A (230 V)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional
Power supply	100..240 V ~
Power consumption	standby <0,5 W
Functions	lighting, fan control, switch actuator, staircase light
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	plug-in terminal, max. 1,5 mm²
Ambient condition	-20..+40 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Wireless receiver – switch actuator light		ES2
Item description	Item No.	
STC-DO Light 230 V	568371	

STC-DO Blind

DATA SHEETS



Bidirectional flush-mounted radio receiver module for EnOcean switch telegrams to switch blind and shutter motors. The functions can be parameterized via a programming key.

TECHNICAL DATA	
Output switch contact	max. 1 A (230 V)
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional
Power supply	100..240 V ~
Power consumption	standby <0,5 W
Functions	blinds/shutter, switch actuator, slat changing
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	plug-in terminal, max. 1,5 mm²
Ambient condition	-20..+40 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Wireless receiver – switch actuator blind		ES2
Item description	Item No.	
STC-DO Blind 230 V	568364	

SRC-AO Climate

DATA SHEETS



Unidirectional flush-mounted radio receiver for room temperature control of continuous heating or cooling valves (type V with 1x 0..10 V), continuous heating and cooling valves (type VV with 2x 0..10 V) or 6-way valve (type 6WV).

enocean

TECHNICAL DATA	
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal receiving antenna
Data transmission	unidirectional
Receive channels	per channel: 1 room control unit, 1 input module for night reduction, up to 10 window contacts or window handles
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =) | 1,5 VA (24 V ~)
Functions	V: heating or cooling VV: heating and cooling, continuously 0..10 V 6WV: 6-way valve
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Wireless receiver – climate actuator 0..10 V	ES2
Item description	Item No.
SRC-AO Climate V	508278
SRC-AO Climate VV	508285
SRC-AO Climate 6WV	530255

SRC-AO Dim

DATA SHEETS



Unidirectional flush-mounted radio receiver for dimming up to two 1..10 V or 0..10 V dimming actuators or electronic ballasts (ECGs) using EnOcean wireless switches. Up to 32 wireless switches can be learnt-in.

enocean

TECHNICAL DATA	
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal receiving antenna
Data transmission	unidirectional
Receive channels	32 (Rx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =) | 1,5 VA (24 V ~)
Functions	V: 1-fold dim actuator lighting VV: 2-fold dim actuator lighting
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Wireless receiver – dim actuator 0..10 V		ES2
Item description	Item No.	
SRC-AO Dim V	499606	
SRC-AO Dim VV	502931	

SRC-AO Multi

DATA SHEETS



Unidirectional flush-mounted radio receiver for the evaluation of EnOcean wireless sensors for direct proportional output of various values such as temperature, temperature setpoint, humidity via one or two 0..10 V outputs.

enocean

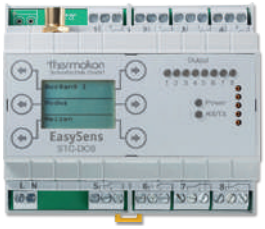
TECHNICAL DATA	
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal receiving antenna
Data transmission	unidirectional
Receive channels	per channel 1 (Rx)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =) | 1,5 VA (24 V ~)
Functions	per output 1 sensor value (e.g. temperature, set-point, humidity, actuating variable, dimming value)
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Wireless receiver – multi-functional actuator 0..10 V		ES2
Item description	Item No.	
SRC-AO Multi V	508315	
SRC-AO Multi VV	508322	

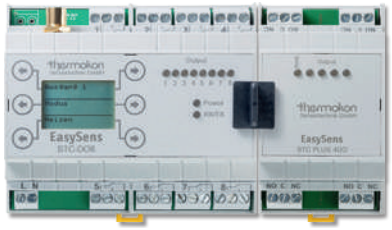
STC-DO8

DATA SHEETS

Bidirectional radio receiver for DIN rail mounting with 8 digital outputs (expandable to up to 12 digital outputs using the extension STC-PLUS 4DO) for the evaluation of EnOcean radio sensors, switches and room control units. Depending on the type suitable for heating/cooling control, fan coil control, light switching, shutter control and blinds control. The scope of delivery already includes an external transmit/receive antenna for the best possible range.



STC-DO8



STC-DO8 with extension module STC-PLUS 4DO

enocean

TECHNICAL DATA	
Output switch contact	8x relay with change-over contact (volt free contact), 230 V ~ / 6 A, 24 V = / 6 A, + 4x relay with additional module STC-PLUS 4DO
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Power supply	100..240 V ~, 15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 2,0 W (24 V =) | 3,5 VA (24 V ~ / 230 V ~)
Functions	lighting, blinds/shutter, heating/cooling (PI), fancoil controller, heating ON/OFF, heating with PWM output, heating/cooling with PWM output, signalling contact, hygrostat controller, fan release
Display	graphic display monochrome
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+60 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

STC-DO8

Wireless receiver – multi relay 100..240 V		ES2
Item description	Item No.	
STC-DO8 100..240 V type heating/cooling	490030	
STC-DO8 100..240 V type fancoil, heating/cooling	490047	
STC-DO8 100..240 V type switch actuator	490054	

Wireless receiver – multi relay 24 V		ES2
Item description	Item No.	
STC-DO8 24 V type heating/cooling	564458	
STC-DO8 24 V type fancoil, heating/cooling	631495	
STC-DO8 24 V type switch actuator	561273	

Extension module		ES2
Item description	Item No.	
STC-PLUS 4DO	517690	

Accessories		AS1
Item description	Item No.	On stock
Antenna extension 10 m	257206	
Antenna extension 20 m	257213	
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097	
Connector STC-DO8 to STC-PLUS 4DO	517577	

SRC-ADO

DATA SHEETS

Unidirectional radio receiver for DIN rail mounting with 4 analog outputs 0..10 V and 2 or 4 potential-free relay outputs. For connecting EasySens® sensors, wireless switches, room control units and window contacts or window handles. Depending on the function, the device can be parameterized via the free software as a fan coil controller with change-over function, PI controller for heating/cooling, for controlling 1..10 V dimmers or as an interface between EasySens® sensors and controller inputs. The scope of delivery already includes an external transmit/receive antenna for the best possible range.



enocean

TECHNICAL DATA	
Output voltage	4x 0..10 V
Output switch contact	2DO: 2x changeover contact, floating, 4DO: 4x changeover contact, floating
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	unidirectional
Power supply	100..240 V ~, 15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 3,5 W (24 V =) | 6,5 VA (24 V ~), max. 5 VA (..240 V ~)
Functions	lighting, blinds/shutter, heating/cooling (PI), fancoil controller, heating ON/OFF, heating with PWM output, heating/cooling with PWM output, signalling contact, hygrostat controller, fan release
Switching values	8 A resistive load (24 V =/~ | 230 V ~), 2 A inductive load (230 V ~)
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+60 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

SRC-ADO

Wireless receiver – multi 0..10 V | relay 2DO 100..240 V		ES2
Item description	Item No.	
SRC-ADO 4AA/2DO 100..240 V type dimming/heating/cooling	267502	
SRC-ADO 4AA/2DO 100..240 V type fancoil, change-over	423236	

Wireless receiver – multi 0..10 V | relay 4DO 100..240 V		ES2
Item description	Item No.	
SRC-ADO 4AA/4DO 100..240 V type dim/heating/cooling	273275	
SRC-ADO 4AA/4DO 100..240 V type fancoil, change-over	423243	

Wireless receiver – multi 0..10 V | relay 2DO 24 V		ES2
Item description	Item No.	
SRC-ADO 4AA/2DO 24 V type dimming/heating/cooling	420105	
SRC-ADO 4AA/2DO 24 V type fancoil, change-over	494816	

Wireless receiver – multi 0..10 V | relay 4DO 24 V		ES2
Item description	Item No.	
SRC-ADO 4AA/4DO 24 V type dimming/heating/cooling	455428	
SRC-ADO 4AA/4DO 24 V type fancoil, change-over	502955	

Accessories		AS1
Item description	Item No.	On stock
Antenna extension 10 m	257206	
Antenna extension 20 m	257213	
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097	

STC-MSG Server

DATA SHEETS



The STC-MSG server is used for individual room control in conjunction with radio room operating units and up to 8 or 16 SAB radio valve actuators. For efficient energy saving, a timer is integrated. It is also possible to use the function „energy lock“ by learning-in radio window contacts and radio window handles. With the window open functionality the valve actuators are closed to save energy. The parameterization of the individual functions can be done via an integrated configuration menu using the display. The scope of delivery already includes an external transmit/receive antenna for the best possible range.

enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional
Receive channels	8/16 SAB + 1 room sensor, 10 digital input modules, switches or presence detectors + 20 window contacts or window handles (Rx)
Transmit channels	8/16 SAB + status telegrams (Tx)
Power supply	100..240 V ~
Power consumption	typ. 3,5 VA
Display	graphic display monochrome
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding
Notes	magnetic antenna plate recommended to improve radio coverage

Heating/cooling circuit controller		ES2
Item description	Item No.	
STC-MSG server 8 channel	501590	
STC-MSG server 16 channel	507080	

Accessories			AS1
Item description	Item No.	On stock	
Antenna extension 10 m	257206		
Antenna extension 20 m	257213		
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097		

STC-MSG Server UP

DATA SHEETS



Wirelessly controlled heating regulator for control of up to 5 SAB valve actuators within one room in connection with wireless room sensors. Furthermore, it is feasible to make use of the function “energy stop“ by seamlessly connecting window contacts and handles to the SAB, resulting in an automated closing of the valves, if a window is open. The device can learn in the following sensors: 5 EasySens® valve actuators (SAB), 1 room operating unit type SR04 x, SR06 x or SR07 x, 10 digital input modules SR65 DI, EasySens® switches, motion sensors (e.g. SR-MDS, SR-MOW), 20 window contacts or window handles.

airConfig enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional, airConfig ready
Power supply	100..240 V ~ 15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 2 VA (100...240 V ~)
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Heating/cooling circuit controller 1 channel		ES2
Item description	Item No.	
STC-MSG server UP 100..240 V	550048	
STC-MSG Server UP 24 V	688222	

Accessories		
Item description	Item No.	On stock
airConfig (freeware via www.thermokon.com)		
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●

SAB+

DATA SHEETS



Battery-free wireless (EasySens® technology) valve actuator for individual room control. The new electronic heating valve utilizes the heat dissipation between the radiator and the ambient temperature to gain electrical energy by means of a thermoelectric generator. Sufficient energy can be stored in the built-in high-performance capacitor to ensure normal operation in periods of unfavorable energy (summer months, transitional periods).

airConfig enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional airConfig ready Bluetooth® interface on request
Power supply	maintenance-free thermal energy harvesting
Measuring range temp.	0..+40 °C
Measuring intervall	every 2..20 min., configured via airConfig (in 2 min. steps) or via button
Transmission interval	every 2..20 min., configured via airConfig (in 2 min. steps) or via button
Functions	actuator operation, self-control mode, automatic closing point control, frost protection function (type heating) or heat protection function (type cooling)
Display	status-LED
Enclosure	PC, pure white, aluminium
Protection	IP40 according to EN 60529
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	screw mounted, M30 x 1,5 optional valve adapter available
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz), with integrated, digital temperature transmitter, nominal stroke 3.8 mm, automatically adjusting, regulation time: 0,24 mm/s, pulling load: >100 N

SAB+

Battery-free radio valve actuator EasySens® with thermal energy harvesting		ES2
Item description	Item No.	On stock
SAB+ (Heating)	669108	
SAB+ (Cooling)	715409	

Accessories		AS1
Item description	Item No.	On stock
SAB Lock – dismounting protection SAB	688611	
Safety lock dismounting protection SAB	706148	
airConfig (freeware via www.thermokon.com)		
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	

Accessories – valve adapters		AS1
Item description	Item No.	On stock
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	
Valve adapter SAB for Danfoss RA2000 Z802	589093	
Valve adapter SAB for Danfoss RAV Z803	589109	
Valve adapter SAB for Danfoss RAV-L Z804	589116	
Valve adapter SAB for Danfoss Z800	589079	
Valve adapter SAB for Danfoss Z801	589086	
Valve adapter SAB for Danfoss Z805	615181	
Further valve adapters on request		



SAB05

DATA SHEETS

Radio-controlled valve actuator with EasySens® technology for continuous individual room control. Bidirectional control via STC-MSG server or EasySens® gateways. Parameterization is possible via free airConfig software. The SAB05 is completely wireless and powered by 3x AA batteries. Adapters are available for numerous valve manufacturers.

airConfig enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional, airConfig ready
Power supply	3 batteries (type AA)
Measuring range temp.	0..+40 °C
Measuring intervall	every 2..20 min., configured via airConfig (in 2 min. steps) or via button
Transmission interval	every 2..20 min., configured via airConfig (in 2 min. steps) or via button
Functions	radio interface, actuator operation, self-control mode, automatic closing point control, frost protection function
Display	status-LED, multi-colored
Enclosure	PC, pure white
Protection	IP40 according to EN 60529
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	screw mounted, M30 x 1,5, optional valve adapter available
Delivery contents	incl. 3 batteries (type AA)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz), with integrated, digital temperature transmitter, Regulation distance: max. 3 mm (automatic adaption by initialisation), regulation time: 0,1 mm/s, pulling load: 100 N nominal

SAB05

Valve actuator			ES2
Item description	Item No.	On stock	
SAB05	513753	●	

Accessories			AS1
Item description	Item No.	On stock	
Battery protection SAB05	595612	●	
SAB Lock – dismounting protection SAB	688611	●	
Safety lock dismounting protection SAB	706148	●	
airConfig (freeware via www.thermokon.com)			
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●	

Accessories – valve adapters			AS1
Item description	Item No.	On stock	
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724		
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978		
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070		
Valve adapter SAB for Danfoss RA2000 Z802	589093		
Valve adapter SAB for Danfoss RAV Z803	589109		
Valve adapter SAB for Danfoss RAV-L Z804	589116		
Valve adapter SAB for Danfoss Z800	589079		
Valve adapter SAB for Danfoss Z801	589086		
Valve adapter SAB for Danfoss Z805	615181		
Further valve adapters on request			

SRE-Repeater

DATA SHEETS



The repeater replicates EnOcean radio signals between sensors and receivers. Typical usage is when sensors are installed out of range or for solving problems in already existing wireless networks (e.g. by moving walls, adjusting furniture/cupboards). Level 1, Level 2 and smart repeating (role-based filters) can be configured via airConfig. Ideal for installation in false ceilings.

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal transmitting/receiving antenna external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, airConfig ready
Power supply	flex. 15..240 V =/~
Power consumption	typ. 1 VA (15..240 V =/ ~)
Functions	level-1, level-2, smart-operation, rule based, max. 10 rules, configured via airConfig
Enclosure	PA6.6, pure white, cover PC, transparent, with quick lock screws
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, only version with external antenna
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz), magnetic antenna plate for the external antenna recommended to improve radio coverage

Wireless repeater		ES2
Item description	Item No.	
SRE-Repeater MultiLevel internal ant.	593809	
SRE-Repeater MultiLevel external ant.	593830	

Accessories		AS1
Item description	Item No.	On stock
Antenna extension 10 m	257206	
Antenna extension 20 m	257213	
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097	
airConfig (freeware via www.thermokon.com)		
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	

SRE-Repeater UP

DATA SHEETS



The flush mounted repeater replicates EnOcean radio signals between sensors and receivers. Typical usage is when sensors are placed out of range or for solving problems in already existing wireless networks (e.g. by moving walls, adjusting furniture/cupboards). Level 1, Level 2 and smart repeating (role-based filters) can be configured via airConfig.

airConfig enocean

TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Antenna	internal transmitting/receiving antenna
Data transmission	bidirectional, airConfig ready
Power supply	100..240 V ~
Power consumption	max. 2 VA (100...240 V ~), standby <0,5 W
Functions	level-1, level-2, smart-operation, rule based, max. 10 rules, configured via airConfig
Enclosure	ABS, red
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

Wireless repeater		ES2
Item description	Item No.	
SRE-Repeater UP MultiLevel internal ant.	556736	

Accessories		
Item description	Item No.	On stock
airConfig (freeware via www.thermokon.com)		
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●



airScan

DATA SHEETS

Thermokon airScan consists of an USB transmitter/receiver with software to use your PC or Mac as a field strength measuring tool. Measuring frequency ranges the tool is used to define best mouting places for EnOcean transmitter and receiver. airScan gives a quick overview of EnOcean telegrams, reading status, ID, field strength and manufacturer for EnOcean products.

An optional USB extension for optimal positioning of the transmitter/receiver, even at the ceiling is available.

TECHNICAL DATA	
System requirements	the software is available for all Windows- and Apple OS X based computers, min. Windows XP, Adobe Flash, min. USB 2.0
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional: 902 MHz (Americas)
Delivery contents	1x USB-Stick, software for configuration (freeware via download)
Notes	USB extension (3 m) for optimal positioning of the transmitter/receiver is available (refer to accessories)

airScan (EnOcean usb transceiver + license)		
Item description	Item No.	On stock
airScan (net price)	566704	

Accessories		
Item description	Item No.	On stock
USB extension 3 m (net price)	574044	



airConfig

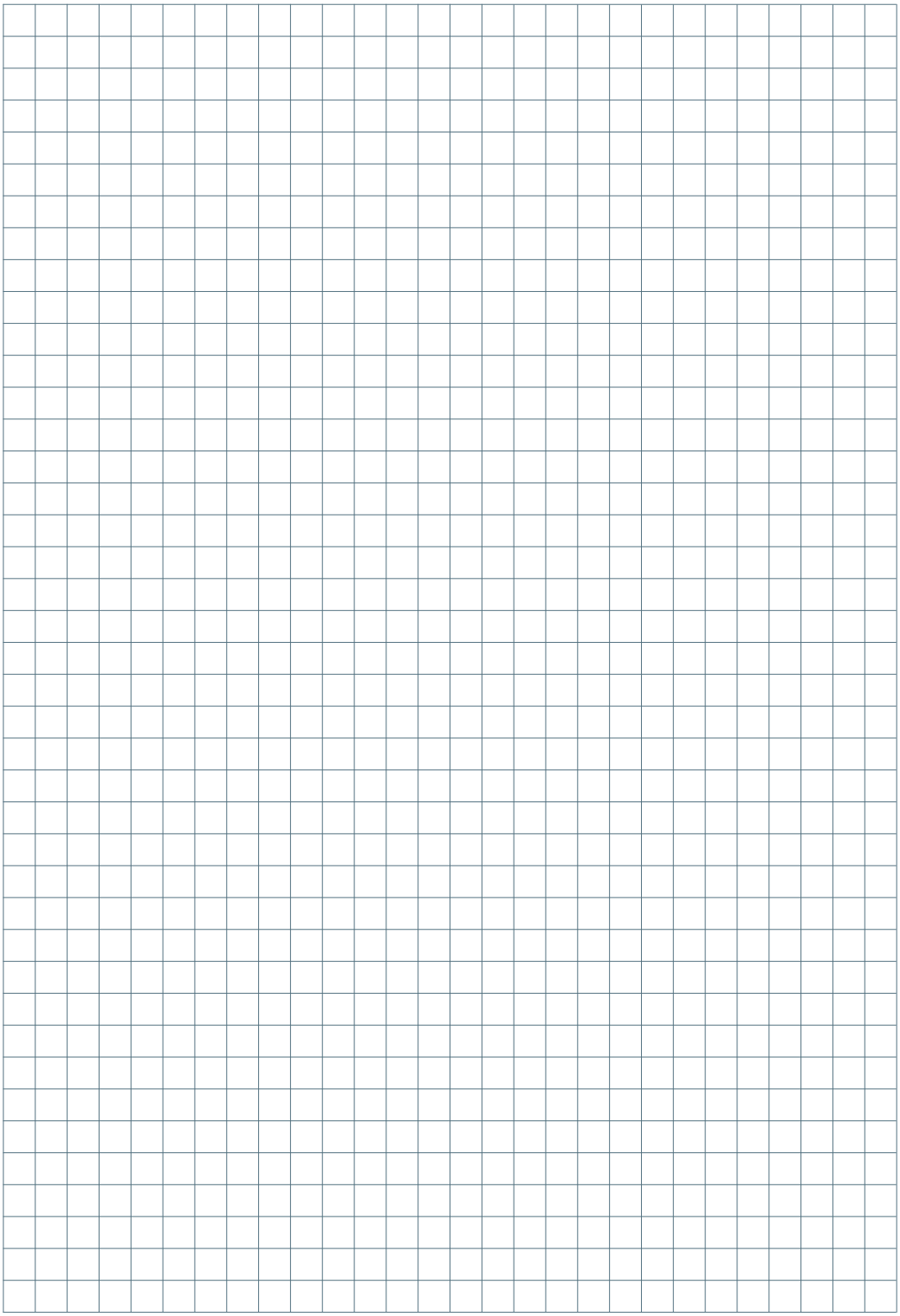
DATA SHEETS

airConfig enables remote commissioning of EasySens® based products. Remote commissioning is defined as parameterization without direct interaction with the device. airConfig uses the EnOcean based radio technology to parameterize the devices by means of special remote commissioning commands. To use remote commissioning an EnOcean usb transceiver and the free airConfig software are necessary.

TECHNICAL DATA	
System requirements	the software is available for all Windows- and Apple OS X based computers. It also runs on the Microsoft surface tablet. An EnOcean based USB stick allows the communication to the devices and your network.
Radio technology	EnOcean (IEC 14543-3-10)
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

airConfig	
Item description	Item No.
airConfig (free of charge)	

Accessories		
Item description	Item No.	On stock
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●



IntoMesh Transmitter

Innovative self-powered wireless technology generates energy by means of harvesting ambient light or motion. Interoperable, cost-effective and energy-efficient solutions in building automation are available using our wireless sensor system EasySens®.





TECHNICAL DATA	
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	BLE 2,4 GHz
Power supply	maintenance-free, electrodynamic energy generator
Transmission interval	when pressing the switches
Switch range Berker	S.1 *, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI *, solo®, future® linear, Busch-axcent®
Switch range Feller	EDIZIOdue *
Switch range Gira	E2 *, E3 *, Standard 55 *, Esprit *, Event *, F100 *
Switch range Jung	LS 990, A 500 *, AS 500 *, A creation *
Switch range Merten	M-Smart *, M-Plan *, M-Pure *, 1-M, Atelier-M, Artec *, Antik *
Switch range Peha	AURA, AURA glass
Control functions	actuation force 7 N actuation range 2 mm operating cycle quantity > 50.000
No. of buttons	2-channel (1 switch) 4-channel (2 switches)
Labelling	O, I (version light) ▲▼ (version blinds) special printing available on request
Enclosure	pure white brilliant, aluminium, Jung aluminium (suitable for switch ranges Jung), anthracite
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil (included) or screws
Notes	* in switch program with intermediate frame, when ordering other switch programmes, please specify colour, please note surcharges for some switch systems

BLE radio switches (Bluetooth Low Energy)

DATA SHEETS

Lighting and blind control. The self powered wireless technology enables flexible installation on glass and wall plaster via double-sided adhesive pads or screws.







Frame Mini

Radio switches BLE 2,4 GHz 2-channel light	ES2
Item description	Item No.
Mini 2-channel BLE light pure white brilliant	731065
Mini 2-channel BLE light aluminium varnished	733946
Mini 2-channel BLE light anthracite	733953

Radio switches BLE 2,4 GHz 4-channel light	ES2
Item description	Item No.
Mini 4-channel BLE light pure white brilliant	708425
Mini 4-channel BLE light aluminium varnished	733960
Mini 4-channel BLE light anthracite	733977

Radio switches BLE 2,4 GHz 2-channel blind	ES2
Item description	Item No.
Mini 2-channel BLE blind pure white brilliant	733984
Mini 2-channel BLE blind aluminium varnished	733991
Mini 2-channel BLE blind anthracite	734004

Radio switches BLE 2,4 GHz 4-channel blind	ES2
Item description	Item No.
Mini 4-channel BLE blind pure white brilliant	734011
Mini 4-channel BLE blind aluminium varnished	734028
Mini 4-channel BLE blind anthracite	734035

Frame 55x55

Radio switches BLE 2,4 GHz 2-channel light	ES1
Item description	Item No.
2-channel BLE light 55x55 pure white matt without frame	734042
2-channel BLE light 55x55 pure white brilliant without frame	734288
2-channel BLE light 55x55 aluminium without frame	734318
2-channel BLE light 55x55 Jung aluminium without frame	734325
2-channel BLE light 55x55 anthracite without frame	734332

Radio switches BLE 2,4 GHz 4-channel light	ES1
Item description	Item No.
4-channel BLE light 55x55 pure white matt without frame	734066
4-channel BLE light 55x55 pure white brilliant without frame	734349
4-channel BLE light 55x55 aluminium without frame	734356
4-channel BLE light 55x55 Jung aluminium without frame	734363
4-channel BLE light 55x55 anthracite without frame	734370

Radio switches BLE 2,4 GHz 2-channel blind	ES1
Item description	Item No.
2-channel BLE blind 55x55 pure white matt without frame	734110
2-channel BLE blind 55x55 pure white brilliant without frame	734387
2-channel BLE blind 55x55 aluminium without frame	734394
2-channel BLE blind 55x55 Jung aluminium without frame	734400
2-channel BLE blind 55x55 anthracite without frame	734417

Radio switches BLE 2,4 GHz 4-channel blind	ES1
Item description	Item No.
4-channel BLE blind 55x55 pure white matt without frame	734127
4-channel BLE blind 55x55 pure white brilliant without frame	734424
4-channel BLE blind 55x55 aluminium without frame	734479
4-channel BLE blind 55x55 Jung aluminium without frame	734486
4-channel BLE blind 55x55 anthracite without frame	734493

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass, stainless steel, aluminium (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Frame Busch-Jaeger

Radio switches BLE 2,4 GHz 2-channel light	ES1
Item description	Item No.
2-channel BLE light BJ63x63 studio white without frame	734516
2-channel BLE light BJ63x63 ivory white without frame	734547
2-channel BLE light BJ63x63 aluminium silver without frame	734554
2-channel BLE light BJ63x63 anthracite without frame	734561

Radio switches BLE 2,4 GHz 4-channel light	ES1
Item description	Item No.
4-channel BLE light BJ63x63 studio white without frame	734509
4-channel BLE light BJ63x63 ivory white without frame	734578
4-channel BLE light BJ63x63 aluminium silver without frame	734585
4-channel BLE light BJ63x63 anthracite without frame	734592

Radio switches BLE 2,4 GHz 2-channel blind	ES1
Item description	Item No.
2-channel BLE blind BJ63x63 studio white without frame	734615
2-channel BLE blind BJ63x63 ivory white without frame	734622
2-channel BLE blind BJ63x63 aluminium silver without frame	735049
2-channel BLE blind BJ63x63 anthracite without frame	735056

Radio switches BLE 2,4 GHz 4-channel blind	ES1
Item description	Item No.
4-channel BLE blind BJ63x63 studio white without frame	734608
4-channel BLE blind BJ63x63 ivory white without frame	735070
4-channel BLE blind BJ63x63 aluminium silver without frame	735087
4-channel BLE blind BJ63x63 anthracite without frame	735100

Options
Item description
Switch ranges Busch-Jaeger future® linear | solo® | Busch-axcent®

Room Operating Units / Controller

Our room operating units are used for temperature detection and integrated operation of HVAC, lighting and blinds for single room control. A variety of sophisticated and high-end designs and optional features are available.







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Room controller

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» BENEFITS

» Compatible with multiple BUS systems
» Various control elements to cover a wide range of applications
» Flexible design options with various colours and design frames
» Custom labels/engravings

1



NOVOS Touch

High-end room operating unit
with 4,8“ Touchscreen and BUS interface

2



WRF06 LCD

Flush-mounted room operating unit for flexible room control, compatible to various design frames of numerous manufacturers

novos

BACnet · KNX · LON LOCAL OPERATING NETWORK · enocean · Modbus · digitalSTROM

PERFECT WORKING CONDITIONS

The multifunctional room operating units combine high-end design along with sophisticated technology: Integrated sensors for temperature and humidity, switching signals for lighting and blinds, touch-sensitive surfaces in custom design variations. Communications through standard network technologies: Create the perfect working environment.



» BENEFITS

- » Compatible with multiple BUS systems
- » Various control elements to cover a wide range of applications
- » Flexible design options with various colours and design frames
- » Custom labels/engravings

1



NOVOS 7

Multifunctional room operating unit with push-and-rotary switch, 3,5“ TFT display and BUS-interface

2



WRF07

Flush-mounted room operating unit, compatible with various switch designs from many manufacturers, numerous control elements and custom labels are available.

novos

BACnet KNX LON LOCAL OPERATING NETWORK enocean Modbus digitalSTROM

HIGH LEVEL COMMUNICATION

The multifunctional room operating units combine high grade design along with sophisticated technology: Integrated sensors for temperature and humidity, switching signals for lighting and blinds, touch-sensitive surfaces in custom design variations. Communications via standard network technology: Create the perfect working environment.

AVAILABLE Q4/2019

NOVOS Touch

Thanks to the high-resolution 4.8" touch display and its precious glass surface, "NOVOS Touch" is the highlight among the new room operating units of Thermokon. The intuitive smartphone-like touch interface is easy to operate and provides status messages in the display as well as a dashboard to view all values in one.

Moreover, "NOVOS Touch" provides up to four integrated sensors, that enable the simultaneous detection of temperature, humidity, CO2 and VOC. The control of blinds is comfortable by simple up/down commands, venetian blind adjustments or precise blind positions by slider elements.

In addition to numerical values the range of value can be indicated by traffic light function. Furthermore, floor plans can be uploaded to easily control peripherals. The RS485 Modbus interface is perfectly enhancing the capabilities of the new NOVOS Touch.



ADVANTAGES AND HIGHLIGHTS

- Intuitive and comfortable user interface to control room climate, lighting and shading
- Individual scenes can be defined and called
- Integration of up to four sensors in one device (temperature, relative humidity, CO2 and VOC)
- ECO mode for an energy-efficient room control
- Clear visualization of values with trends and traffic light indication
- High-resolution 4,8" Touch screen with a real glass surface
- Digital input for external devices/sensors
- RS485 Modbus interface *(RS485 BACnet and KNX interface under development)*

Touch screen room operating unit temperature + opt. humidity, CO2, VOC – active BUS	RU1
Item description	Item No.
NOVOS Touch Temp RS485 Modbus	735117
NOVOS Touch Temp_rH RS485 Modbus	735124
NOVOS Touch CO2 Temp_rH RS485 Modbus	735131
NOVOS Touch VOC Temp_rH RS485 Modbus	735148
NOVOS Touch CO2+VOC Temp_rH RS485 Modbus	735155

AVAILABLE Q4/2019

NOVOS 7

A majority of the features integrated in the NOVOS Touch are also available for the NOVOS 7 – the second landmark room unit within the NOVOS family.

The powerful room unit with a 3,5“ TFT display impresses with an easy-to-navigate user interface by means of a push-and-rotary switch. In addition four configurable touch buttons allow quick access of frequently used functions or scenes.



ADVANTAGES AND HIGHLIGHTS

BACnet KNX Modbus

- Intuitive and comfortable user interface to control room climate, lighting and shading
- Individual scenes can be defined and called
- Integration of up to four sensors in one device (temperature, relative humidity, CO2 and VOC)
- Clear visualization of values with trends and traffic light indication
- Push-and-rotary switch for an intuitive menu navigation
- Four configurable touch buttons
- High-quality 3,5” TFT display
- RS485 Modbus interface (RS485 BACnet and KNX interface under development)

Room operating unit temperature + opt. humidity, CO2, VOC – active BUS		RU1
Item description	Item No.	
NOVOS 7 Temp RS485 Modbus	735018	
NOVOS 7 Temp_rH RS485 Modbus	735025	
NOVOS 7 CO2 Temp_rH RS485 Modbus	735032	
NOVOS 7 VOC Temp_rH RS485 Modbus	735063	
NOVOS 7 CO2+VOC Temp_rH RS485 Modbus	735094	

thanos

DATA SHEETS

The touch room operating unit is used for temperature and humidity detection (optional) as well as for the intuitive operation of HVAC, lighting and blind functions. The operating functions can be flexibly used depending on the room requirement. The housing colors white and black as well as the types „L“ and „S“ in vertical and horizontal design are available. All designs are designed for installation in a flush-mounted box. Due to the high-quality optics, the device is particularly suitable for design-oriented facilities.



thanos S white



thanos S black



thanos L white



thanos L black



thanos LQ white



thanos LQ black

for thanos with radio please refer to 'EasySens® – Transmitter'

Highlights *(type RS485 Modbus)*



Modbus KNX LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature, humidity, depending on the device
Network technology	KNX (TP), LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 2,0 W (24 V =) | 4,0 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±3% between 20..80% rH (typ. at 21 °C)
Inputs	KNX / RS485 Modbus:, digital, 4x individual configuration for window contact, dew point guard, key card switch, room frequency, alarm, event
Control functions	occupancy signalling light ON/OFF/DIM setup scenarios blinds UP/DOWN/SET fan stages setpoint
Clip	anodized aluminium
No. of buttons	type L/LQ min. 8 capacitive touch sensor buttons
Labelling	type L/LQ flexible insert (for up to 8 touch buttons below/beside clip)
Display	TFT 3,5“, 320x240 px, capacitive touch technology showing room temperature, setpoint, operation mode, fan stage, occupancy, alarm, date and time, ..., ECO note (several steps, red to green; available for RS485 Modbus) graphic and photo: Instead of date and time individual colour graphics (175x50 or 240x320 pixel) can be shown (e.g. company logo or hotel name; available for RS485 Modbus)
Colour	white or black
Enclosure	PC and glass
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Delivery contents	software for configuration (freeware via download)
Notes	you‘ll find the software description at www.thermokon.com

thanos

Item description: product | model | colour | BUS

Touch screen room operating unit temperature – RS485 Modbus	RU1
Item description	Item No.
thanos L black RS485 Modbus	472302
thanos L white RS485 Modbus	472296
thanos LQ black RS485 Modbus	472326
thanos LQ white RS485 Modbus	472319
thanos S black RS485 Modbus	472340
thanos S white RS485 Modbus	472333

Touch screen room operating unit temperature – LON	RU1
Item description	Item No.
thanos L black LON	471749
thanos L white LON	471725
thanos LQ black LON	471763
thanos LQ white LON	471756
thanos S black LON	471787
thanos S white LON	471770

Touch screen room operating unit temperature – KNX	RU1
Item description	Item No.
thanos L black KNX	472067
thanos L white KNX	472050
thanos LQ black KNX	472081
thanos LQ white KNX	472074
thanos S black KNX	472104
thanos S white KNX	472098

thanos rH

Item description: product | model | colour | BUS

Modbus

Touch screen room operating unit temperature + humidity – RS485 Modbus	RU1
Item description	Item No.
thanos rH L black RS485 Modbus	472364
thanos rH L white RS485 Modbus	472357
thanos rH LQ black RS485 Modbus	472388
thanos rH LQ white RS485 Modbus	472371
thanos rH S black RS485 Modbus	472401
thanos rH S white RS485 Modbus	472395

LON
LOCAL OPERATING NETWORK

Touch screen room operating unit temperature + humidity – LON	RU1
Item description	Item No.
thanos rH L black LON	471800
thanos rH L white LON	471794
thanos rH LQ black LON	471824
thanos rH LQ white LON	471817
thanos rH S black LON	471848
thanos rH S white LON	471831

KNX

Touch screen room operating unit temperature + humidity – KNX	RU1
Item description	Item No.
thanos rH L black KNX	472111
thanos rH L white KNX	448550
thanos rH LQ black KNX	472135
thanos rH LQ white KNX	472128
thanos rH S black KNX	472159
thanos rH S white KNX	472142

Accessories
Item description
Software/Plug-In for configuration (free via www. thermokon.com)



thanos dS

DATA SHEETS

Elegant operating unit for complete and central room control with integrated sensors for room temperature and relative humidity. All function groups of digitalSTROM are supported. Depending on configuration thanos can flexibly operate lighting, shading, heating, audio, video, presence or app button. Visualization of appartement events like alarm, panic or fire and outdoor events like wind, hail or rain is also possible.

digitalSTROM

TECHNICAL DATA	
Measuring values	temperature, humidity, depending on the device
Network technology	digitalSTROM (dS)
Power supply	230 V ~ (±10%)
Power consumption	typ. 3 W / max. 0,04 A
Measuring range temp.	0..+40 °C, dS: 0..+40 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±3% between 20..80% rH (typ. at 21 °C)
Control functions	light, blinds, room climate, audio, video, presence, app button
Clip	anodized aluminium
Display	showing room temperature, setpoint, operation mode, fan stage, occupancy audio-visual presentation of events such as alarm, panic, fire is possible
Colour	white or black
Enclosure	PC and glass
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

digitalSTROM

Touch screen room operating unit temperature + humidity – digitalSTROM		DS1
Item description	Item No.	
thanos rH S black dS	613446	
thanos rH S white dS	613439	

WRF06 LCD VV_DI4

DATA SHEETS

The flush-mounted room operating unit with setpoint adjustment and occupancy button is used for individual temperature control in living, hotel and office rooms. The device with 4 control buttons and LCD can be integrated into the most common switch ranges It is available in many color versions and suitable for design-oriented facilities. Depending on the type, it is also possible to control continuous valves for heating or cooling. The removable terminal block allows pre-wiring.



WRF06 LCD ltype1 pure white, frame Gira E2 pure white matt



WRF06 LCD ltype1 anthracite, frame Peha Aura Glas



WRF06 LCD LON ltype2 aluminium, frame Merten M-Plan aluminium

0..10 V / 4..20 mA Modbus LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature
Output voltage	VV: 2x 0..10 V
Network technology	LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,8 W (24 V =) | 2,5 VA (24 V ~), LON: typ. 1,3 W (24 V =) | 1,5 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	VV: 2x input digital for floating contact DI4: 4x input digital for floating switch contact
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec *, Antik *
Switch range Peha	AURA, AURA glass
No. of buttons	4
Display	LCD 34x21 mm, monochrome
Enclosure	PC, pure white brilliant, pure white matt, aluminium, anthracite, frame color may differ slightly
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², pluggable
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Delivery contents	software for configuration (freeware via download)
Notes	for further variants see chapter room controller, * in switch program with intermediate frame, please specify frame design when ordering, please indicate labelling type in order, BUS: only available with labelling type 1 and 2

WRF06 LCD VV_DI4

labelling type 1 (ltype1)
standard for BUS / optionally for VV



labelling type 2 (ltype2)
optionally for models with BUS



labelling type 3 (ltype3)
standard for models VV



Room operating unit temperature – active 2x 0..10 V			RU2
Item description	Inputs	Item No.	
WRF06 LCD VV ltype3 pure white matt without frame	2	731089	
WRF06 LCD VV ltype3 pure white brilliant without frame	2	731102	
WRF06 LCD VV ltype3 aluminium without frame	2	731119	
WRF06 LCD VV ltype3 Jung aluminium without frame	2	731126	
WRF06 LCD VV ltype3 anthracite without frame	2	731133	

LON LOCAL OPERATING NETWORK Modbus

Room operating unit temperature – active RS485 Modbus			RU2
Item description	Inputs	Item No.	
WRF06 LCD DI4 RS485 Modbus ltype1 pure white matt without frame	4	731140	
WRF06 LCD DI4 RS485 Modbus ltype1 pure white brilliant without frame	4	730068	
WRF06 LCD DI4 RS485 Modbus ltype1 aluminium without frame	4	731164	
WRF06 LCD DI4 RS485 Modbus ltype1 Jung aluminium without frame	4	731195	
WRF06 LCD DI4 RS485 Modbus ltype1 anthracite without frame	4	731201	

Room operating unit temperature – active LON			RU2
Item description	Inputs	Item No.	
WRF06 LCD DI4 LON ltype1 pure white matt without frame	4	731218	
WRF06 LCD DI4 LON ltype1 pure white brilliant without frame	4	731232	
WRF06 LCD DI4 LON ltype1 aluminium without frame	4	731249	
WRF06 LCD DI4 LON ltype1 Jung aluminium without frame	4	731256	
WRF06 LCD DI4 LON ltype1 anthracite without frame	4	731263	

Options
Item description
Labelling type 1 (ltype1) – only type VV
Labelling type 2 (ltype2) – only BUS models

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass, stainless steel, aluminium (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

FTW06 LCD dS

DATA SHEETS

The digitalSTROM room operating unit with LCD for flush mounting is used for temperature and humidity detection, setpoint adjustment and fan level adjustment. In combination with system and smartphone apps, a comfortable room temperature control is realized, which can be operated conveniently from home or on the move. Available in various switch ranges and color versions this device is suitable for design-oriented facilities.



FTW06 LCD dS

digitalSTROM

TECHNICAL DATA	
Measuring values	temperature, humidity
Network technology	digitalSTROM (dS)
Power supply	230 V ~ (±10%)
Power consumption	typ. 1,1 W (24 V =) max. 0,04 A (230 V ~)
Measuring range temp.	0..+40 °C
Measuring range humidity	0..95% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec *, Artec stainless steel *, Antik *
Switch range Peha	AURA, AURA glass
No. of buttons	4
Display	LCD 34x21 mm, monochrome
Enclosure	PC, pure white brilliant, pure white matt, aluminium, anthracite frame color may differ slightly
Protection	IP30 according to EN 60529
Connection electrical	plug-in terminal, max. 2,5 mm²
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	* in switch program with intermediate frame please specify frame design when ordering

FTW06 LCD dS

Room operating unit humidity– + temperature digitalSTROM	DS1
Item description	Item No.
FTW06 LCD dS pure white matt without frame	731270
FTW06 LCD dS pure white brilliant without frame	731287
FTW06 LCD dS aluminium without frame	731294
FTW06 LCD dS Jung aluminium without frame	731300
FTW06 LCD dS anthracite without frame	731317

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass, stainless steel, aluminium (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

WRF07

DATA SHEETS

A visually appealing flush-mounted room operating unit in the design of various switch manufacturers. Available in different colors and different labeling variants. Possible operating elements are potentiometer (setpoint adjustment), LEDs (optical feedback), buttons (presence signal) and rocker switch (operating mode changeover). On request, a temperature sensor can be added. The peelable terminal allows pre-wiring.



WRF07 P Itype1,
Gira E2 pure white matt



WRF07 P Itype1,
Busch-Jaeger alpha nea®

0..10 V / 4..20 mA

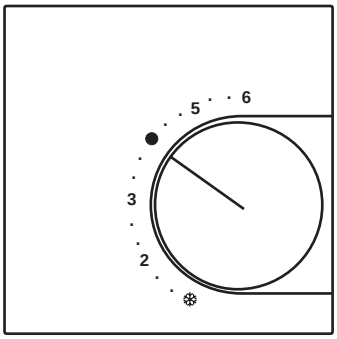
TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	TRV: 12mA | 24 V =
Measuring range temp.	0..+50 °C, passive: -35..+70 °C
Accuracy temperature	TRV : ±1% of measuring range (typ. at 21 °C), passive: depending on used sensor
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo®, future® linear, impuls, Busch-axcent®, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antik
Switch range Peha	AURA, AURA glass
Set point (P)	potentiometer, 3-wire connection default value 10 kΩ (for other values please request) active output 0..10 V (optional)
Rotary switch (S)	mini rotary switch for fan stage adjustment with up to 5 stages available (please request), switching capacity max. 5 W
Rocker switch (S)	for fan speed adjustment
Button (T)	for presence detection, switching capacity max. 600 mW
LED (D)	for status feedback, green (standard), several LEDs possible (e.g. green, yellow, red)
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Delivery contents	software for configuration (freeware via download)
Notes	for further variants see chapter room controller, other sensors | operating elements| switch ranges on request

WRF07

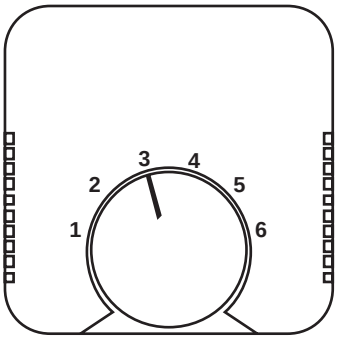
Types with standard labelling *(only with standard switch ranges)*

Labelling type 1 *(manufacturer standard labelling, depending on switch range)*

WRF07 P ltype1

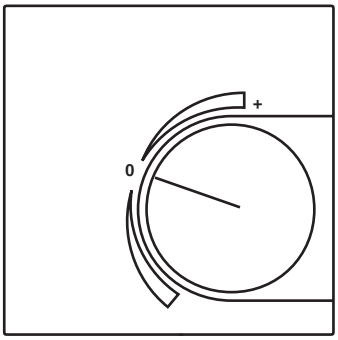


WRF07 P ltype1 Busch-Jaeger

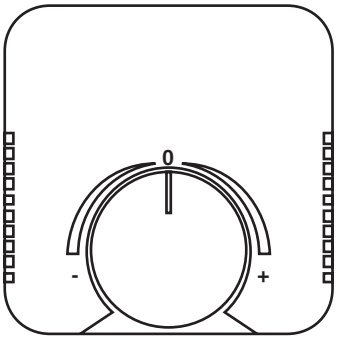


Labelling type 2 *(refer to options)*

WRF07 P ltype2

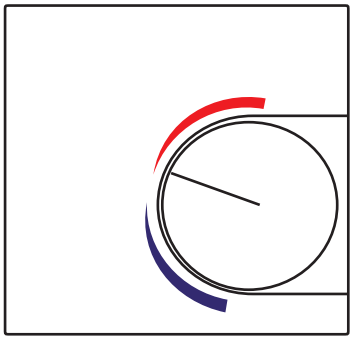


WRF07 P ltype2 Busch-Jaeger

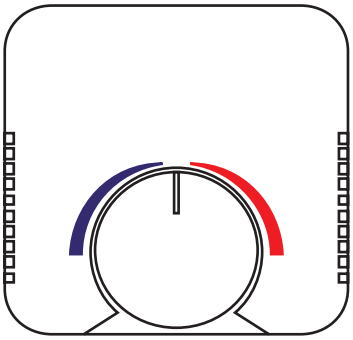


Labelling type 6 – colour red/blue *(refer to options)*

WRF07 P ltype6



WRF07 P ltype6 Busch-Jaeger



button (T) and LED (D) without labelling by default,
rocker switch (S) labelled with I/O (not available for switch range Busch-Jaeger)

WRF07

Item descr.: product | operating elements | sensor | labelling type | switch range | colour | potentiometer | LED

Room operating unit temperature – without sensor	RU2
Item description	Item No.
WRF07 P without sensor ltype1 Gira E2 pure white matt, 10 kOhm	202664
WRF07 PTD without sensor ltype1 Gira E2 pure white matt, 10 kOhm, LED green	542883
WRF07 PSD without sensor ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627917

Room operating unit temperature – PT100	RU2
Item description	Item No.
WRF07 P PT100 ltype1 Gira E2 pure white matt, 10 kOhm	628020
WRF07 PTD PT100 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	553278
WRF07 PSD PT100 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627924

Room operating unit temperature – PT100 1/3 DIN	RU2
Item description	Item No.
WRF07 P PT100 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm	628037
WRF07 PTD PT100 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628068
WRF07 PSD PT100 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627931

Room operating unit temperature – PT1000	RU2
Item description	Item No.
WRF07 P PT1000 ltype1 Gira E2 pure white matt, 10 kOhm	399012
WRF07 PTD PT1000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	291767
WRF07 PSD PT1000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627948

Room operating unit temperature – PT1000 1/3 DIN	RU2
Item description	Item No.
WRF07 P PT1000 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm	628044
WRF07 PTD PT1000 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628075
WRF07 PSD PT1000 1/3 DIN ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627955

Room operating unit temperature – Ni1000	RU2
Item description	Item No.
WRF07 P Ni1000 ltype1 Gira E2 pure white matt, 10 kOhm	400220
WRF07 PTD Ni1000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	529266
WRF07 PSD Ni1000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627962

Room operating unit temperature – Ni1000TK5000	RU2
Item description	Item No.
WRF07 P Ni1000TK5000 ltype1 Gira E2 pure white matt, 10 kOhm	193634
WRF07 PTD Ni1000TK5000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628082
WRF07 PSD Ni1000TK5000 ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627979

Room operating unit temperature – NTC10k	RU2
Item description	Item No.
WRF07 P NTC10k ltype1 Gira E2 pure white matt, 10 kOhm	400237
WRF07 PTD NTC10k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628099
WRF07 PSD NTC10k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627986

WRF07

Item descr.: product | operating elements | sensor | labelling type | switch range | colour | potentiometer | LED

Room operating unit temperature – NTC10k Precon	RU2
Item description	Item No.
WRF07 P NTC10k Precon ltype1 Gira E2 pure white matt, 10 kOhm	720939
WRF07 PTD NTC10k Precon ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628105
WRF07 PSD NTC10k Precon ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627993

Room operating unit temperature – NTC20k	RU2
Item description	Item No.
WRF07 P NTC20k ltype1 Gira E2 pure white matt, 10 kOhm	191234
WRF07 PTD NTC20k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	611343
WRF07 PSD NTC20k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628006

Room operating unit temperature – NTC1,8k	RU2
Item description	Item No.
WRF07 P NTC1,8k ltype1 Gira E2 pure white matt, 10 kOhm	668484
WRF07 PTD NTC1,8k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	668507
WRF07 PSD NTC1,8k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	668521

Room operating unit temperature – LM235Z	RU2
Item description	Item No.
WRF07 P LM235Z ltype1 Gira E2 pure white matt, 10 kOhm	199599
WRF07 PTD LM235Z ltype1 Gira E2 pure white matt, 10 kOhm, LED green	164863
WRF07 PSD LM235Z ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628013

Options
Item description
Passive potentiometer 1 kΩ (poti_1kOhm) or 5 kΩ (Poti_5kOhm), for other values please request
Active potentiometer 0..10 V (poti_active)
Rocker switch S with 3 fan stages (FS3: 1-0-2)
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)
Labelling type 2 (ltype2)
Labelling type 6 colour red+blue (ltype6)
Additional button
Additional diode (LED)
Add to price of NTC10k for sensor NTC10k Carel
Add to price of PT100 for sensor FeT

WRF07

Item description: product | operating elements | TRV3 | labelling type | switch range | colour | LED

Room operating unit 0..+50 °C – 0..10 V, active potentiometer				RU2
Item description	Inputs	0..10 V	Item No.	
WRF07 P TRV3 ltype1 Gira E2 pure white matt	-	1	243902	
WRF07 PTD TRV3 ltype1 Gira E2 pure white matt, LED green	-	1	369602	
WRF07 PSD TRV3 ltype1 Gira E2 pure white matt, LED green	-	1	332132	

Options
Item description
Rocker switch S with 3 fan stages (FS3: 1-0-2)
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)
Labelling type 2 (ltype2)
Labelling type 6 colour red+blue (ltype6)
Additional button
Additional diode (LED)

Accessories			AS1
Item description		Item No.	On stock
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)		645737	●

Design examples



WRF07 PSD Merten Artec
special model/special labelling



WRF07 PTD Jung LS stainless steel
ltype6



WRF07 P2D Berker K.1 polar white
with mini rotary-switch

P = potentiometer, PTD = potentiometer, button, LED, PSD = potentiometer, rocker switch, LED

WRF07 BUS

DATA SHEETS

A visually appealing flush-mounted room operating unit in the design of various switch manufacturers. Available in different colors and different labeling variants. Possible operating elements are potentiometers (setpoint adjustment), LEDs (optical feedback), buttons (presence signal) and rocker switch (operating mode changeover). On request, a temperature sensor can be added. The peelable terminal allows pre-wiring.



WRF07 P ltype1,
Gira E2 pure white matt



WRF07 P ltype1,
Busch-Jaeger alpha nea®

Modbus BACnet

TECHNICAL DATA	
Measuring values	temperature, humidity, depending on the device
Network technology	RS485 BACnet (MS/TP), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,9 W (24 V =) | 1 VA (24 V ~)
Measuring range temp.	0..+50 °C, passive: -35..+70 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Inputs	DI4: 4x input digital for floating switch contact
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.5 aluminum | stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo®, future® linear, impuls, Busch-axcent®, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antik
Switch range Peha	AURA, AURA glass
Set point (P)	potentiometer
Rotary switch (S)	mini rotary switch for fan stage adjustment with up to 5 stages available (please request), switching capacity max. 5 W
Rocker switch (S)	for fan speed adjustment
Button (T)	for presence detection, switching capacity max. 600 mW
LED (D)	for status feedback, green (standard), several LEDs possible (e.g. green, yellow, red)
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Delivery contents	software for configuration (freeware via download)
Notes	for further variants see chapter room controller, other sensors | operating elements| switch ranges on request

Item description: product | operating elements | inputs/outputs | BUS | labelling type | switch range | colour | LED

WRF07 BUS

BACnet

Room operating unit temperature – AO2V RS485 BACnet			RU2
Item description	Inputs	0..10 V	Item No.
WRF07 P AO2V RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt	2	2	628150
WRF07 PTD AO2V RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt, LED green	2	2	628167

Room operating unit temperature + humidity – AO2V RS485 BACnet			RU2
Item description	Inputs	0..10 V	Item No.
WRF07 P rH AO2V RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt	2	2	703260
WRF07 PTD rH AO2V RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt, LED green	2	2	703291

Modbus

Room operating unit temperature – DI4 RS485 Modbus			RU2
Item description	Inputs	0..10 V	Item No.
WRF07 P DI4 RS485 Modbus ltype1 Gira E2 pure white matt	4	-	613910
WRF07 PTD DI4 RS485 Modbus ltype1 Gira E2 pure white matt, LED green	4	-	628181

Room operating unit temperature + humidity – DI4 RS485 Modbus			RU2
Item description	Inputs	0..10 V	Item No.
WRF07 P rH DI4 RS485 Modbus ltype1 Gira E2 pure white matt	4	-	736695
WRF07 PTD rH DI4 RS485 Modbus ltype1 Gira E2 pure white matt	4	-	736718

Options
Item description
Rocker switch S with 3 fan stages (FS3: 1-0-2)
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)
Labelling type 2 (ltype2)
Labelling type 6 colour red+blue (ltype6)
Additional button
Additional diode (LED)

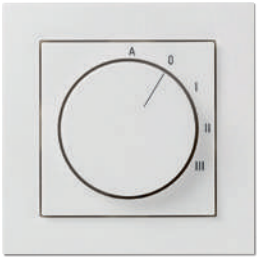
Accessories			AS1
Item description		Item No.	On stock
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)		645737	

P = potentiometer, PTD = potentiometer, button, LED, PSD = potentiometer, rocker switch, LED

WRF06 x

DATA SHEETS

A compliant flush-mounted room operating unit in the design of various switch manufacturers. Available in different colors and different labelling variants. Possible operating elements are LEDs, buttons and rotary switches for fan level adjustment, presence detection, control of other devices and visual feedback. Depending on the type, an additional temperature sensor can be added. The peelable terminal allows pre-wiring.



WRF06 S, Gira E2 pure white matt
standard labelling



WRF06 TD Gira E2 pure white matt



WRF06 4T4D Jung AS 500 alpine white
special model/special labelling

Modbus LON LOCAL OPERATING NETWORK

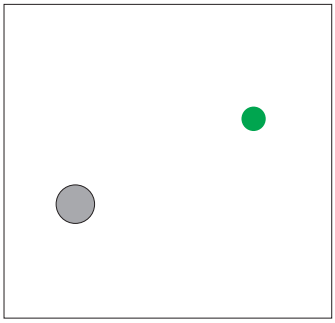
TECHNICAL DATA	
Measuring values	temperature
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,9 W (24 V =) | 1 VA (24 V ~)
Measuring range temp.	passive: -35..+70 °C
Accuracy temperature	passive: depending on used sensor
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo®, future® linear, impuls, Busch-axcent®, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antik
Switch range Peha	AURA, AURA glass
Rotary switch (S)	for fan stage adjustment (max. 5 stages), 5-stages (auto,0,I,II,III), 2-stages (0,I), 3-stages (0,I,II), 4-stages (0,I,II,III), double frame has to be used in combination with temperature sensor, switching capacity max. 5 W
Button (T)	for presence detection, switching capacity max. 600 mW
LED (D)	for status feedback, green (standard) several LEDs possible (e.g. green, yellow, red)
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², pluggable
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	other temperature sensors on request, for other operating elements please request

WRF06 x

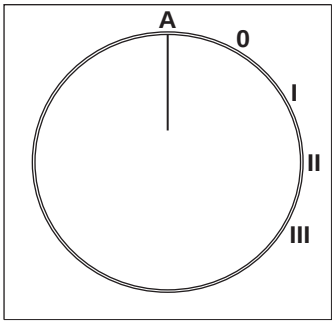
Types with standard labelling
(only with standard switch ranges)

special labelling refer to p. 472

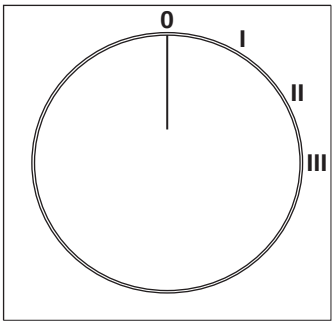
WRF06 TD without labelling
(standard)



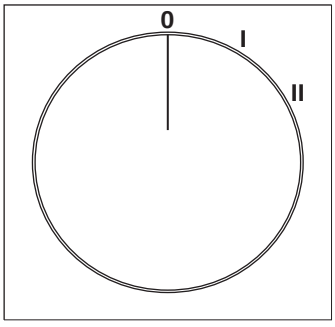
WRF06 S with 5 fan stages
(FS5, standard)



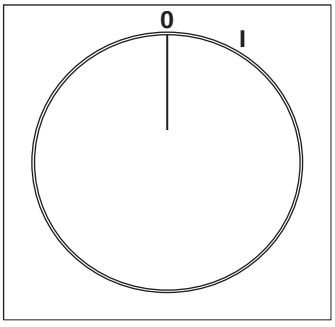
WRF06 S with 4 fan stages
(FS4, refer to options)



WRF06 S with 3 fan stages
(FS3, refer to options)



WRF06 S with 2 fan stages
(FS2, refer to options)



Item description: product | operating elements | sensor | switch range | colour | fan stages | LED

WRF06 x passive

Room operating unit temperature – without sensor	RU2
Item description	Item No.
WRF06 S without sensor Gira E2 pure white matt, FS5	629201
WRF06 TD without sensor Gira E2 pure white matt, LED green	285964

Room operating unit temperature – passive	RU2
Item description	Item No.
WRF06 TD PT100 Gira E2 pure white matt, LED green	564441
WRF06 TD PT100 1/3 DIN Gira E2 pure white matt, LED green	629409
WRF06 TD PT1000 Gira E2 pure white matt, LED green	629423
WRF06 TD PT1000 1/3 DIN Gira E2 pure white matt, LED green	629447
WRF06 TD Ni1000 Gira E2 pure white matt, LED green	195379
WRF06 TD Ni1000TK5000 Gira E2 pure white matt, LED green	629461
WRF06 TD NTC10k Gira E2 pure white matt, LED green	629324
WRF06 TD NTC10k Precon Gira E2 pure white matt, LED green	629348
WRF06 TD NTC20k Gira E2 pure white matt, LED green	629362
WRF06 TD NTC1,8k Gira E2 pure white matt, LED green	668545
WRF06 TD LM235Z Gira E2 pure white matt, LED green	563703

WRF06 x aktiv BUS

Modbus LON LOCAL OPERATING NETWORK

Room operating unit temperature – active BUS	RU2
Item description	Item No.
WRF06 TD DI4 RS485 Modbus Gira E2 pure white matt, LED green	696487
WRF06 TD AO2V LON Gira E2 pure white matt, LED green	696531
WRF06 TD DI4 LON Gira E2 pure white matt, LED green	696555

Options
Item description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)
Additional button
Additional diode (LED)
Rotary switch S with 4 fan stages (FS4)
Rotary switch S with 3 fan stages (FS3)
Rotary switch S with 2 fan stages (FS2)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

WRF06 INC

DATA SHEETS

The flush-mounted room operating unit with interface for RS485 Modbus is used for setpoint adjustment and triggering of an ECO mode function for energy-saving. The central button is used as a rotary knob and push button. The setpoint can be changed as required by turning the button accordingly. The current status is visualized by LEDs. Pushing the button triggers the ECO or presence mode function.







Modbus

TECHNICAL DATA	
Measuring values	temperature
Network technology	RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,3 W (24 V =) | 0,9 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Switch range Berker	S.1
Switch range Merten	M-Smart
Set point (P)	Encoder for setpoint adjustment heating and cooling with button function for ECO mode
LED (D)	7 LEDs for displaying setpoint adjustment, LED for displaying the ECO mode function
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², pluggable
Ambient condition	-10..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	for other frame designs please request

Modbus

Room operating unit temperature – active BUS		RU2
Item description	Item No.	
WRF06 INC RS485 Modbus Merten M-Smart polar white brilliant	698214	

Accessories		AS1
Item description	Item No.	On stock
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	

NOVOS 5 x

DATA SHEETS

Room operating unit in the new Thermokon enclosure NOVOS 5 with integrated temperature sensor. Possible operating elements are potentiometer, LED with color selection, button and rotary switch for setpoint shifting, fan level adjustment, presence detection, control of other devices and visual feedback. The connection terminal in the lower enclosure part allows pre-wiring. The device is available with additional LC display with color change function for displaying the measured values. The threshold values and display settings can be individually configured via the Thermokon NOVOSapp.



NOVOS 5 S



NOVOS 5 PSTD



NOVOS 5 PSTD LCD



NOVOS 5 S Design



NOVOS 5 PSTD Design



NOVOS 5 PSTD Design LCD

TECHNICAL DATA	
Measuring values	temperature
Output passive	passive temperature sensor: PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 | NTC10k potentiometer
Measuring range temp.	-35..+70 °C
Accuracy temperature	passive: depending on used sensor: PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	2-wire (standard) or 4-wire
Set point (P)	potentiometer, 3-wire connection default value 10 kΩ (for other values please request) active output 0..10 V (passive optional, active default)
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III) 2-stages (0,I) 3-stages (0,I,II) 4-stages (0,I,II,III) switching capacity max. 125 V ~ (0,3 A) | 30 V = (1 A)
Button (T)	for presence detection, with LED (TD) switching capacity max. 600 mW
LED (D)	for status feedback colour configurable via jumpers
Enclosure	PC V0, pure white design cover pure white, other colours on request
Protection	IP30 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	other temperature sensors on request

DIFFERENT DATA FOR VERSIONS WITH ACTIVE OUTPUT (TRV / TRA)	
Output voltage	TRV: 1x 0..10 V or 0..5 V (live-zero configuration via Thermokon NOVOSapp) min. load 10 kΩ
Power supply	TRV: 15..35 V = or 19..29 V ~ SELV
Output signal range temp.	TRV: Scaling analog output: 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Accuracy temperature	TRV: ±0,5 K (typ. at 21 °C within default measuring range)
Set point (P)	TRV: active output 0..10 V (optional)
LED (D)	TRV: colour configurable via Thermokon NOVOSapp
Ambient condition	LCD: -20..+70 °C
Notes	please contact us for measuring values (CO2, VOC, humidity) for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 5 x passive

Room operating unit temperature – without sensor	RU3
Item description	Item No.
NOVOS 5 S without sensor, FS5	730082
NOVOS 5 PSTD without sensor, 10 kOhm, FS5	730112
NOVOS 5 S design without sensor, FS5	730105
NOVOS 5 PSTD design without sensor, 10 kOhm, FS5	731683

Room operating unit temperature – PT100	RU3
Item description	Item No.
NOVOS 5 S PT100, FS5	730129
NOVOS 5 PSTD PT100, 10 kOhm, FS5	730143
NOVOS 5 S design PT100, FS5	730136
NOVOS 5 PSTD design PT100, 10 kOhm, FS5	731690

Room operating unit temperature – PT1000	RU3
Item description	Item No.
NOVOS 5 S PT1000, FS5	730150
NOVOS 5 PSTD PT1000, 10 kOhm, FS5	730198
NOVOS 5 S design PT1000, FS5	730174
NOVOS 5 PSTD design PT1000, 10 kOhm, FS5	731706

Room operating unit temperature – PT1000 1/3 DIN	RU3
Item description	Item No.
NOVOS 5 S PT1000 1/3 DIN, FS5	730204
NOVOS 5 PSTD PT1000 1/3 DIN, 10 kOhm, FS5	730228
NOVOS 5 S design PT1000 1/3 DIN, FS5	730211
NOVOS 5 PSTD design PT1000 1/3 DIN, 10 kOhm, FS5	731720

Room operating unit temperature – Ni1000	RU3
Item description	Item No.
NOVOS 5 S Ni1000, FS5	730273
NOVOS 5 PSTD Ni1000, 10 kOhm, FS5	730297
NOVOS 5 S design Ni1000, FS5	730280
NOVOS 5 PSTD design Ni1000, 10 kOhm, FS5	731737

Room operating unit temperature – Ni1000TK5000	RU3
Item description	Item No.
NOVOS 5 S Ni1000TK5000, FS5	730303
NOVOS 5 PSTD Ni1000TK5000, 10 kOhm, FS5	730327
NOVOS 5 S design Ni1000TK5000, FS5	730310
NOVOS 5 PSTD design Ni1000TK5000, 10 kOhm, FS5	731751

Room operating unit temperature – NTC10k	RU3
Item description	Item No.
NOVOS 5 S NTC10k, FS5	730334
NOVOS 5 PSTD NTC10k, 10 kOhm, FS5	730358
NOVOS 5 S design NTC10k, FS5	730341
NOVOS 5 PSTD design NTC10k, 10 kOhm, FS5	731775

NOVOS 5 x passive

Options
Item description
Passive potentiometer 1 kΩ (poti_1kOhm) or 5 kΩ (Poti_5kOhm), for other values please request
Active potentiometer 0..10 V (poti_active)
Rotary switch S with 2/3/4 fan stages FS2/FS3/FS4 (price on request)
Add to price of NTC10k for sensor NTC1,8k | NTC5k | NTC10k Precon | NTC10k Carel | NTC20k
Add to price of NTC10k for sensor LM235Z

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	≡	

Design cover (please order additionally with items design)		AS1
Item description		On stock
Design cover NOVOS 5 alu		≡
Design cover NOVOS 5 black		≡

NOVOS 5 x active

Room operating unit 0..+50 °C – active 0..10 V, active potentiometer		RU3
Item description	Item No.	
NOVOS 5 S TRV, FS5	734936	
NOVOS 5 S design TRV, FS5	734950	
NOVOS 5 PSTD TRV, poti_active, FS5	734943	
NOVOS 5 PSTD design TRV, poti_active, FS5	734967	

Options
Item description
Rotary switch S with 2/3/4 fan stages FS2/FS3/FS4 (price on request)
LCD

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	≡	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	≡	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	≡	

Design cover (please order additionally with items design)		AS1
Item description		On stock
Design cover NOVOS 5 alu		≡
Design cover NOVOS 5 black		≡

NOVOS 5 x BUS

DATA SHEETS

Room operating unit in the new Thermokon enclosure NOVOS 5 with integrated temperature sensor. Possible operating elements are potentiometer, LED with color selection, button and rotary switch for setpoint shifting, fan level adjustment, presence detection, control of other devices and visual feedback. The connection terminal in the lower enclosure part allows pre-wiring. The device is available with additional LC display with color change function for displaying the measured values. The threshold values and display settings can be individually configured via the Thermokon NOVOSapp.



NOVOS 5 S BUS



NOVOS 5 PSTD BUS



NOVOS 5 PSTD LCD BUS



NOVOS 5 S Design BUS



NOVOS 5 PSTD Design BUS



NOVOS 5 PSTD Design LCD BUS

TECHNICAL DATA	
Measuring values	temperature
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,4 W (24 V =) | 0,8 VA (24 V ~)
Measuring range temp.	-35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	1x input for floating contact
Set point (P)	potentiometer
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III) 2-stages (0,I), 3-stages (0,I,II), 4-stages (0,I,II,III)
Button (T)	for presence detection, with LED (TD)
LED (D)	for status feedback colour configurable via Thermokon NOVOSapp or BUS
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	PC V0, pure white design cover pure white, other colours on request
Protection	IP30 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, LCD: -20..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	please contact us for measuring values (CO2, VOC, humidity)

Room operating unit temperature – active BUS		RU2
Item description	Item No.	
NOVOS 5 S RS485 Modbus, FS5	734974	
NOVOS 5 PSTD RS485 Modbus, FS5	734981	
NOVOS 5 S design RS485 Modbus, FS5	734998	
NOVOS 5 PSTD design RS485 Modbus, FS5	735001	

Options
Item description
Rotary switch S with 2/3/4 fan stages FS2/FS3/FS4 (price on request)
LCD

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛃	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛃	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛃	

Design cover (please order additionally with items design)	AS1
Item description	On stock
Design cover NOVOS 5 alu	⛃
Design cover NOVOS 5 black	⛃

NOVOS 3 x

DATA SHEETS

Room operating unit in the new Thermokon enclosure NOVOS 3 with integrated temperature sensor. Possible operating elements are potentiometer, LED with color selection and button for setpoint shifting, presence detection, control of other devices and visual feedback. The connection terminal in the lower enclosure part allows pre-wiring. The threshold values settings can be individually configured via the Thermokon NOVOSapp.



NOVOS 3 P



NOVOS 3 TD



NOVOS 3 PTD



NOVOS 3 P Design



NOVOS 3 TD Design



NOVOS 3 PTD Design

TECHNICAL DATA	
Measuring values	temperature
Output passive	passive temperature sensor: PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 | NTC10k potentiometer
Measuring range temp.	passive: -35..+70 °C
Accuracy temperature	passive: depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Set point (P)	potentiometer, 3-wire connection default value 10 kΩ (for other values please request)
Button (T)	for presence detection, with LED (TD) switching capacity max. 600 mW
LED (D)	for status feedback passive:, colour configurable via jumpers
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws, base part can be mounted and wired separately
Notes	other temperature sensors on request

DIFFERENT DATA FOR VERSIONS WITH ACTIVE OUTPUT (TRV / TRA)	
Output voltage	TRV: 1x 0..10 V or 0..5 V, (live-zero configuration via Thermokon NOVOSapp) min. load 10 kΩ
Power supply	TRV: 15..35 V = or 19..29 V ~ SELV
Output signal range temp.	TRV: Scaling analog output: 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Accuracy temperature	TRV: ±0,5 K (typ. at 21 °C within default measuring range)
Set point (P)	TRV: active output 0..10 V (optional)
LED (D)	TRV: colour configurable via Thermokon NOVOSapp
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 3 x passive

Room operating unit temperature – without sensor	RU3
Item description	Item No.
NOVOS 3 P without sensor, 10 kOhm	729574
NOVOS 3 TD without sensor	729604
NOVOS 3 PTD without sensor, 10 kOhm	729611
NOVOS 3 P design without sensor, 10 kOhm	729628
NOVOS 3 TD design without sensor	729635
NOVOS 3 PTD design without sensor, 10 kOhm	729642

NOVOS 3 x passive

Item description: product | operating elements | sensor

Room operating unit temperature – PT100	RU3
Item description	Item No.
NOVOS 3 P PT100, 10 kOhm	729659
NOVOS 3 TD PT100	729666
NOVOS 3 PTD PT100, 10 kOhm	729673
NOVOS 3 P design PT100, 10 kOhm	729680
NOVOS 3 TD design PT100	729697
NOVOS 3 PTD design PT100, 10 kOhm	729703

Room operating unit temperature – PT1000	RU3
Item description	Item No.
NOVOS 3 P PT1000, 10 kOhm	729727
NOVOS 3 TD PT1000	729734
NOVOS 3 PTD PT1000, 10 kOhm	729741
NOVOS 3 P design PT1000, 10 kOhm	729758
NOVOS 3 TD design PT1000	729765
NOVOS 3 PTD design PT1000, 10 kOhm	729772

Room operating unit temperature – PT1000 1/3 DIN	RU3
Item description	Item No.
NOVOS 3 P PT1000 1/3 DIN, 10 kOhm	729789
NOVOS 3 TD PT1000 1/3 DIN	729796
NOVOS 3 PTD PT1000 1/3 DIN, 10 kOhm	729802
NOVOS 3 P design PT1000 1/3 DIN, 10 kOhm	729826
NOVOS 3 TD design PT1000 1/3 DIN	729833
NOVOS 3 PTD design PT1000 1/3 DIN, 10 kOhm	729857

Room operating unit temperature – Ni1000	RU3
Item description	Item No.
NOVOS 3 P Ni1000, 10 kOhm	729864
NOVOS 3 TD Ni1000	729871
NOVOS 3 PTD Ni1000, 10 kOhm	729895
NOVOS 3 P design Ni1000, 10 kOhm	729901
NOVOS 3 TD design Ni1000	729918
NOVOS 3 PTD design Ni1000, 10 kOhm	729925

Room operating unit temperature – Ni1000TK5000	RU3
Item description	Item No.
NOVOS 3 P Ni1000TK5000, 10 kOhm	729932
NOVOS 3 TD Ni1000TK5000	729949
NOVOS 3 PTD Ni1000TK5000, 10 kOhm	729956
NOVOS 3 P design Ni1000TK5000, 10 kOhm	729963
NOVOS 3 TD design Ni1000TK5000	729970
NOVOS 3 PTD design Ni1000TK5000, 10 kOhm	729987

P = potentiometer, T = button, D = LED

NOVOS 3 x passive

Room operating unit temperature – NTC10k		RU3
Item description	Item No.	
NOVOS 3 P NTC10k, 10 kOhm	729994	
NOVOS 3 TD NTC10k	730013	
NOVOS 3 PTD NTC10k, 10 kOhm	730020	
NOVOS 3 P design NTC10k, 10 kOhm	730037	
NOVOS 3 TD design NTC10k	730044	
NOVOS 3 PTD design NTC10k, 10 kOhm	730051	

Options
Item description
Passive potentiometer 1 kΩ (poti_1kOhm) or 5 kΩ (Poti_5kOhm), for other values please request
Active potentiometer 0..10 V (poti_active)
Add to price of NTC10k for sensor NTC1,8k | NTC5k | NTC10k Precon | NTC10k Carel | NTC20k
Add to price of NTC10k for sensor LM235Z

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 3 alu	⛁	
Design cover NOVOS 3 black	⛁	

NOVOS 3 x active

Room operating unit 0..+50 °C – active 0..10 V, active potentiometer		RU3
Item description	Item No.	
NOVOS 3 P TRV, poti_active	734691	
NOVOS 3 TD TRV	734714	
NOVOS 3 PTD TRV, poti_active	734776	
NOVOS 3 P design TRV, poti_active	734806	
NOVOS 3 TD design TRV	734837	
NOVOS 3 PTD design TRV, poti_active	734844	

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⛁
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁
Frame for surface mounting NOVOS 3/WRF04	111584	⛁
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 3 alu	⛁	
Design cover NOVOS 3 black	⛁	

NOVOS 3 x BUS

DATA SHEETS

Room operating unit in the new Thermokon enclosure NOVOS 3 with integrated temperature sensor. Possible operating elements are potentiometer, LED with color selection and button for setpoint shifting, presence detection, control of other devices and visual feedback. The connection terminal in the lower enclosure part allows pre-wiring. The threshold values settings can be individually configured via the Thermokon NOVOSapp.



NOVOS 3 P BUS



NOVOS 3 TD BUS



NOVOS 3 PTD BUS



NOVOS 3 P Design BUS



NOVOS 3 TD Design BUS



NOVOS 3 PTD Design BUS

TECHNICAL DATA	
Measuring values	temperature
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,4 W (24 V =) | 0,8 VA (24 V ~)
Measuring range temp.	-35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	1x input for floating contact
Set point (P)	potentiometer
Button (T)	for presence detection, with LED (TD)
LED (D)	for status feedback, colour configurable via Thermokon NOVOSapp or BUS
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws, base part can be mounted and wired separately

NOVOS 3 x BUS

Room operating unit temperature – active BUS		RU2
Item description	Item No.	
NOVOS 3 P RS485 Modbus	734851	
NOVOS 3 TD RS485 Modbus	734882	
NOVOS 3 PTD RS485 Modbus	734899	
NOVOS 3 P design RS485 Modbus	734905	
NOVOS 3 TD design RS485 Modbus	734912	
NOVOS 3 PTD design RS485 Modbus	734929	

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛁	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁	
Frame for surface mounting NOVOS 3/WRF04	111584	⛁	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 3 alu	⛁	
Design cover NOVOS 3 black	⛁	

WRF04 x

DATA SHEETS

A surface-mounted room operating unit with integrated temperature sensor. The device can be mounted directly on the wall, on a flush-mounted box or in conjunction with a surface-mounted frame available as an accessory. Predetermined breaking points for surface-mounted installations are integrated. Possible operating elements are potentiometers, LEDs, buttons and rotary switches for setpoint shifting, fan level adjustment, presence detection, control of other devices and visual feedback. The connection terminal in the lower enclosure part allows pre-wiring.



WRF04 PSTD FS5



WRF04 P,
standard labelling colour

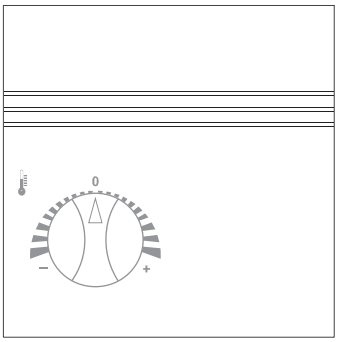
TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V, min. load 5 kΩ
Output switch contact	Relay: switch contact 24 V | 3 A, floating
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	TRV: typ. 0,42 W (24 V =) | 0,84 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	passive: depending on used sensor ±0,5 K (typ. at 21 °C)
Set point (P)	potentiometer, 3-wire connection default value 10 kΩ (for other values please request) active output 0..10 V (optional)
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III), 2-stages (0,I), 3-stages (0,I,II), 4-stages (0,I,II,III) switching capacity max. 5 W
Button (T)	for presence detection, switching capacity max. 600 mW
LED (D)	for status feedback, green (standard) several LEDs possible (e.g. green, yellow, red)
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	for further variants see chapter room controller special labelling available on request special painting available on request other sensors | operating elements on request

WRF04 x

Types with standard labelling

special labelling refer to p. 472

WRF04 P

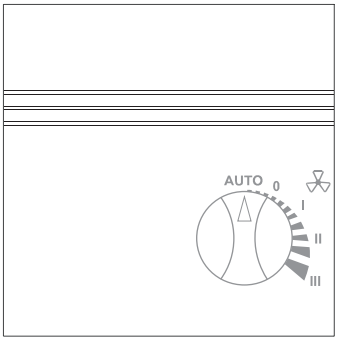


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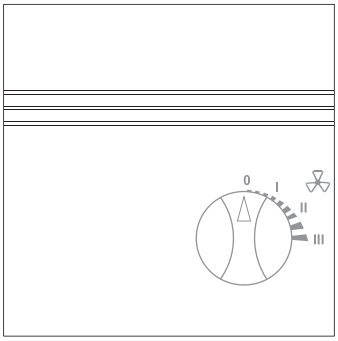
P = potentiometer
S = rotary switch
T = button
D = LED
FSx = number of fan stages

for sensor types refer to items,
WRF04 with LCD refer to p. 198 / 216
WRF04 without operating elements refer to p. 236

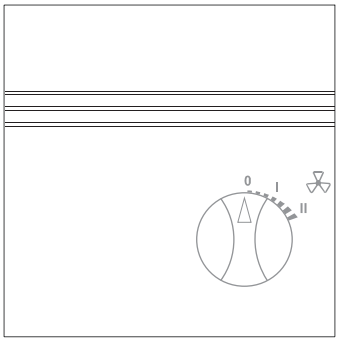
WRF04 S with 5 fan stages
(FS5, standard)



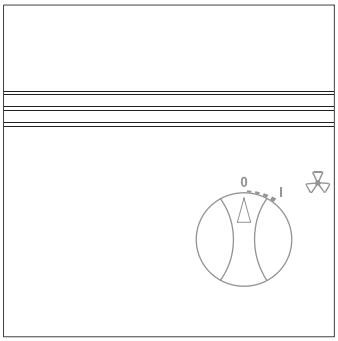
WRF04 S with 4 fan stages
(FS4, refer to options)



WRF04 S with 3 fan stages
(FS3, refer to options)

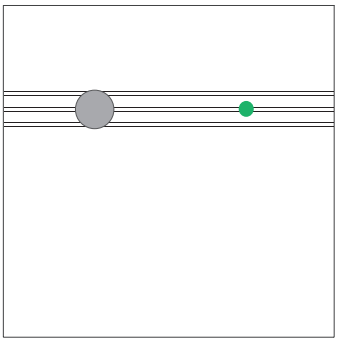


WRF04 S with 2 fan stages
(FS2, refer to options)



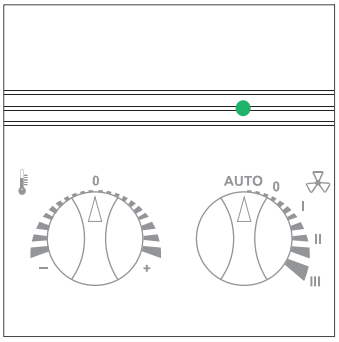
WRF04 x

WRF04 TD

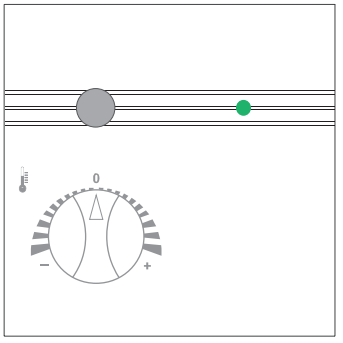


WRF04 PSD with 5 fan stages

FS5, also available with FS4, FS3 and FS2

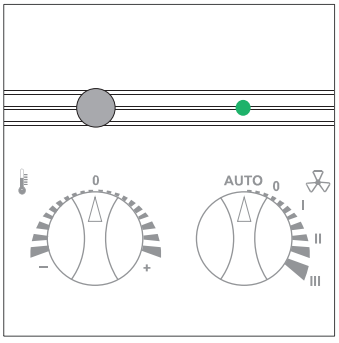


WRF04 PTD



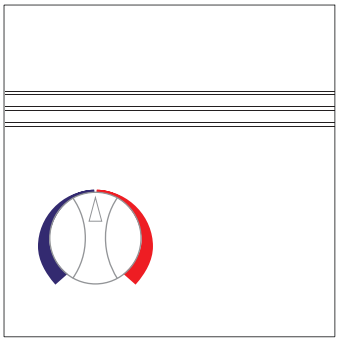
WRF04 PSTD with 5 fan stages

FS5, also available with FS4, FS3 and FS2



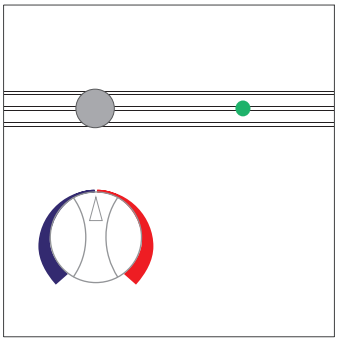
WRF04 P standard labelling colour

(refer to options)



WRF04 PTD standard labelling colour

(refer to options)



Item description: product | operating elements | sensor | labelling type | potentiometer | LED

WRF04 x passive

Room operating unit temperature – without sensor	RU3
Item description	Item No.
WRF04 S without sensor, FS5	206204
WRF04 TD without sensor, LED green	206228
WRF04 PTD without sensor, 10 kOhm, LED green	315029
WRF04 PSD without sensor, 10 kOhm, FS5, LED green	628358
WRF04 PSTD without sensor, 10 kOhm, FS5, LED green	628372

Room operating unit temperature – PT100	RU3
Item description	Item No.
WRF04 P PT100, 10 kOhm	214100
WRF04 S PT100, FS5	592451
WRF04 TD PT100, LED green	205665
WRF04 PTD PT100, 10 kOhm, LED green	409728
WRF04 PSD PT100, 10 kOhm, FS5, LED green	257671
WRF04 PSTD PT100, 10 kOhm, FS5, LED green	491280

Room operating unit temperature – PT100 1/3 DIN	RU3
Item description	Item No.
WRF04 P PT100 1/3 DIN, 10 kOhm	628402
WRF04 S PT100 1/3 DIN, FS5	490115
WRF04 TD PT100 1/3 DIN, LED green	372565
WRF04 PTD PT100 1/3 DIN, 10 kOhm, LED green	628426
WRF04 PSD PT100 1/3 DIN, 10 kOhm, FS5, LED green	628419
WRF04 PSTD PT100 1/3 DIN, 10 kOhm, FS5, LED green	628433

Room operating unit temperature – PT1000	RU3
Item description	Item No.
WRF04 P PT1000, 10 kOhm	628457
WRF04 S PT1000, FS5	469081
WRF04 TD PT1000, LED green	199773
WRF04 PTD PT1000, 10 kOhm, LED green	409735
WRF04 PSD PT1000, 10 kOhm, FS5, LED green	628464
WRF04 PSTD PT1000, 10 kOhm, FS5, LED green	628471

Room operating unit temperature – PT1000 1/3 DIN	RU3
Item description	Item No.
WRF04 P PT1000 1/3 DIN, 10 kOhm	287777
WRF04 S PT1000 1/3 DIN, FS5	628501
WRF04 TD PT1000 1/3 DIN, LED green	319744
WRF04 PTD PT1000 1/3 DIN, 10 kOhm, LED green	628525
WRF04 PSD PT1000 1/3 DIN, 10 kOhm, FS5, LED green	628518
WRF04 PSTD PT1000 1/3 DIN, 10 kOhm, FS5, LED green	628549

Item description: product | operating elements | sensor | labelling type | potentiometer | LED

WRF04 x passive

Room operating unit temperature – Ni1000	RU3
Item description	Item No.
WRF04 P Ni1000, 10 kOhm	246361
WRF04 S Ni1000, FS5	266758
WRF04 TD Ni1000, LED green	197595
WRF04 PTD Ni1000, 10 kOhm, LED green	228923
WRF04 PSD Ni1000, 10 kOhm, FS5, LED green	628587
WRF04 PSTD Ni1000, 10 kOhm, FS5, LED green	486156

Room operating unit temperature – Ni1000TK5000	RU3
Item description	Item No.
WRF04 P Ni1000TK5000, 10 kOhm	218948
WRF04 S Ni1000TK5000, FS5	542982
WRF04 TD Ni1000TK5000, LED green	257480
WRF04 PTD Ni1000TK5000, 10 kOhm, LED green	409742
WRF04 PSD Ni1000TK5000, 10 kOhm, FS5, LED green	628631
WRF04 PSTD Ni1000TK5000, 10 kOhm, FS5, LED green	628648

Room operating unit temperature – NTC10k	RU3
Item description	Item No.
WRF04 P NTC10k, 10 kOhm	208789
WRF04 S NTC10k, FS5	348829
WRF04 TD NTC10k, LED green	216692
WRF04 PTD NTC10k, 10 kOhm, LED green	263573
WRF04 PSD NTC10k, 10 kOhm, FS5, LED green	471114
WRF04 PSTD NTC10k, 10 kOhm, FS5, LED green	491297

Room operating unit temperature – NTC10k Precon	RU3
Item description	Item No.
WRF04 P NTC10k Precon, 10 kOhm	218146
WRF04 S NTC10k Precon, FS5	546713
WRF04 TD NTC10k Precon, LED green	314176
WRF04 PTD NTC10k Precon, 10 kOhm, LED green	374415
WRF04 PSD NTC10k Precon, 10 kOhm, FS5, LED green	546720
WRF04 PSTD NTC10k Precon, 10 kOhm, FS5, LED green	546737

Room operating unit temperature – NTC20k	RU3
Item description	Item No.
WRF04 P NTC20k, 10 kOhm	209762
WRF04 S NTC20k, FS5	628655
WRF04 TD NTC20k, LED green	267199
WRF04 PTD NTC20k, 10 kOhm, LED green	409711
WRF04 PSD NTC20k, 10 kOhm, FS5, LED green	486323
WRF04 PSTD NTC20k, 10 kOhm, FS5, LED green	628662

P = potentiometer, S = rotary switch, T = button, D = LED

Item description: product | operating elements | sensor | labelling type | potentiometer | LED

WRF04 x passive

Room operating unit temperature – NTC1,8k		RU3
Item description	Item No.	
WRF04 P NTC1,8k, 10 kOhm	409667	
WRF04 S NTC1,8k, FS5	546690	
WRF04 TD NTC1,8k, LED green	282482	
WRF04 PTD NTC1,8k, 10 kOhm, LED green	259019	
WRF04 PSD NTC1,8k, 10 kOhm, FS5, LED green	668569	
WRF04 PSTD NTC1,8k, 10 kOhm, FS5, LED green	486163	

Room operating unit temperature – LM235Z		RU3
Item description	Item No.	
WRF04 PSD LM235Z, 10 kOhm, FS5, LED green	571906	
WRF04 P LM235Z, 10 kOhm	223546	
WRF04 S LM235Z, FS5	569897	
WRF04 TD LM235Z, LED green	263238	
WRF04 PTD LM235Z, 10 kOhm, LED green	223096	
WRF04 PSTD LM235Z, 10 kOhm, FS5, LED green	628679	

Options
Item description
Passive potentiometer 1 kΩ (poti_1kOhm) or 5 kΩ (Poti_5kOhm), for other values please request
Active potentiometer 0..10 V (poti_active)
Rotary switch S with 4 fan stages (FS4)
Rotary switch S with 3 fan stages (FS3)
Rotary switch S with 2 fan stages (FS2)
Default labelling P colour red+blue (ltypeSC)
Additional rotary switch
Additional button
Additional diode (LED)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛁	
Frame for surface mounting NOVOS 3/WRF04	111584	⛁	

Item description: product | operating elements | TRV | labelling type | LED

WRF04 x active

Room operating unit 0..+50 °C – active 0..10 V, active potentiometer			RU2
Item description	Inputs	0..10 V	Item No.
WRF04 P TRV3, poti_active	-	1	208864
WRF04 PTD TRV3, poti_active, LED green	-	1	192897
WRF04 PSD TRV3, poti_active, FS5, LED green	-	1	637558
WRF04 PSTD TRV3, poti_active, FS5, LED green	-	1	637565

Options
Item description
Rotary switch S with 4 fan stages (FS4)
Rotary switch S with 3 fan stages (FS3)
Rotary switch S with 2 fan stages (FS2)
Default labelling P colour red+blue (ItypeSC)
Additional rotary switch
Additional button
Additional diode (LED)

Accessories			AS1
Item description		Item No.	On stock
Rawlplugs and screws (2 pcs. each)		102209	
Frame for surface mounting NOVOS 3/WRF04		111584	

WRF04 x BUS

DATA SHEETS

A surface-mounted room operating unit with integrated temperature sensor. The device can be mounted directly on the wall, on a flush-mounted box or in conjunction with a surface-mounted frame available as an accessory. Predetermined breaking points for surface-mounted installations are integrated. Possible operating elements are potentiometers, LEDs, buttons and rotary switches for setpoint shifting, fan level adjustment, presence detection, control of other devices and visual feedback. The connection terminal in the lower enclosure part allows pre-wiring.



WRF04 PSTD FS5



WRF04 P,
standard labelling colour

Types with RS485 Modbus on page 214

BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature
Network technology	BACnet MS/TP, LON FT (free topology)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	BACnet: typ. 0,4 W (24 V =) | 0,6 VA (24 V ~), LON: typ. 0,6 W (24 V =) | 1,7 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	2x entry for floating contacts
Set point (P)	potentiometer
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III), 2-stages (0,I), 3-stages (0,I,II), 4-stages (0,I,II,III) switching capacity max. 5 W
Button (T)	for presence detection, switching capacity max. 600 mW
LED (D)	for status feedback, green (standard) several LEDs possible (e.g. green, yellow, red)
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	for further variants see chapter room controller special labelling available on request special painting available on request for other operating elements please request

Item description: product | operating elements | inputs/outputs | BUS | labelling type | LED

WRF04 x BUS

BACnet

Room operating unit temperature – AO2V RS485 BACnet				RU2
Item description	Inputs	0..10 V	Item No.	
WRF04 P AO2V BACnet	2	2	548885	
WRF04 PTD AO2V BACnet, LED green	2	2	548892	
WRF04 PSD AO2V BACnet, FS5, LED green	2	2	548908	
WRF04 PSTD AO2V BACnet, FS5, LED green	2	2	547666	

LON
LOCAL OPERATING NETWORK

Room operating unit temperature – LON		RU2
Item description	Item No.	
WRF04 P LON	330626	
WRF04 PTD LON, LED green	312967	
WRF04 PSD LON, FS5, LED green	389907	
WRF04 PSTD LON, FS5, LED green	297769	

Options
Item description
Default labelling P colour red+blue (ItypeSC)

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209		
Frame for surface mounting NOVOS 3/WRF04	111584		

WRF04 x

Design examples



WRF04 PST3D,
special model/special labelling



WRF04 P4T4D,
special model/special labelling



WRF04 P,
special painting



WRF04,
special painting

standard labelling refer to p. 189
special labelling refer to p. 472

WRF04 LCD x

DATA SHEETS

A surface-mounted room operating unit with integrated temperature sensor and display showing the actual value. The device can be mounted directly on the wall, on a flush-mounted box or in conjunction with a surface-mounted frame available as an accessory. Predetermined breaking points for surface-mounted installations are integrated. Possible operating elements are potentiometers, LEDs, buttons and rotary switches for setpoint shifting, fan level adjustment, presence detection, control of other devices and visual feedback. The connection terminal in the lower enclosure part allows pre-wiring.



WRF04 LCD PSD FS4

0..10 V LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V
Output switch contact	Relay: switch contact 24 V | 3 A, floating
Network technology	LON FT (free topology)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	TRV: max. 0,6 W (24 V =) | 1 VA (24 V ~), LON: typ. 0,8 W (24 V =) | 2 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Set point (P)	potentiometer, active output 0..10 V (optional)
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III), 2-stages (0,I), 3-stages (0,I,II), 4-stages (0,I,II,III) active output 0..10 V (optional), switching capacity max. 5 W
Button (T)	for presence detection, switching capacity max. 600 mW
LED (D)	for status feedback, several LEDs possible (e.g. green, yellow, red)
Display	LCD 29x12 mm, monochrome, status-LED, multi-colored
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	for further variants see chapter room controller special labelling available on request special painting available on request other temperature sensors on request for other operating elements please request

Item description: product | operating elements | TRV3 | fan stages | LED

WRF04 LCD x active

Room operating unit 0..+50 °C – active 0..10 V, active potentiometer				RU2
Item description	Inputs	0..10 V	Item No.	
WRF04 LCD P TRV3, poti_active	-	1	637572	
WRF04 LCD PTD TRV3, poti_active, LED green	-	1	412483	
WRF04 LCD PSD TRV3, poti_active, FS5, LED green	-	1	637589	
WRF04 LCD PSTD TRV3, poti_active, FS5, LED green	-	1	418874	

Item description: product | operating elements | inputs/outputs | BUS | fan stages | LED

WRF04 LCD x BUS

LON
LOCAL OPERATING NETWORK

Room operating unit temperature – LON		RU2
Item description	Item No.	
WRF04 LCD P LON	413442	
WRF04 LCD PTD LON, LED green	397568	
WRF04 LCD PSD LON, FS5, LED green	446235	
WRF04 LCD PSTD LON, FS5, LED green	574839	

Options
Item description
Default labelling P colour red+blue (ltypeSC)

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛁	
Frame for surface mounting NOVOS 3/WRF04	111584	⛁	

standard labelling refer to p. 189
special labelling refer to p. 472

JOY Fancoil

DATA SHEETS

The fancoil controller in high-quality design is used for individual temperature control in hotels, offices and living spaces. It is designed for fan coil units with 2- and 4-pipe systems. Different fans can be controlled depending on the version (type 5DO for 3-stage and type EC for 0..10 V fan). By means of type EC 3AO continuous valve actuators (also 6-way valve) and a 0..10 V EC motor can be controlled. This ensures individual and energy-efficient room air conditioning. The device (available with glass front in white or black) has a display and touch-sensitive control buttons. You can set 3 time channels with 4 time periods each. The device is designed for mounting in a flush-mounted box.



JOY Fancoil pure white



JOY Fancoil black



JOY Fancoil with decorative frame

Function overview on page 40

TECHNICAL DATA	
Measuring values	temperature
Output voltage	types AO2DO: 0..10 V = (to control EC fan), types 3AO: 3x 0..10 V = (to control EC fan, heating & cooling or to control 6-way control valve)
Output switch contact	types 5DO: 5x contact NO (1x heating, 1x cooling, 3x fan stages), types AO2DO: 2x contact NO (1x heating, 1x cooling)
Network technology	RS485 Modbus
Power supply	85..260 V ~, types 3AO: 15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 2 VA (260 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	1x input for NTC10k or floating contact, 1x input digital for floating contact (not types BUS), input change-over (230 V ~), 3AO: instead of input change-over (230 V ~) additional input digital for floating contact
Control functions	setpoint 0..+50 °C
Functions	integrated PI and two-/three-position controller, types 3AO: built-in PI controller
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, pure white, black, glass
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², inputs: terminal block, max. 1,0 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm), hollow wall boxes with edge Ø>70 mm have to be covered by wall covering

JOY Fancoil

Fancoil controller temperature – active					RU1
Item description	Inputs	0..10 V	Relay	Item No.	Controller
JOY Fancoil 5DO pure white	3	-	5	724807	✓
JOY Fancoil 5DO black	3	-	5	724814	✓
JOY Fancoil EC AO2DO pure white	3	1	2	724845	✓
JOY Fancoil EC AO2DO black	3	1	2	724869	✓
JOY Fancoil EC 3AO pure white	3	3	-	724975	✓
JOY Fancoil EC 3AO black	3	3	-	724982	✓

Fancoil controller temperature – active RS485 Modbus					RU1
Item description	Inputs	0..10 V	Relay	Item No.	Controller
JOY Fancoil 5DO RS485 Modbus pure white	2	-	5	724821	✓
JOY Fancoil 5DO RS485 Modbus black	2	-	5	724838	✓
JOY Fancoil EC AO2DO RS485 Modbus pure white	2	1	2	724876	✓
JOY Fancoil EC AO2DO RS485 Modbus black	2	1	2	724883	✓
JOY Fancoil EC 3AO RS485 Modbus pure white	2	3	-	723817	✓
JOY Fancoil EC 3AO RS485 Modbus black	2	3	-	724999	✓

Options
Item description
Change-over sensor NTC10k (model and price on request)

Accessories			AS1
Item description		Item No.	On stock
Software/Plug-In for configuration (free via www. thermokon.com)			
SD card (2 GB)		500098	⛁
Decorative frame pure white for JOY		681452	⛁



LCF Touch

DATA SHEETS

Modern design fan coil room thermostat used for individual control of temperature. It is tailored for two-pipe and four-pipe fan coil units with two-wire electric valves. The device combines digital technology with a large touch screen (LCD), which enables the single room controller to be used intuitively. Integrated 7 day time clock with 4 time programs. It is designed for mounting in a flush-mounted box.

TECHNICAL DATA	
Measuring values	temperature
Output switch contact	5x contact NO (1x heating, 1x cooling, 3x fan stages), 240 V: load max. 3 A
Network technology	RS485 Modbus
Power supply	90..265 V ~
Power consumption	max. 0,9 VA (265 V ~)
Measuring range temp.	+1..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	1x input for change-over sensor NTC10k, optional
Control functions	setpoint +1..+50 °C, factory setting (+16..+30°C)
Display	LCD 64x64 mm, touchscreen, white background lighting
Enclosure	ABS, black, glass
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-10..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Fancoil controller temperature – active			RU1
Item description		Item No.	Controller
LCF Touch		575768	✓

Fancoil controller temperature – active RS485 Modbus			RU1
Item description		Item No.	Controller
LCF Touch RS485 Modbus		575775	✓

Options
Item description
Change-over sensor NTC10k (model and price on request)



LCF02 Touch BUS

DATA SHEETS

Modern design fancoil controller designed for individual control of temperature. It is tailored for two-pipe and four-pipe fan coil units with two-wire electric valves and provides two configurable, digital inputs for e.g. occupancy, window contact, dew-point contact or change-over. Additionally, it is equipped with an input for external (remote) temperature sensors and Modbus interface for configuration of controls parameters. With its flush mounted modern design, the device combines digital technology with a large touch screen (LCD), which makes up for an intuitive operation of the single room controller. A timer can be used to set up to four switching times for each day of the week.

Modbus

TECHNICAL DATA	
Measuring values	temperature
Output voltage	types 2AO3DO: 2x 0..10 V = (heating & cooling or to control 6-way control valve), types 3AO2DO: 3x 0..10 V = (to control EC fan, heating & cooling or to control 6-way control valve) min. load 10 kΩ
Output switch contact	types 5DO: 5x contact NO (1x heating, 1x cooling, 3x fan stages) types 2AO3DO: 3x contact NO (3x fan stages) types 3AO2DO: 2x contact NO (heating register 3-stage) 240 V: load max. 3 A
Network technology	RS485 Modbus
Power supply	24 V = or 24 V ~ (±20%) SELV
Power consumption	typ. 3 W (24 V =) | 5 VA (24 V ~)
Measuring range temp.	+1..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	1x input for change-over sensor NTC10k 1x input digital for floating contact (window contact, dew point guard) 1x input digital for floating contact (motion sensors, card switch)
Control functions	setpoint +1..+50 °C, factory setting (+16..+30°C)
Display	LCD 64x64 mm, touchscreen
Colour	white or black
Enclosure	ABS, glass
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-10..+50 °C, max. 85% rH short term condensation
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Fancoil controller temperature – active BUS 24 V			RU1
Item description	Item No.	Controller	
LCF02 Touch 5DO RS485 Modbus 24 V black	721004	✓	
LCF02 Touch 5DO RS485 Modbus 24 V white	721035	✓	
LCF02 Touch 2AO3DO RS485 Modbus 24 V black	720984	✓	
LCF02 Touch 2AO3DO RS485 Modbus 24 V white	721011	✓	
LCF02 Touch 3AO2DO RS485 Modbus 24 V black	720991	✓	
LCF02 Touch 3AO2DO RS485 Modbus 24 V white	721028	✓	

Options
Item description
Change-over sensor NTC10k (model and price on request)



LCF02

DATA SHEETS

The fancoil room thermostat for controlling cooling valves or 6-way valves has been designed for individual control of temperature in commercial, industrial and residential buildings. It is tailored for 2- (type C) or 4-pipe fancoil (type 6WV) with two-wire electric valves. With its flush mounted modern design the device combines digital technology with a large LCD and additional buttons, which enables the single room controller to be used intuitively.

TECHNICAL DATA	
Measuring values	temperature
Output voltage	type C:0..10 V (cooling) type 6WV: 0..10 V (6-way control valve heating & cooling)
Output switch contact	3x contact NO (fan stages | fancoil), type C: additional 1x contact NO (cooling), 250 V, max. Last 5 A
Power supply	15..24 V = (±10%) SELV
Power consumption	typ. 3 W (24 V =)
Measuring range temp.	+1..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	1x input digital for floating contact (window contact, dew point guard) 1x input digital for floating contact (motion sensors, card switch)
Control functions	setpoint +1..+50 °C, factory setting (+16..+30°C)
Display	LCD 64x41 mm, backlight white
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-10..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Fancoil controller temperature – active			RU1
Item description	Item No.	Controller	
LCF02 C Fancoil	684606	✓	
LCF02 6WV Fancoil	684613	✓	

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛃	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛃	



LCF02 BUS

DATA SHEETS

The fancoil controller is designed for individual control of temperature in commercial, industrial and residential buildings. It provides two configurable, digital inputs for e.g. occupancy, window contact, dew-point contact or change-over. Additionally, it is equipped with an input for external (remote) temperature sensors and Modbus interface for configuration of controls parameters. With its flush mounted modern design, the device combines digital technology with a large display and additional buttons, which makes up for an intuitive operation of the single room controller.

Modbus

TECHNICAL DATA	
Measuring values	temperature
Output voltage	types 2AO3DO: 2x 0..10 V = (heating & cooling or to control 6-way control valve), types 3AO2DO: 3x 0..10 V = (to control EC fan, heating & cooling or to control 6-way control valve) min. load 10 kΩ
Output switch contact	types 5DO: 5x contact NO (1x heating, 1x cooling, 3x fan stages), types 2AO3DO: 3x contact NO (3x fan stages), types 3AO2DO: 2x contact NO (heating register 3-stage), 240 V: load max. 3 A
Network technology	RS485 Modbus
Power supply	15..24 V = (±10%) SELV
Power consumption	typ. 3 W (24 V =)
Measuring range temp.	+1..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	1x input for change-over sensor NTC10k 1x input digital for floating contact (window contact, dew point guard) 1x input digital for floating contact (motion sensors, card switch)
Control functions	setpoint +1..+50 °C, factory setting (+16..+30°C)
Display	LCD 64x41 mm, backlight white
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-10..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Fancoil controller temperature – active BUS 24 V		RU1
Item description	Item No.	Controller
LCF02 5DO RS485 Modbus 24 V	703307	✓
LCF02 2AO3DO RS485 Modbus 24 V	703314	✓
LCF02 3AO2DO RS485 Modbus 24 V	703321	✓

Options
Item description
Change-over sensor NTC10k (model and price on request)

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⛃
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛃



LCF

DATA SHEETS

The fan coil room thermostat has been designed for individual control of temperature in commercial, industrial and residential buildings. It is tailored for two-pipe and four-pipe fan coil with two-wire electric valves. With its flush mounted modern design the device combines digital technology with a large LCD display and additional buttons, which enables the single room controller to be used intuitively.

TECHNICAL DATA	
Measuring values	temperature
Output switch contact	5x contact NO (1x heating, 1x cooling, 3x fan stages), 250 V: load max. 3 A
Power supply	90..265 V ~
Power consumption	max. 0,9 W
Measuring range temp.	+1..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	1x input for change-over sensor NTC10k, optional
Display	LCD 35,5x48,5 mm, white background lighting, for indication of measured values
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Cable entry	rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-10..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)

Fancoil controller temperature – active			RU1
Item description	Item No.	Controller	
LCF	575751	✓	

Options
Item description
Change-over sensor NTC10k (model and price on request)

JOY HC

DATA SHEETS

The room controller in high-quality design is used for individual temperature control in living spaces, hotels and offices. The heating/cooling valves are controlled by relay contacts or alternatively via 0..10 V signals. 6-way valves can also be controlled with this room controller.This ensures individual and energy-efficient room air conditioning. The device (available with glass front in white or black) has a display and touch-sensitive control buttons. You can set 3 time channels with 4 time periods each. The device is designed for mounting in a flush-mounted box.



JOY HC pure white



JOY HC black



JOY HC with decorative frame

Function overview on page 40 Modbus

TECHNICAL DATA	
Measuring values	temperature
Output voltage	types AO2DO: 0..10 V = (to control 6-way control valve), types 3AO: 3x 0..10 V = (to control 6-way control valve, heating & cooling)
Output switch contact	types AO2DO: 2x contact NO (1x heating, 1x cooling)
Network technology	RS485 Modbus
Power supply	85..260 V ~, types 3AO: 15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 2 VA (260 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	1x input for NTC10k or floating contact, 1x input digital for floating contact (not types BUS), input change-over (230 V ~), 3AO: instead of input change-over (230 V ~) additional input digital for floating contact
Control functions	setpoint 0..+50 °C
Functions	integrated two-/three-position controller, types 3AO: built-in PI controller
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, pure white, black, glass
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², inputs: terminal block, max. 1,0 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm), hollow wall boxes with edge Ø>70 mm have to be covered by wall covering

JOY HC

Room controller heating/cooling – active					RU1
Item description	Inputs	0..10 V	Relay	Item No.	Controller
JOY HC AO2DO pure white	3	1	2	724944	✓
JOY HC AO2DO black	3	1	2	724951	✓
JOY HC 3AO pure white	3	3	-	725002	✓
JOY HC 3AO black	3	3	-	725019	✓

Modbus

Room controller heating/cooling – active RS485 Modbus					RU1
Item description	Inputs	0..10 V	Relay	Item No.	Controller
JOY HC AO2DO RS485 Modbus pure white	2	1	2	724449	✓
JOY HC AO2DO RS485 Modbus black	2	1	2	724968	✓
JOY HC 3AO RS485 Modbus pure white	2	3	-	723732	✓
JOY HC 3AO RS485 Modbus black	2	3	-	725026	✓

Options
Item description
Change-over sensor NTC10k (model and price on request)

Accessories			AS1
Item description		Item No.	On stock
Software/Plug-In for configuration (free via www. thermokon.com)			
SD card (2 GB)		500098	⛁
Decorative frame pure white for JOY		681452	⛁

WRF06 LCD RR

DATA SHEETS

The flush-mounted room controller with setpoint adjustment and occupancy button is used for individual temperature control in living, hotel and office rooms. The device with 4 control buttons and LCD can be integrated into the most common switch ranges, is available in many color versions and is therefore suitable for design-oriented construction projects. Depending on the type continuous, 2-point or 6-way valves for heating or cooling can be controlled. The peelable terminal allows pre-wiring.



WRF06 LCD ltype1 pure white, frame Gira E2 pure white matt



WRF06 LCD ltype1 anthracite, frame Peha Aura Glas



WRF06 LCD LON ltype2 aluminium, frame Merten M-Plan aluminium

Modbus LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature
Output voltage	AO2V: 2x 0..10 V
Network technology	LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	RS485 Modbus: typ. 0,8 W (24 V =) | 2,5 VA (24 V ~) LON: typ. 1,3 W (24 V =) | 1,5 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	floating switch contact
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec *, Antik *
Switch range Peha	AURA, AURA glass
Functions	AO2V: 2 inputs, 2 outputs 0..10 V DO2R: 2 inputs, 2 outputs relay DO2T: 2 inputs, 2 outputs Triac, OVR: 2 inputs, 2 outputs (1x 0..10 V, 1 relay) OVT: 2 inputs, 2 outputs (1x 0..10 V, 1 Triac)
No. of buttons	4
Display	LCD 34x21 mm, monochrome
Enclosure	PC, pure white brilliant, pure white matt, aluminium, anthracite frame color may differ slightly
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², pluggable
Ambient condition	0..+50 °C, max. 85% rH non-condensing

Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm) DO2T, DO2R, OVR, OVT with IO extension need 2 flush-mounting boxes (Ø=60 mm) and double frame (alternatively, the IO unit can be mounted in a deep flush-mounted box or be detached up to 10 m)
Delivery contents	software for configuration (freeware via download)
Notes	for further variants see chapter room operating units * in switch program with intermediate frame please specify frame design when ordering please indicate labelling type in order BUS: only available with labelling type 1 and 2

WRF06 LCD RR

Room controller temperature – AO2V RS485 Modbus				RU2
Item description	Inputs	0..10 V	Item No.	Controller
WRF06 LCD AO2V RS485 Modbus ltype1 pure white matt without frame	2	2	415125	✓
WRF06 LCD AO2V RS485 Modbus ltype1 pure white brilliant without frame	2	2	731379	✓
WRF06 LCD AO2V RS485 Modbus ltype1 aluminium without frame	2	2	731386	✓
WRF06 LCD AO2V RS485 Modbus ltype1 Jung aluminium without frame	2	2	731393	✓
WRF06 LCD AO2V RS485 Modbus ltype1 anthracite without frame	2	2	731409	✓

Room controller temperature – IO RS485 Modbus (double frame necessary)						RU2
Item description	Inputs	0..10 V	Relay	Triac	Item No.	Controller
WRF06 LCD DO2R RS485 Modbus ltype1 pure white matt without frame	2	-	2	-	731416	✓
WRF06 LCD DO2T RS485 Modbus ltype1 pure white matt without frame	2	-	-	2	731423	✓
WRF06 LCD OVR RS485 Modbus ltype1 pure white matt without frame	2	1	1	-	731430	✓
WRF06 LCD OVT RS485 Modbus ltype1 pure white matt without frame	2	1	-	1	731447	✓

Options
Item description
Labelling type 2 (ltype2) – only BUS models

WRF06 LCD RR

LON
LOCAL OPERATING NETWORK

Room controller temperature – AO2V LON				RU2
Item description	Inputs	0..10 V	Item No.	Controller
WRF06 LCD AO2V LON ltype1 pure white matt without frame	2	2	731454	✓
WRF06 LCD AO2V LON ltype1 pure white brilliant without frame	2	2	731461	✓
WRF06 LCD AO2V LON ltype1 aluminium without frame	2	2	731478	✓
WRF06 LCD AO2V LON ltype1 Jung aluminium without frame	2	2	731485	✓
WRF06 LCD AO2V LON ltype1 anthracite without frame	2	2	731492	✓

LON
LOCAL OPERATING NETWORK

Room controller temperature – IO LON (double frame necessary)						RU2
Item description	Inputs	0..10 V	Relay	Triac	Item No.	Controller
WRF06 LCD DO2R LON ltype1 pure white matt without frame	2	-	2	-	731577	✓
WRF06 LCD DO2T LON ltype1 pure white matt without frame	2	-	-	2	731584	✓
WRF06 LCD OVR LON ltype1 pure white matt without frame	2	1	1	-	731607	✓
WRF06 LCD OVT LON ltype1 pure white matt without frame	2	1	-	1	731676	✓

Options
Item description
Labelling type 2 (ltype2) – only BUS models

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass, stainless steel, aluminium (various manufacturers)	
Double switch (for IO types) with switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Double switch (for IO types) with switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Double switch (for IO types) with switch ranges glass, stainless steel, aluminium (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Accessories		AS1
Item description	Item No.	On stock
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁

WRF07 RR

DATA SHEETS

The visually appealing flush-mounted room controller can be supplied in the most common switch ranges and various color variants and serves for individual temperature control in living, hotel and office rooms. Possible operating elements are potentiometer, LEDs, buttons and rocker switch for setpoint adjustment, operating mode switching, presence detection and optical feedback. Depending on the type, continuous or 2-point valves for heating or cooling can be controlled. The removable terminal allows easy pre-wiring.



WRF07 P ltype1,
Gira E2 pure white matt



WRF07 P ltype1,
Busch-Jaeger alpha nea®

Modbus LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature, humidity, depending on the device
Output voltage	AO2V: 2x 0..10 V
Network technology	LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =) | 2,5 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Inputs	AO2V: 2 inputs, floating switch contact, DI4: 4x input digital for floating switch contact
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.5 aluminum | stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo®, future® linear, impuls, Busch-axcent®, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100
Switch range Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec, Artec stainless steel, Antik
Switch range Peha	AURA, AURA glass
Set point (P)	potentiometer
Rocker switch (S)	for fan speed adjustment
Button (T)	for presence detection, for fan stage adjustment (depending on the device)
LED (D)	for status feedback, green (standard), several LEDs possible (e.g. green, yellow, red)
Protection	IP20 according to EN 60529

Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm), DO2T, DO2R, OVR, OVT with IO extension need 2 flush-mounting boxes (Ø=60 mm) and double frame (alternatively, the IO unit can be mounted in a deep flush-mounted box or be detached up to 10 m)
Delivery contents	software for configuration (freeware via download)
Notes	for further variants see chapter room operating units for other operating elements please request for other frame designs please request

Modbus

Room controller temperature – AO2V RS485 Modbus				RU2
Item description	Inputs	0..10 V	Item No.	Controller
WRF07 P AO2V RS485 Modbus ltype1 Gira E2 pure white matt	2	2	496094	✓
WRF07 PTD AO2V RS485 Modbus ltype1 Gira E2 pure white matt, LED green	2	2	497800	✓

Room controller temperature + humidity – AO2V RS485 Modbus				RU2
Item description	Inputs	0..10 V	Item No.	Controller
WRF07 P rH AO2V RS485 Modbus ltype1 Gira E2 pure white matt	2	2	703246	✓
WRF07 PTD rH AO2V RS485 Modbus ltype1 Gira E2 pure white matt, LED green	2	2	703253	✓

LON
LOCAL OPERATING NETWORK

Room controller temperature – AO2V | DI4 LON				RU2
Item description	Inputs	0..10 V	Item No.	Controller
WRF07 P DI4 LON ltype1 Gira E2 pure white matt	4	-	615600	✓
WRF07 PTD DI4 LON ltype1 Gira E2 pure white matt, LED green	4	-	595230	✓
WRF07 P AO2V LON ltype1 Gira E2 pure white matt	2	2	583374	✓
WRF07 PTD AO2V LON ltype1 Gira E2 pure white matt, LED green	2	2	628174	✓

Options
Item description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)
Labelling type 2 (ltype2)
Labelling type 6 colour red+blue (ltype6)
Additional button
Additional diode (LED)

WRF04 x RR

DATA SHEETS

The surface-mounted room controller is used for individual temperature control in living, hotel and office rooms. Possible operating elements are potentiometers, rotary switches, buttons and LEDs for setpoint adjustment, fan level selection, presence detection and visual feedback. Depending on the type, continuous or 2-point valves can be controlled for heating or cooling. The connection terminal in the lower housing part allows pre-wiring.



WRF04 PSTD FS5



WRF04 P,
standard labelling colour

Types with RS485 BACnet and LON on page 195 Modbus

TECHNICAL DATA	
Measuring values	temperature
Output voltage	AO2V: 2x 0..10 V
Output switch contact	Relay: switch contact 24 V | 3 A, floating Triac: 24 V ~ | 1 A, floating
Network technology	RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	RS485 Modbus: typ. 0,4 W (24 V =) | 0,6 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	2x entry for floating contacts
Set point (P)	potentiometer
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III), 2-stages (0,I), 3-stages (0,I,II), 4-stages (0,I,II,III)
Button (T)	for presence detection
LED (D)	for status feedback, green (standard)
Functions	AO2V: 2 inputs, 2 outputs 0..10 V DO2R: 2 inputs, 2 outputs relay DO2T: 2 inputs, 2 outputs Triac OVR: 2 inputs, 2 outputs (1x 0..10 V, 1 relay) OVT: 2 inputs, 2 outputs (1x 0..10 V, 1 Triac)
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately, DO2T, DO2R, OVR, OVT with IO extension need an additional flush-mounting box (Ø=60 mm)
Notes	for further variants see chapter room operating units, special labelling available on request, special painting available on request, for other operating elements please request

WRF04 x RR

Room controller temperature – AO2V RS485 Modbus				RU2
Item description	Inputs	0..10 V	Item No.	Controller
WRF04 P AO2V RS485 Modbus	2	2	419956	✓
WRF04 PTD AO2V RS485 Modbus, LED green	2	2	415613	✓
WRF04 PSD AO2V RS485 Modbus, FS5, LED green	2	2	419949	✓
WRF04 PSTD AO2V RS485 Modbus, FS5, LED green	2	2	480505	✓

Room controller temperature – IO DO2R RS485 Modbus					RU2
Item description	Inputs	0..10 V	Relay	Item No.	Controller
WRF04 P DO2R RS485 Modbus, IO	2	-	2	420266	✓
WRF04 PTD DO2R RS485 Modbus, LED green, IO	2	-	2	420273	✓
WRF04 PSD DO2R RS485 Modbus, FS5, LED green, IO	2	-	2	420280	✓

Room controller temperature – IO DO2T RS485 Modbus					RU2
Item description	Inputs	0..10 V	Triac	Item No.	Controller
WRF04 P DO2T RS485 Modbus, IO	2	-	2	420617	✓
WRF04 PTD DO2T RS485 Modbus, LED green, IO	2	-	2	420624	✓
WRF04 PSD DO2T RS485 Modbus, FS5, LED green, IO	2	-	2	420631	✓

Room controller temperature – IO OVR RS485 Modbus					RU2
Item description	Inputs	0..10 V	Relay	Item No.	Controller
WRF04 P OVR RS485 Modbus, IO	2	1	1	420679	✓
WRF04 PTD OVR RS485 Modbus, LED green, IO	2	1	1	420686	✓
WRF04 PSD OVR RS485 Modbus, FS5, LED green, IO	2	1	1	420693	✓

Room controller temperature – IO OVT RS485 Modbus					RU2
Item description	Inputs	0..10 V	Triac	Item No.	Controller
WRF04 P OVT RS485 Modbus, IO	2	1	1	420747	✓
WRF04 PTD OVT RS485 Modbus, LED green, IO	2	1	1	420754	✓
WRF04 PSD OVT RS485 Modbus, FS5, LED green, IO	2	1	1	420761	✓

Options
Item description
Rotary switch S with 4 fan stages (FS4)
Rotary switch S with 3 fan stages (FS3)
Rotary switch S with 2 fan stages (FS2)
Default labelling P colour red+blue (ItypeSC)

Accessories			AS1
Item description		Item No.	On stock
Rawlplugs and screws (2 pcs. each)		102209	⛁
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)		645737	⛁
Frame for surface mounting NOVOS 3/WRF04		111584	⛁

WRF04 LCD x RR

DATA SHEETS

The surface-mounted room controller with LCD serves for individual temperature control in living, hotel and office rooms. Possible operating elements are potentiometers, rotary switches, buttons and LEDs for setpoint adjustment, fan level selection, presence detection and visual feedback. Depending on the type, continuous or 2-point valves can be controlled for heating or cooling. The connection terminal in the lower housing part allows pre-wiring.



WRF04 LCD PSD

Modbus

TECHNICAL DATA	
Measuring values	temperature
Output voltage	AO2V: 2x 0..10 V
Output switch contact	Relay: switch contact 24 V | 3 A, floating Triac: 24 V ~ | 1 A, floating
Network technology	RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	RS485 Modbus: typ. 0,4 W (24 V =) | 0,6 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	2x entry for floating contacts
Set point (P)	potentiometer
Rotary switch (S)	for fan stage adjustment (max. 5 stages) 5-stages (auto,0,I,II,III), 2-stages (0,I), 3-stages (0,I,II), 4-stages (0,I,II,III)
Button (T)	for presence detection
LED (D)	for status feedback, green (standard)
Functions	AO2V: 2 inputs, 2 outputs 0..10 V DO2R: 2 inputs, 2 outputs relay DO2T: 2 inputs, 2 outputs Triac OVR: 2 inputs, 2 outputs (1x 0..10 V, 1 relay) OVT: 2 inputs, 2 outputs (1x 0..10 V, 1 Triac)
Display	LCD 29x12 mm, monochrome, status-LED, multi-colored
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately DO2T, DO2R, OVR, OVT with IO extension need an additional flush-mounting box (Ø=60 mm)
Notes	for further variants see chapter room operating units, special labelling available on request, special painting available on request, for other operating elements please request

WRF04 LCD x RR

Modbus

Room controller temperature – AO2V RS485 Modbus				RU2
Item description	Inputs	0..10 V	Item No.	Controller
WRF04 LCD P AO2V RS485 Modbus	2	2	420020	✓
WRF04 LCD PTD AO2V RS485 Modbus, LED green	2	2	415620	✓
WRF04 LCD PSD AO2V RS485 Modbus, FS5, LED green	2	2	419987	✓
WRF04 LCD PSTD AO2V RS485 Modbus, FS5, LED green	2	2	538442	✓

Room controller temperature – IO DO2R RS485 Modbus					RU2
Item description	Inputs	0..10 V	Relay	Item No.	Controller
WRF04 LCD P DO2R RS485 Modbus, IO	2	-	2	420327	✓
WRF04 LCD PTD DO2R RS485 Modbus, LED green, IO	2	-	2	420334	✓
WRF04 LCD PSD DO2R RS485 Modbus, FS5, LED green, IO	2	-	2	628822	✓

Room controller temperature – IO DO2T RS485 Modbus					RU2
Item description	Inputs	0..10 V	Triac	Item No.	Controller
WRF04 LCD P DO2T RS485 Modbus, IO	2	-	2	420815	✓
WRF04 LCD PTD DO2T RS485 Modbus, LED green, IO	2	-	2	628846	✓
WRF04 LCD PSD DO2T RS485 Modbus, FS5, LED green, IO	2	-	2	628839	✓

Room controller temperature – IO OVR RS485 Modbus					RU2
Item description	Inputs	0..10 V	Relay	Item No.	Controller
WRF04 LCD P OVR RS485 Modbus, IO	2	1	1	420891	✓
WRF04 LCD PTD OVR RS485 Modbus, LED green, IO	2	1	1	420907	✓
WRF04 LCD PSD OVR RS485 Modbus, FS5, LED green, IO	2	1	1	420914	✓

Room controller temperature – IO OVT RS485 Modbus					RU2
Item description	Inputs	0..10 V	Triac	Item No.	Controller
WRF04 LCD P OVT RS485 Modbus, IO	2	1	1	420952	✓
WRF04 LCD PTD OVT RS485 Modbus, LED green, IO	2	1	1	630122	✓
WRF04 LCD PSD OVT RS485 Modbus, FS5, LED green, IO	2	1	1	628877	✓

Options
Item description
Rotary switch S with 4 fan stages (FS4)
Rotary switch S with 3 fan stages (FS3)
Rotary switch S with 2 fan stages (FS2)
Default labelling P colour red+blue (ItypeSC)

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⛁
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁
Frame for surface mounting NOVOS 3/WRF04	111584	⛁



LCT

DATA SHEETS

The electronic room thermostat is designed for controlling temperature in commercial, industrial and residential buildings and also underfloor heating applications. LCD temperature display, dial set point and relay on/off output. Additional input is available for an external temperature sensor if required.

TECHNICAL DATA	
Measuring values	temperature
Output switch contact	heating: 250 V ~ , max. 16 A | 30 V =, max. 10 A
Power supply	100..240 V ~
Power consumption	max. 0,5 W
Measuring range temp.	0..+40 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Display	LCD for temperature and set point
Enclosure	PC, pure white
Protection	IP20 according to EN 60529
Cable entry	rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm)
Notes	set point adjustment for room temperature: +5..+30 °C set point adjustment for floor temperature: +5..+40 °C

Room thermostat surface mount with display – active			RU1
Item description	Item No.	Controller	
LCT	573382	✓	

Options
Item description
Additional sensor NTC100k (model and price on request)



LCA

DATA SHEETS

The flat surface mounted bimetallic room controller with night-time lowering (ECO function) is designed for heating or cooling via a 2-pipe system in residential, industrial and commercial premises. The setpoint temperature is set via the large rotary knob. Suitable for infrared heaters and other thermostat-controlled heating systems.

TECHNICAL DATA	
Measuring values	temperature
Output switch contact	changeover contact, heating & cooling max. 230 V ~ / 2 A (resistive, non-floating)
Power supply	230 V ~
Sensor	bimetallic contact
Inputs	entry for night reduction -3 K, 230 V ~
Control functions	setpoint
Functions	heating or cooling ON/OFF, night reduction
Set point range	+5..+30 °C
Enclosure	ABS, pure white brilliant
Protection	IP30 according to EN 60529
Cable entry	rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm)

Room controller heating/cooling surface mount – active			RU1
Item description	Item No.	Controller	
LCA	660822	✓	



LCA D

DATA SHEETS

The flat surface-mounted bimetallic room controller is designed for heating via a 2-pipe system in residential, industrial and business premises. The setpoint temperature is set via the large rotary knob. The operating mode is indicated by an LED.

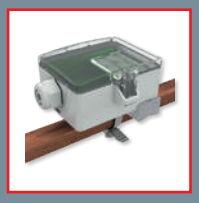
TECHNICAL DATA	
Measuring values	temperature
Output switch contact	NC contact heating max. 230 V ~ / 2 A (resistive, non-floating)
Power supply	230 V ~
Sensor	bimetallic contact
LED (D)	heating „ON“
Control functions	setpoint
Functions	heating ON/OFF
Set point range	+5..+30 °C
Enclosure	ABS, pure white brilliant
Protection	IP30 according to EN 60529
Cable entry	rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm)

Room thermostat heating surface mount with LED – active			RU1
Item description	Item No.	Controller	
LCA D	660815	✓	

Temperature

High-quality materials, modern production processes, and many years of experience: We produce temperature sensors for various applications in buildings for heating, refrigeration and air conditioning systems.





IDEAL TEMPERATURE FOR YOUR APPLICATION

Our sensors are available in various designs and with numerous temperature sensor options, active outputs and BUS systems. Special manufacturing processes guarantee reliable operation even in demanding applications.

BACnet · KNX · LON LOCAL OPERATING NETWORK · enocean · Modbus



VFG54+
Contact temperature sensor, available with RS485-Modbus interfaces



AF25
Cable/Contact temperature sensor, various cable lengths are available



TF25
Cable temperature sensor, available with LON interface

» BENEFITS

- Temperature sensors for various applications and harsh environments
- Numerous passive temperature sensors, active outputs and BUS systems are available
- High protection against external factors due to special high-end manufacturing processes

Sample applications 225

Room sensors

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AGS54+	Outdoor temperature sensor	306
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Contact sensors

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Cable sensors

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» BENEFITS

- » Temperature sensors for various applications and harsh environments
- » Numerous passive temperature sensors, active outputs and BUS systems are available
- » High protection against external factors due to special high-end manufacturing processes

1	2	3
		
AGS55+ Outdoor/industrial temperature sensor, available with LON or Modbus interfaces as well as LCD	**AKF10+** Duct-/ immersion temperature sensor, available with LON or Modbus interfaces as well as LCD	**RPF40** Room pendulum temperature sensor, various cable lengths are available

BACnet KNX LON LOCAL OPERATING NETWORK enocean Modbus

IDEAL TEMPERATURE FOR YOUR APPLICATION

Our sensors are available in various designs and with numerous temperature sensor options, active outputs and BUS systems. Special manufacturing processes guarantee reliable operation even in demanding applications.

NOVOS 5 Temp active

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 5 for measuring room temperature. The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device has an LC display with color change function for displaying the measured values. The threshold values and display settings can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 5 x in 'Room Operating Units'.



NOVOS 5 Temp



NOVOS 5 Temp Design

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V, (live-zero configuration via Thermokon NOVOSapp) min. load 10 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..35 V = or 19..29 V ~ SELV, TRA: 15..35 V = SELV
Power consumption	typ. 0,6 W (24 V =) | 1,0 VA (24 V ~)
Output signal range temp.	Scaling analog output, 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Accuracy temperature	±0,5 K (typ. at 21 °C)
Display	LCD 29x35 mm with RGB backlight
Enclosure	PC V0, pure white design cover (optional)
Protection	IP30 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm), or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 5 Temp active

Room sensor temperature – active 0..10 V		TP1
Item description	Item No.	
NOVOS 5 Temp LCD V	733519	

Room sensor temperature – active 4..20 mA		TP1
Item description	Item No.	
NOVOS 5 Temp LCD A	733557	

Room sensor temperature design – active 0..10 V (please specify desired design cover)		TP1
Item description	Item No.	
NOVOS 5 Temp design LCD V	733533	

Room sensor temperature design – active 4..20 mA (please specify desired design cover)		TP1
Item description	Item No.	
NOVOS 5 Temp design LCD A	733564	

ACCESSORIES

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⛁
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁

Design cover (please order additionally with items design)	AS1
Item description	On stock
Design cover NOVOS 5 alu	⛁
Design cover NOVOS 5 black	⛁

NOVOS 5 Temp BUS

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 5 for measuring room temperature. The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device has an LC display with color change function for displaying the measured values. The threshold values and display settings can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 5 x in 'Room Operating Units'.



NOVOS 5 Temp BUS



NOVOS 5 Temp Design BUS

Modbus

TECHNICAL DATA	
Measuring values	temperature
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =) | 1,0 VA (24 V ~)
Measuring range temp.	-35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	1x input for floating contact
Display	LCD 29x35 mm with RGB backlight
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP30 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm), or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 5 Temp BUS

Room sensor temperature – active BUS		TP1
Item description	Item No.	
NOVOS 5 Temp LCD RS485 Modbus	733571	

Room sensor temperature design – active BUS (please specify desired design cover)		TP1
Item description	Item No.	
NOVOS 5 Temp design LCD RS485 Modbus	733588	

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 5 alu	●	
Design cover NOVOS 5 black	●	

NOVOS 3 Temp passive

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 3 for measuring room temperature. The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 3 x in 'Room Operating Units'.



NOVOS 3 Temp



NOVOS 3 Temp Design

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 | NTC10k
Measuring range temp.	-35..+70 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	2-wire (standard) or 4-wire
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	other temperature sensors on request

NOVOS 3 Temp passive

Room sensor temperature – passive		TP3
Item description	Item No.	On stock
NOVOS 3 Temp PT100	728256	●
NOVOS 3 Temp PT1000	728386	●
NOVOS 3 Temp PT1000 1/3 DIN	728393	
NOVOS 3 Temp Ni1000	728409	●
NOVOS 3 Temp Ni1000TK5000	728416	●
NOVOS 3 Temp NTC10k	728423	●

Room sensor temperature design – passive (please specify desired design cover)		TP3
Item description	Item No.	
NOVOS 3 Temp design PT100	728430	
NOVOS 3 Temp design PT1000	728447	
NOVOS 3 Temp design PT1000 1/3 DIN	728454	
NOVOS 3 Temp design Ni1000	728461	
NOVOS 3 Temp design Ni1000TK5000	728478	
NOVOS 3 Temp design NTC10k	728485	

Options
Item description
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC1,8k | NTC5k | NTC10k Precon | NTC10k Carel | NTC20k
Add to price of NTC10k for sensor LM235Z

ACCESSORIES

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
Frame for surface mounting NOVOS 3/WRF04	111584	●

Design cover (please order additionally with items design)	AS1
Item description	On stock
Design cover NOVOS 3 alu	●
Design cover NOVOS 3 black	●

NOVOS 3 Temp active

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 3 for measuring room temperature. The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The threshold values can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 3 x in 'Room Operating Units'.



NOVOS 3 Temp



NOVOS 3 Temp Design

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	0..10 V or 0..5 V (live-zero can be configured via Thermokon NOVOSapp), min. load 10 kΩ
Output ampere	4..20 mA, max. load 500 Ω
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =) | 1,0 VA (24 V ~)
Output signal range temp.	Scaling analog output, 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Accuracy temperature	±0,5 K (typ. at 21 °C)
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 3 Temp active

Room sensor temperature – active 0..10 V			TP2
Item description	Item No.	On stock	
NOVOS 3 Temp V	731614	●	

Room sensor temperature – active 4..20 mA			TP2
Item description	Item No.	On stock	
NOVOS 3 Temp A	731621	●	

Room sensor temperature design – active 0..10 V (please specify desired design cover)		TP2
Item description	Item No.	
NOVOS 3 Temp design V	731638	

Room sensor temperature design – active 4..20 mA (please specify desired design cover)		TP2
Item description	Item No.	
NOVOS 3 Temp design A	731645	

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	
Frame for surface mounting NOVOS 3/WRF04	111584	●	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 3 alu	●	
Design cover NOVOS 3 black	●	

NOVOS 3 Temp BUS

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 3 for measuring room temperature. The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The threshold values can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 3 x in 'Room Operating Units'.



NOVOS 3 Temp BUS



NOVOS 3 Temp Design BUS

Modbus

TECHNICAL DATA	
Measuring values	temperature
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =) | 1,0 VA (24 V ~)
Measuring range temp.	-35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	1x input for floating contact
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 3 Temp BUS

Room sensor temperature – active BUS		TP2
Item description	Item No.	
NOVOS 3 Temp RS485 Modbus	731652	

Room sensor temperature design – active BUS (please specify desired design cover)		TP2
Item description	Item No.	
NOVOS 3 Temp design RS485 Modbus	731669	

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	
Frame for surface mounting NOVOS 3/WRF04	111584	●	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 3 alu	●	
Design cover NOVOS 3 black	●	

WRF04 passive

DATA SHEETS

Surface mounted room sensor for temperature measuring. For set point and fan stage adjustment, manual override for room and office applications please refer to 'Room Operating Units'.



WRF04



WRF04
custom paint alusilver



stainless steel enclosure

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k LM235Z | DS18B20 1-wire
Measuring range temp.	-35..+70 °C
Operating temperature range	permissible working temperature: -35..+70 °C
Accuracy temperature	depending on used sensor
Sensor	2-wire (standard), 3-wire or 4-wire
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	special painting available on request other temperature sensors on request multi-conductor connection on request enclosure stainless steel available (see options)

WRF04 passive

Item description: product | sensor

Room sensor temperature – passive			TP3
Item description	Item No.	On stock	
WRF04 without sensor	212892		
WRF04 PT100	193221	●	
WRF04 PT100 1/3 DIN	197731		
WRF04 PT1000	191623	●	
WRF04 PT1000 1/3 DIN	207980		
WRF04 Ni1000	191616	●	
WRF04 Ni1000TK5000	193214	●	
WRF04 NTC10k	207584	●	
WRF04 NTC10k Precon	197618		
WRF04 NTC20k	193177	●	
WRF04 NTC1,8k	236775		
WRF04 LM235Z	193191	●	

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Stainless steel enclosure
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

WRF04 | FeT | 3-wire | stainless steel enclosure

WRF04 = product
FeT = sensor
3-wire = number of wires

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	
Frame for surface mounting NOVOS 3/WRF04	111584	●	
Ball stroke protection BS150, transparent (for series WRF04)	647007	●	

WRF04 active

DATA SHEETS

Surface mounted room sensor for temperature measuring. For set point and fan stage adjustment, manual override for room and office applications please refer to 'Room Operating Units'.



WRF04



WRF04 LCD

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 700 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	typ. 0,6 W (24 V =) | 1,0 VA (24 V ~)
Output signal range temp.	Scaling analog output: 0..+50 °C (default setting) selectable from 3 temperature ranges -50..+50 | 0..+50 | -15..+35 °C adjustable at the transducer
Operating temperature range	permissible working temperature: -35..+70 °C
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Display	TRV: LCD 29x12 mm, monochrome, optional
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	special painting available on request enclosure stainless steel available (see options)

Item description: product | TRV/TRA MultiRange

Room sensor temperature – active 0..10 V					TP2
Item description	Inputs	0..10 V	4..20 mA	Item No.	On stock
WRF04 TRV MultiRange	-	1	-	479202	●
WRF04 LCD TRV MultiRange	-	1	-	593878	

Room sensor temperature – active 4..20 mA					TP2
Item description	Inputs	0..10 V	4..20 mA	Item No.	On stock
WRF04 TRA MultiRange	-	-	1	479196	●

Options
Item description
Stainless steel enclosure

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●
Frame for surface mounting NOVOS 3/WRF04	111584	●
Ball stroke protection BS150, transparent (for series WRF04)	647007	●

WRF04 BUS

DATA SHEETS

Surface mounted room sensor for temperature measuring. For set point and fan stage adjustment, manual override for room and office applications please refer to 'Room Operating Units'.



WRF04 BUS



WRF04 LCD

Modbus BACnet KNX LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature
Network technology	BACnet MS/TP, KNX (TP), LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV KNX: supply via BUS
Power consumption	max. 0,6 W (24 V =) | 1,2 VA (24 V ~) LON: typ. 0,5 W (24 V =) | 1,7 VA (24 V ~) LCD LON: typ. 0,85 W (24 V =) | 2,0 VA (24 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Display	LCD 29x12 mm, monochrome, optional for RS485 Modbus
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	special painting available on request enclosure stainless steel available (see options)

Item description: product | AO2V | BUS

WRF04 BUS

Room sensor temperature – active RS485 Modbus					TP2
Item description	Inputs	0..10 V	4..20 mA	Item No.	
WRF04 AO2V RS485 Modbus	2	2	-	419970	
WRF04 LCD AO2V RS485 Modbus	2	2	-	420044	

Room sensor temperature – active RS485 BACnet					TP2
Item description	Inputs	0..10 V	4..20 mA	Item No.	
WRF04 AO2V RS485 BACnet	2	2	-	546065	

Room sensor temperature – active KNX		TP2
Item description	Item No.	
WRF04 KNX	585989	

Room sensor temperature – active LON		TP2
Item description	Item No.	
WRF04 LON	193689	
WRF04 LCD LON	398084	

Options
Item description
Stainless steel enclosure

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209		
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737		
Frame for surface mounting NOVOS 3/WRF04	111584		
Ball stroke protection BS150, transparent (for series WRF04)	647007		



WRF04 IR

DATA SHEETS

Surface mounted room sensor for measuring of radiation temperature in room and office applications. Designed for control and monitoring systems.

TECHNICAL DATA	
Measuring values	radiation temperature
Output passive	depending on used sensor
Measuring range temp.	passive: -35..+70 °C
Operating temperature range	permissible working temperature: -35..+70 °C
Accuracy temperature	passive: depending on used sensor
Sensor	2-wire (standard)
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	special painting available on request other temperature sensors on request

Room sensor radiation temperature – passive		TP2
Item description	Item No.	
WRF04 IR Ni1000	652063	
WRF04 IR NTC10k	652100	
WRF04 IR PT1000	652094	

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⛁
Frame for surface mounting NOVOS 3/WRF04	111584	⛁

WRF06 passive

DATA SHEETS

Flush mounted sensor for measuring temperature in room and office applications. Designed for control and monitoring systems.



WRF06 Busch-Jaeger future® linear studio white



WRF06 Gira E2 pure white matt

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k LM235Z
Measuring range temp.	-35..+70 °C
Operating temperature range	permissible working temperature: -35..+70 °C
Accuracy temperature	depending on used sensor
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.5 aluminum | stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo® *, future® linear *, impuls, Busch-axcent® *, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec *, Artec stainless steel *, Antik *
Switch range Peha	AURA, AURA glass
Enclosure	Central disc in the design of the switch manufacturer (appearance may vary)
Protection	IP20 according to EN 60529
Ambient condition	max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	* in switch program with intermediate frame for other frame designs please request

WRF06 passive

Item description: product | sensor | switch range | colour

Room sensor temperature – passive	TP1
Item description	Item No.
WRF06 without sensor Gira E2 pure white matt	626194
WRF06 PT100 Gira E2 pure white matt	128933
WRF06 PT100 1/3 DIN Gira E2 pure white matt	137768
WRF06 PT1000 Gira E2 pure white matt	158299
WRF06 PT1000 1/3 DIN Gira E2 pure white matt	160773
WRF06 Ni1000 Gira E2 pure white matt	138314
WRF06 Ni1000TK5000 Gira E2 pure white matt	121866
WRF06 NTC10k Gira E2 pure white matt	191050
WRF06 NTC10k Precon Gira E2 pure white matt	265136
WRF06 NTC20k Gira E2 pure white matt	199797
WRF06 NTC1,8k Gira E2 pure white matt	257794
WRF06 LM235Z Gira E2 pure white matt	121798

Options
Item description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

WRF06 active

DATA SHEETS

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,3 W (24 V =) | 0,9 VA (24 V ~)
Output signal range temp.	Scaling analog output, 0..+50 °C
Operating temperature range	permissible working temperature, 0..+50 °C
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.5 aluminum | stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo® *, future® linear *, impuls, Busch-axcent® *, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec *, Artec stainless steel *, Antik *
Switch range Peha	AURA, AURA glass
Enclosure	Central disc in the design of the switch manufacturer (appearance may vary)
Protection	IP20 according to EN 60529
Ambient condition	max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	* in switch program with intermediate frame for other frame designs please request

Item description: product | TRV3 | switch range | colour

Room sensor temperature – active 0..10 V		TP1
Item description	Item No.	
WRF06 TRV3 Gira E2 pure white matt	627160	
WRF06 TRV3 Berker S.1 polar white brilliant	582865	
WRF06 TRV3 Busch-Jaeger Busch-balance® SI alpine white	703925	
WRF06 TRV3 Busch-Jaeger Reflex SI alpine white	703932	
WRF06 TRV3 Jung A 500 alpine white	703949	
WRF06 TRV3 Merten M-Smart polar white brilliant	703956	
WRF06 TRV3 Gira E3 pure white matt	703963	

Options
Item description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)

Accessories			AS1
Item description	Item No.	On stock	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	

WRF06 BUS

Modbus BACnet LON LOCAL OPERATING NETWORK

DATA SHEETS

TECHNICAL DATA	
Measuring values	temperature
Output voltage	AO2V: 2x 0..10 V
Network technology	BACnet MS/TP, LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,9 W (24 V =) | 1 VA (24 V ~) LON: typ. 0,7 W (24 V =) | 2,5 VA (24 V ~)
Measuring range temp.	0..+50 °C
Operating temperature range	permissible working temperature, 0..+50 °C
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Inputs	DI4: 4x input digital for floating switch contact
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.5 aluminum | stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo® *, future® linear *, impuls, Busch-axcent® *, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec *, Artec stainless steel *, Antik *
Switch range Peha	AURA, AURA glass
Protection	IP20 according to EN 60529
Ambient condition	max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Delivery contents	software for configuration (freeware via download)
Notes	* in switch program with intermediate frame for other frame designs please request

Item description: product | BUS | switch range | colour

Room sensor temperature – active BUS			TP1
Item description	Inputs	0..10 V	Item No.
WRF06 DI4 RS485 Modbus Gira E2 pure white matt	4	-	644402
WRF06 AO2V RS485 Modbus Gira E2 pure white matt	2	2	624190
WRF06 AO2V RS485 BACnet Gira E2 pure white matt	2	2	624206
WRF06 DI4 LON Gira E2 pure white matt	4	-	644389
WRF06 AO2V LON Gira E2 pure white matt	2	2	627177

Options
Item description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)

Accessories			AS1
Item description		Item No.	On stock
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)		645737	●



RDF18

DATA SHEETS

Ceiling flush mounted sensor for temperature measurement in interior spaces to be mounted inconspicuously into ceiling panels thus providing an overall architectural picture.

TECHNICAL DATA	
Measuring values	temperature
Output passive	passive temperature sensor
Measuring range temp.	-35..+70 °C
Operating temperature range	permissible working temperature: -35..+70 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	2-wire (standard)
Protection	IP30 according to EN 60529
Connection electrical	connection wire PVC, 2x Ø=0,25 mm², grey 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Sensor head	ABS, white, Ø=30 mm
Ambient condition	max. 85% rH non-condensing
Mounting	facet mounting
Notes	active types for temperature and humidity available (see humidity – FT-RDF18+)

Ceiling flush mount sensor temperature – passive	TP2
Item description	Item No.
RDF18 PT100 L1000	471237
RDF18 PT100 1/3 DIN L1000	471244
RDF18 PT1000 L1000	459235
RDF18 PT1000 1/3 DIN L1000	458276
RDF18 Ni1000 L1000	463669
RDF18 Ni1000TK5000 L1000	471251
RDF18 NTC10k L1000	457828
RDF18 NTC10k Precon L1000	471282
RDF18 NTC20k L1000	459143
RDF18 NTC1,8k L1000	471275
RDF18 LM235Z L1000	456296

Options
Item description
Add per meter of connection cable
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

RDF-IR

DATA SHEETS

Ceiling flush-mounted sensor for surface temperature measurement in room, office spaces and other workplaces. Using the infrared measuring principle, an averaged temperature over the circular detection range (optical detection range 80 ±5°) is performed. If two IR sensors are used, the mean, minimum or maximum value of both temperature signals can be provided in addition to the individual temperatures of each sensor (configurable via Thermokon USEapp).



RDF-IR V



RDF-IR VV

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	radiation temperature
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp)
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =) | 1,5 VA (24 V ~)
Output signal range temp.	0..+50 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C adjustable at the transducer
Operating temperature range	permissible working temperature, -20..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range) mounting height max. 7 m, >7 m ±1,5 K
Sensor	PIR (passive infrared) optical aperture angle (50% sensitivity): 80 ±5°
Enclosure	enclosure USE-M, PC, pure white
Protection	IP30 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² sensor wire (patch cable) length=1,5 m (default), max. 10 m, plug RJ45
Ambient condition	max. 85% rH non-condensing
Delivery contents	incl. mounting base enclosure USE-M pure white

RDF-IR

Ceiling flush mount sensor radiation temperature – active 0..10 V		TP1
Item description	Item No.	
RDF-IR V L1500	699150	
RDF-IR VV 2xL1500	699167	

Accessories		AS1
Item description	Item No.	On stock
Mounting base enclosure USE-M pure white	668354	⛁
Sensor wire 1,5 m with RJ45 connector	628785	⛁
Sensor wire 3 m with RJ45 connector	708852	⛁
Sensor wire 7,5 m with RJ45 connector	708869	⛁
For cable entries and sealing inserts please refer to chapter "Accessories"		

RPF40 passive

DATA SHEETS

Pendulum sensor for temperature measurement for large rooms and spaces like open-plan offices, galleries and production plants. Available with black bulb for radiator or similar applications. Designed for control and monitoring applications.



RPF40 passive



RPF40 radiation sensor

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k LM235Z
Measuring range temp.	-35..+90 °C
Operating temperature range	permissible working temperature: -35..+90 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	2-wire (standard)
Protection	IP30 according to EN 60529
Sensor head	PF31, white, black (only radiation sensor), Ø=40 mm
Ambient condition	max. 85% rH short term condensation
Notes	other sensors and cable lengths on request multi-conductor connection on request

RPF40 passive

Item description: product | sensor | colour (sensor head) | cable length(L)

Room pendulum sensor temperature – passive		TP2
Item description	Item No.	
RPF40 PT100 white L1000	350006	
RPF40 PT100 1/3 DIN white L1000	265621	
RPF40 PT1000 white L1000	321068	
RPF40 PT1000 1/3 DIN white L1000	329569	
RPF40 Ni1000 white L1000	329279	
RPF40 Ni1000TK5000 white L1000	144193	
RPF40 NTC10k white L1000	351980	
RPF40 NTC10k Precon white L1000	164573	
RPF40 NTC20k white L1000	334792	
RPF40 NTC1,8k white L1000	334549	
RPF40 LM235Z white L1000	339476	

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add per meter of connection cable
Add per meter of connection cable 3-wire -35..+100 °C
Add per meter of connection cable 4-wire -35..+100 °C
Sensor head black (radiation sensor)
Connection box USE-S
Add to price of NTC10k for sensor NTC5k | NTC10k Carel

Accessories		AS1
Item description	Item No.	On stock
Mounting base enclosure USE-S pure white	667722	⛁
For cable entries and sealing inserts please refer to chapter "Accessories"		

RPF40+ active

DATA SHEETS

Pendulum sensor for temperature measurement for large rooms and spaces like open-plan offices, galleries and production plants. Available with black bulb for radiator or similar applications. Designed for control and monitoring applications.



0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	TRV: 15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Output signal range temp.	Scaling analog output, 0..+160 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer
Operating temperature range	permissible working temperature, -35..+90 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP30 according to EN 60529 enclosure: IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² sensor wire PVC soft, Ø=0,25 mm², white 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Sensor head	PF31, white, black (only radiation sensor), Ø=40 mm
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-S pure white
Notes	other cable lengths on request

Item description: product | TRV/TRA MultiRange | colour (sensor head) | cable length(L)

RPF40+ active

Room pendulum sensor temperature – active 0..10 V		TP2
Item description	Item No.	
RPF40+ TRV MultiRange white L1000	658409	

Room pendulum sensor temperature – active 4..20 mA		TP2
Item description	Item No.	
RPF40+ TRA MultiRange white L1000	658416	

Options
Item description
Add per meter of connection cable
Sensor head black (radiation sensor)

Accessories		AS1
Item description	Item No.	On stock
Mounting base enclosure USE-S pure white	667722	⛀
For cable entries and sealing inserts please refer to chapter "Accessories"		



RPF100 passive

DATA SHEETS

Pendulum sensor for temperature measurement in large, high rooms and spaces like open space offices, galleries, production plants and similar for control and monitoring applications.

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k, LM235Z
Measuring range temp.	-35..+90 °C
Operating temperature range	permissible working temperature, -35..+90 °C
Accuracy temperature	depending on used sensor, PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B), Ni1000: ±0,4 K (typ. at 0 °C), Ni1000TK5000: ±0,4 K (typ. at 0 °C), NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	2-wire (standard)
Protection	IP30 according to EN 60529
Pocket	stainless steel V2A, Ø=15 mm, mounting length 100 mm, hex pressed
Ambient condition	max. 85% rH short term condensation
Notes	other sensors and cable lengths on request, multi-conductor connection on request

Room pendulum sensor temperature – passive		TP2
Item description	Item No.	
RPF100 PT100 L1000	81566	
RPF100 PT100 1/3 DIN L1000	90780	
RPF100 PT1000 L1000	90827	
RPF100 PT1000 1/3 DIN L1000	90865	
RPF100 Ni1000 L1000	90902	
RPF100 Ni1000TK5000 L1000	160612	
RPF100 NTC10k L1000	91060	
RPF100 NTC10k Precon L1000	91107	
RPF100 NTC20k L1000	219952	
RPF100 NTC1,8k L1000	278331	
RPF100 LM235Z L1000	91145	

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add per meter of connection cable
Add per meter of connection cable 3-wire -35..+100 °C
Add per meter of connection cable 4-wire -35..+100 °C
Connection box USE-S
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-S pure white	667722	●	
For cable entries and sealing inserts please refer to chapter "Accessories"			

RPF100+ active

DATA SHEETS



Pendulum sensor for temperature measurement in large, high rooms and spaces like open space offices, galleries, production plants and similar for control and monitoring applications.

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	TRV: 15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Output signal range temp.	Scaling analog output, 0..+160 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer
Operating temperature range	permissible working temperature, -35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	plug-in terminal, max. 2,5 mm² sensor wire white 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	stainless steel V2A, Ø=15 mm, mounting length 100 mm, hex pressed
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-S pure white

Room pendulum sensor temperature – active 0..10 V | 4..20 mA		TP2
Item description	Item No.	
RPF100+ TRV MultiRange L1000	658423	
RPF100+ TRA MultiRange L1000	658430	

Options
Item description
Add per meter of sensor wire

Accessories		AS1
Item description	Item No.	On stock
Mounting base enclosure USE-S pure white	667722	●
For cable entries and sealing inserts please refer to chapter "Accessories"		

AKF10+

DATA SHEETS

Duct/Immersion sensor for measuring air temperature and other gaseous media (e.g. in ventilation and air conditioning systems). Combined with a thermowell pocket it can be used as an immersion temperature sensor. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



AKF10+



AKF10+



AKF10+ relay / BUS



AKF10+ LCD

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k LM235Z | DS18B20 1-wire
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,35 W (24 V =) | 0,82 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	PT / Ni: -50..+160 °C (T160) NTC / KTY: -50..+150 °C (T150) LM235Z / DS18B20: -50..+120 °C (T120)
Output signal range temp.	TRV | TRA: Scaling analog output, -20..+80 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature, pocket -50..+160 °C, optional -80..+260 °C (T260) enclosure active: -35..+70 °C, enclosure passive: -35..+90 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range) passive: depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529, SI-Protection (not possible for electronic Sensors)
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pocket	stainless steel V4A, Ø=6 mm, mounting length: 50 | 100 | 150 | 200 | 250 | 300 | 450 mm
Ambient condition	max. 85% rH short term condensation
Mounting	for duct sensors please use mounting clip, mounting flange MF6DS flexible or MF6 (brass) for immersion sensors please use immersion pocket THVADS / THMSDS
Delivery contents	incl. mounting clip enclosure USE-S pure white

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp) min. load 5 kΩ
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, TRA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output, -20..+80 °C (default setting), selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer, optionally configurable via Thermokon USEapp
Operating temperature range	permissible working temperature, pocket -50..+160 °C, optional -80..+260 °C (T260), enclosure: -35..+70 °C, LCD: -20..+70 °C
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white, LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²
Mounting	for duct sensors please use mounting flange MF6DS flexible or MF6 (brass), for immersion sensors please use immersion pocket THVADS / THMSDS
Delivery contents	incl. mounting flange

AKF10+ passive

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor -50..+160 °C – passive PT100	TP3	
Item description	Item No.	
AKF10+ PT100 050.06	621175	≡
AKF10+ PT100 100.06	621182	≡
AKF10+ PT100 150.06	621199	≡
AKF10+ PT100 200.06	621205	≡
AKF10+ PT100 250.06	621212	≡
AKF10+ PT100 300.06	621229	
AKF10+ PT100 450.06	621236	

Duct/Immersion sensor -50..+160 °C – passive PT100 1/3 DIN	TP3
Item description	Item No.
AKF10+ PT100 1/3 DIN 050.06	621243
AKF10+ PT100 1/3 DIN 100.06	621250
AKF10+ PT100 1/3 DIN 150.06	621267
AKF10+ PT100 1/3 DIN 200.06	621274
AKF10+ PT100 1/3 DIN 250.06	621281
AKF10+ PT100 1/3 DIN 300.06	621298
AKF10+ PT100 1/3 DIN 450.06	621304

Duct/Immersion sensor -50..+160 °C – passive PT1000	TP3	
Item description	Item No.	
AKF10+ PT1000 050.06	621311	≡
AKF10+ PT1000 100.06	621328	≡
AKF10+ PT1000 150.06	621335	≡
AKF10+ PT1000 200.06	621342	≡
AKF10+ PT1000 250.06	621359	≡
AKF10+ PT1000 300.06	621366	
AKF10+ PT1000 450.06	621373	

Duct/Immersion sensor -50..+160 °C – passive PT1000 1/3 DIN	TP3
Item description	Item No.
AKF10+ PT1000 1/3 DIN 050.06	620796
AKF10+ PT1000 1/3 DIN 100.06	620802
AKF10+ PT1000 1/3 DIN 150.06	620819
AKF10+ PT1000 1/3 DIN 200.06	620826
AKF10+ PT1000 1/3 DIN 250.06	620833
AKF10+ PT1000 1/3 DIN 300.06	620840
AKF10+ PT1000 1/3 DIN 450.06	620857

Duct/Immersion sensor -50..+160 °C – passive Ni1000	TP3	
Item description	Item No.	
AKF10+ Ni1000 050.06	620932	≡
AKF10+ Ni1000 100.06	620949	≡
AKF10+ Ni1000 150.06	620956	≡
AKF10+ Ni1000 200.06	620963	≡
AKF10+ Ni1000 250.06	620970	≡
AKF10+ Ni1000 300.06	620987	
AKF10+ Ni1000 450.06	620994	

Duct/Immersion sensor -50..+160 °C – passive Ni1000TK5000	TP3	
Item description	Item No.	
AKF10+ Ni1000TK5000 050.06	621007	≡
AKF10+ Ni1000TK5000 100.06	621014	≡
AKF10+ Ni1000TK5000 150.06	621021	≡
AKF10+ Ni1000TK5000 200.06	621038	≡
AKF10+ Ni1000TK5000 250.06	621045	≡
AKF10+ Ni1000TK5000 300.06	621052	
AKF10+ Ni1000TK5000 450.06	621069	

Duct/Immersion sensor -50..+150 °C – passive NTC10k	TP3	
Item description	Item No.	
AKF10+ NTC10k 050.06	620864	≡
AKF10+ NTC10k 100.06	620871	≡
AKF10+ NTC10k 150.06	620888	≡
AKF10+ NTC10k 200.06	620895	≡
AKF10+ NTC10k 250.06	620901	≡
AKF10+ NTC10k 300.06	620918	
AKF10+ NTC10k 450.06	620925	

Duct/Immersion sensor -50..+150 °C – passive NTC10k Precon	TP3
Item description	Item No.
AKF10+ NTC10k Precon 050.06	621380
AKF10+ NTC10k Precon 100.06	621397
AKF10+ NTC10k Precon 150.06	621403
AKF10+ NTC10k Precon 200.06	621410
AKF10+ NTC10k Precon 250.06	621427
AKF10+ NTC10k Precon 300.06	621434
AKF10+ NTC10k Precon 450.06	621441

AKF10+ passive

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor -50..+150 °C – passive NTC20k	TP3
Item description	Item No.
AKF10+ NTC20k 050.06	621458
AKF10+ NTC20k 100.06	621465
AKF10+ NTC20k 150.06	621472
AKF10+ NTC20k 200.06	621489
AKF10+ NTC20k 250.06	621496
AKF10+ NTC20k 300.06	621502
AKF10+ NTC20k 450.06	621519

Duct/Immersion sensor -50..+150 °C – passive NTC1,8k	TP3
Item description	Item No.
AKF10+ NTC1,8k 050.06	643030
AKF10+ NTC1,8k 100.06	632928
AKF10+ NTC1,8k 150.06	632935
AKF10+ NTC1,8k 200.06	632942
AKF10+ NTC1,8k 250.06	632959
AKF10+ NTC1,8k 300.06	643047
AKF10+ NTC1,8k 450.06	643054

Duct/Immersion sensor -50..+120 °C – passive LM235Z	TP3	
Item description	Item No.	
AKF10+ LM235Z 050.06	621106	≡
AKF10+ LM235Z 100.06	621113	≡
AKF10+ LM235Z 150.06	621120	≡
AKF10+ LM235Z 200.06	621137	≡
AKF10+ LM235Z 250.06	621144	≡
AKF10+ LM235Z 300.06	621151	
AKF10+ LM235Z 450.06	621168	

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor DS18B20 1-wire
Add to price of PT100 for sensor FeT

Order example for different items:

AKF10+ | FeT | 450.06 | 3-wire | T260

AKF10+ = product
FeT = sensor
450.06 = pocket (length.Ø)
3-wire = number of wires
T260 = temperature

Item description: product | TRV/TRA | pocket (length.Ø)

AKF10+ active

Duct/Immersion sensor -50..+160 °C – active 0..10 V		TP3
Item description	Item No.	On stock
AKF10+ TRV MultiRange 050.06	621595	
AKF10+ TRV MultiRange 100.06	621601	
AKF10+ TRV MultiRange 150.06	621618	
AKF10+ TRV MultiRange 200.06	621625	
AKF10+ TRV MultiRange 250.06	621632	
AKF10+ TRV MultiRange 300.06	621649	
AKF10+ TRV MultiRange 450.06	621656	

Duct/Immersion sensor -50..+160 °C – active 4..20 mA		TP3
Item description	Item No.	On stock
AKF10+ TRA MultiRange 050.06	621663	
AKF10+ TRA MultiRange 100.06	621670	
AKF10+ TRA MultiRange 150.06	621687	
AKF10+ TRA MultiRange 200.06	621694	
AKF10+ TRA MultiRange 250.06	621700	
AKF10+ TRA MultiRange 300.06	621717	
AKF10+ TRA MultiRange 450.06	621724	

Options
Item description
Temperature -80..+260 °C (T260)

Item description: product | TRV MultiRange | pocket (length.Ø) | relay

AKF10+ relay

Duct/Immersion sensor -50..+160 °C – active 0..10 V + relay			TP2
Item description	**USE**app	Item No.	
AKF10+ TRV MultiRange 050.06 relay	✓	663304	
AKF10+ TRV MultiRange 100.06 relay	✓	663311	
AKF10+ TRV MultiRange 150.06 relay	✓	663328	
AKF10+ TRV MultiRange 200.06 relay	✓	663335	
AKF10+ TRV MultiRange 250.06 relay	✓	663342	
AKF10+ TRV MultiRange 300.06 relay	✓	663359	
AKF10+ TRV MultiRange 450.06 relay	✓	663366	

Item description: product | TRV/TRA MultiRange | pocket (length.Ø) | relay

AKF10+ LCD

Duct/Immersion sensor -50..+160 °C – active 0..10 V		TP2
Item description	**USE**app	Item No.
AKF10+ LCD TRV MultiRange 050.06	✓	663380
AKF10+ LCD TRV MultiRange 100.06	✓	663397
AKF10+ LCD TRV MultiRange 150.06	✓	663403
AKF10+ LCD TRV MultiRange 200.06	✓	663410
AKF10+ LCD TRV MultiRange 250.06	✓	663427
AKF10+ LCD TRV MultiRange 300.06	✓	663434
AKF10+ LCD TRV MultiRange 450.06	✓	663441

Duct/Immersion sensor -50..+160 °C – active 4..20 mA		TP2
Item description	**USE**app	Item No.
AKF10+ LCD TRA MultiRange 050.06	✓	663526
AKF10+ LCD TRA MultiRange 100.06	✓	663533
AKF10+ LCD TRA MultiRange 150.06	✓	663540
AKF10+ LCD TRA MultiRange 200.06	✓	663557
AKF10+ LCD TRA MultiRange 250.06	✓	663564
AKF10+ LCD TRA MultiRange 300.06	✓	663571
AKF10+ LCD TRA MultiRange 450.06	✓	663588

Duct/Immersion sensor -50..+160 °C – active 0..10 V + relay		TP2
Item description	**USE**app	Item No.
AKF10+ LCD TRV MultiRange 050.06 relay	✓	663458
AKF10+ LCD TRV MultiRange 100.06 relay	✓	663465
AKF10+ LCD TRV MultiRange 150.06 relay	✓	663472
AKF10+ LCD TRV MultiRange 200.06 relay	✓	663489
AKF10+ LCD TRV MultiRange 250.06 relay	✓	663496
AKF10+ LCD TRV MultiRange 300.06 relay	✓	663502
AKF10+ LCD TRV MultiRange 450.06 relay	✓	663519

Item description: product | BUS | pocket (length.Ø)

AKF10+ BUS

Modbus

Duct/Immersion sensor -50..+160 °C – active RS485 Modbus		TP2
Item description	USEapp	Item No.
AKF10+ RS485 Modbus 050.06	✓	621823
AKF10+ RS485 Modbus 100.06	✓	621830
AKF10+ RS485 Modbus 150.06	✓	621847
AKF10+ RS485 Modbus 200.06	✓	621854
AKF10+ RS485 Modbus 250.06	✓	621861
AKF10+ RS485 Modbus 300.06	✓	621878
AKF10+ RS485 Modbus 450.06	✓	621885

Modbus

Duct/Immersion sensor -50..+160 °C – active RS485 Modbus		TP2
Item description	USEapp	Item No.
AKF10+ LCD RS485 Modbus 050.06	✓	663618
AKF10+ LCD RS485 Modbus 100.06	✓	663625
AKF10+ LCD RS485 Modbus 150.06	✓	663632
AKF10+ LCD RS485 Modbus 200.06	✓	663649
AKF10+ LCD RS485 Modbus 250.06	✓	663656
AKF10+ LCD RS485 Modbus 300.06	✓	663663
AKF10+ LCD RS485 Modbus 450.06	✓	663670

BACnet

Duct/Immersion sensor -50..+160 °C – active RS485 BACnet		TP2
Item description	USEapp	Item No.
AKF10+ RS485 BACnet 050.06	✓	699174
AKF10+ RS485 BACnet 100.06	✓	699181
AKF10+ RS485 BACnet 150.06	✓	683838
AKF10+ RS485 BACnet 200.06	✓	699198
AKF10+ RS485 BACnet 250.06	✓	699204
AKF10+ RS485 BACnet 300.06	✓	699211
AKF10+ RS485 BACnet 450.06	✓	699228

BACnet

Duct/Immersion sensor -50..+160 °C – active RS485 BACnet		TP2
Item description	USEapp	Item No.
AKF10+ LCD RS485 BACnet 050.06	✓	699235
AKF10+ LCD RS485 BACnet 100.06	✓	699242
AKF10+ LCD RS485 BACnet 150.06	✓	682848
AKF10+ LCD RS485 BACnet 200.06	✓	699259
AKF10+ LCD RS485 BACnet 250.06	✓	699266
AKF10+ LCD RS485 BACnet 300.06	✓	699273
AKF10+ LCD RS485 BACnet 450.06	✓	699280

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES – AKF10+ passive / AKF10+ active

Accessories			AS1
Item description		Item No.	On stock
Mounting clip enclosure USE-S pure white		667739	
Mounting base enclosure USE-S pure white		667722	
Mounting kit AKF10+ for enclosure USE-S		637978	

ACCESSORIES – AKF10+ relay / AKF10+ LCD / AKF10+ BUS

Accessories			AS1
Item description		Item No.	On stock
Mounting base enclosure USE-M pure white		668354	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)		668262	

ACCESSORIES

Accessories			AS1
Item description		Item No.	On stock
Mounting flange MF6DS flexible (suitable for Ø=6 mm; AS2)		669016	
Mounting flange MF6 (brass)		3407	
Syringe thermal contact fluid		102308	
Mounting bracket with cable gland for duct sensors Ø=6 mm		670593	
For cable entries and sealing inserts please refer to chapter "Accessories"			

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	36 mm	611152	
VA-thermowell pocket 100 mm type THVADS100	100 mm	86 mm	611817	
VA-thermowell pocket 150 mm type THVADS150	150 mm	136 mm	611824	
VA-thermowell pocket 200 mm type THVADS200	200 mm	186 mm	611848	
VA-thermowell pocket 250 mm type THVADS250	250 mm	236 mm	611862	
VA-thermowell pocket 300 mm type THVADS300	300 mm	286 mm	611879	
VA-thermowell pocket 450 mm type THVADS450	450 mm	436 mm	611893	
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS (10 pcs)			666473	

Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	36 mm	610995	
MS-thermowell pocket 100 mm type THMSDS100	100 mm	86 mm	611008	
MS-thermowell pocket 150 mm type THMSDS150	150 mm	136 mm	611015	
MS-thermowell pocket 200 mm type THMSDS200	200 mm	186 mm	611022	
MS-thermowell pocket 250 mm type THMSDS250	250 mm	236 mm	611985	
MS-thermowell pocket 300 mm type THMSDS300	300 mm	286 mm	611039	
MS-thermowell pocket 450 mm type THMSDS450	450 mm	436 mm	611046	



KFK01

DATA SHEETS

Passive duct sensor for measuring air temperature and other gaseous media for HVAC applications (e.g. supply and exhaust ducts).

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k LM235Z
Measuring range temp.	PT / Ni: -50..+160 °C (T160) NTC / KTY: -50..+150 °C (T150) LM235Z: -50..+120 °C (T120) depending on used sensor
Operating temperature range	permissible working temperature, passive: depending on used sensor pocket -50..+160 °C, optional -80..+260 °C (T260) enclosure: -35..+90 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	shape J, aluminium
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Pocket	stainless steel V4A, Ø=6 mm mounting length: 50 | 100 | 150 | 200 | 250 | 300 | 450 mm
Ambient condition	max. 85% rH short term condensation
Mounting	for duct sensors please use mounting flange MF6DS flexible or MF6 (brass) for immersion sensors please use immersion pocket THVADS / THMSDS
Notes	for mounting up to +260 °C Mounting flange MF6 (brass) is recommended

Duct/Immersion sensor -50..+160 °C – passive PT100 TP1	
Item description	Item No.
KFK01 PT100 050.06	626446
KFK01 PT100 100.06	626453
KFK01 PT100 150.06	626477
KFK01 PT100 200.06	626484
KFK01 PT100 250.06	626491
KFK01 PT100 300.06	626507
KFK01 PT100 450.06	626514

Duct/Immersion sensor -50..+160 °C – passive PT100 1/3 DIN TP1	
Item description	Item No.
KFK01 PT100 1/3 DIN 050.06	626521
KFK01 PT100 1/3 DIN 100.06	626538
KFK01 PT100 1/3 DIN 150.06	626545
KFK01 PT100 1/3 DIN 200.06	626552
KFK01 PT100 1/3 DIN 250.06	626569
KFK01 PT100 1/3 DIN 300.06	626576
KFK01 PT100 1/3 DIN 450.06	626583

KFK01

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor -50..+160 °C – passive PT1000	TP1
Item description	Item No.
KFK01 PT1000 050.06	626590
KFK01 PT1000 100.06	626606
KFK01 PT1000 150.06	626613
KFK01 PT1000 200.06	626620
KFK01 PT1000 250.06	626637
KFK01 PT1000 300.06	626644
KFK01 PT1000 450.06	626651

Duct/Immersion sensor -50..+160 °C – passive PT1000 1/3 DIN	TP1
Item description	Item No.
KFK01 PT1000 1/3 DIN 050.06	626675
KFK01 PT1000 1/3 DIN 100.06	626682
KFK01 PT1000 1/3 DIN 150.06	626699
KFK01 PT1000 1/3 DIN 200.06	626705
KFK01 PT1000 1/3 DIN 250.06	626712
KFK01 PT1000 1/3 DIN 300.06	626729
KFK01 PT1000 1/3 DIN 450.06	626736

Duct/Immersion sensor -50..+160 °C – passive Ni1000	TP1
Item description	Item No.
KFK01 Ni1000 050.06	626743
KFK01 Ni1000 100.06	626750
KFK01 Ni1000 150.06	626767
KFK01 Ni1000 200.06	626774
KFK01 Ni1000 250.06	626781
KFK01 Ni1000 300.06	626798
KFK01 Ni1000 450.06	626804

Duct/Immersion sensor -50..+160 °C – passive Ni1000TK5000	TP1
Item description	Item No.
KFK01 Ni1000TK5000 050.06	626811
KFK01 Ni1000TK5000 100.06	626828
KFK01 Ni1000TK5000 150.06	626835
KFK01 Ni1000TK5000 200.06	626842
KFK01 Ni1000TK5000 250.06	626859
KFK01 Ni1000TK5000 300.06	626866
KFK01 Ni1000TK5000 450.06	626873

Duct/Immersion sensor -50..+150 °C – passive NTC10k	TP1
Item description	Item No.
KFK01 NTC10k 050.06	626880
KFK01 NTC10k 100.06	626897
KFK01 NTC10k 150.06	626903
KFK01 NTC10k 200.06	626910
KFK01 NTC10k 250.06	626927
KFK01 NTC10k 300.06	626934
KFK01 NTC10k 450.06	626941

Duct/Immersion sensor -50..+150 °C – passive NTC10k Precon	TP1
Item description	Item No.
KFK01 NTC10k Precon 050.06	626958
KFK01 NTC10k Precon 100.06	626965
KFK01 NTC10k Precon 150.06	626972
KFK01 NTC10k Precon 200.06	626989
KFK01 NTC10k Precon 250.06	626996
KFK01 NTC10k Precon 300.06	627009
KFK01 NTC10k Precon 450.06	627016

Duct/Immersion sensor -50..+150 °C – passive NTC20k	TP1
Item description	Item No.
KFK01 NTC20k 050.06	627023
KFK01 NTC20k 100.06	627030
KFK01 NTC20k 150.06	627047
KFK01 NTC20k 200.06	627054
KFK01 NTC20k 250.06	627061
KFK01 NTC20k 300.06	627078
KFK01 NTC20k 400.06	627085

Duct/Immersion sensor -50..+150 °C – passive NTC1,8k	TP1
Item description	Item No.
KFK01 NTC1,8k 050.06	668590
KFK01 NTC1,8k 100.06	668606
KFK01 NTC1,8k 150.06	668613
KFK01 NTC1,8k 200.06	668620
KFK01 NTC1,8k 250.06	668637
KFK01 NTC1,8k 300.06	668644
KFK01 NTC1,8k 450.06	668651

KFK01

Duct/Immersion sensor -50..+120 °C – passive LM235Z	TP1
Item description	Item No.
KFK01 LM235Z 050.06	627092
KFK01 LM235Z 100.06	627108
KFK01 LM235Z 150.06	627115
KFK01 LM235Z 200.06	627122
KFK01 LM235Z 250.06	627139
KFK01 LM235Z 300.06	627146
KFK01 LM235Z 450.06	627153

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

Accessories			AS1
Item description		Item No.	On stock
Mounting flange MF6DS flexible (suitable for Ø=6 mm; AS2)		669016	
Mounting flange MF6 (brass)		3407	

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	36 mm	611152	
VA-thermowell pocket 100 mm type THVADS100	100 mm	86 mm	611817	
VA-thermowell pocket 150 mm type THVADS150	150 mm	136 mm	611824	
VA-thermowell pocket 200 mm type THVADS200	200 mm	186 mm	611848	
VA-thermowell pocket 250 mm type THVADS250	250 mm	236 mm	611862	
VA-thermowell pocket 300 mm type THVADS300	300 mm	286 mm	611879	
VA-thermowell pocket 450 mm type THVADS450	450 mm	436 mm	611893	
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS (10 pcs)			666473	

Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	36 mm	610995	
MS-thermowell pocket 100 mm type THMSDS100	100 mm	86 mm	611008	
MS-thermowell pocket 150 mm type THMSDS150	150 mm	136 mm	611015	
MS-thermowell pocket 200 mm type THMSDS200	200 mm	186 mm	611022	
MS-thermowell pocket 250 mm type THMSDS250	250 mm	236 mm	611985	
MS-thermowell pocket 300 mm type THMSDS300	300 mm	286 mm	611039	
MS-thermowell pocket 450 mm type THMSDS450	450 mm	436 mm	611046	



KFK03 passive

DATA SHEETS

Duct sensor for measuring air temperature and other gaseous media for HVAC applications (e.g. in supply and exhaust ducts).

SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k LM235Z
Measuring range temp.	PT / Ni: -50..+160 °C (T160), optional -80..+260 °C (T260) NTC: -50..+150 °C (T150) LM235Z: -50..+120 °C (T120)
Operating temperature range	permissible working temperature: passive: depending on used sensor optional -80..+260 °C (T260) enclosure: -35..+90 °C
Accuracy temperature	depending on used sensor
Sensor	2-wire (standard), 3-wire or 4-wire
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529, SI-Protection (not possible for electronic Sensors)
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Pocket	stainless steel V4A, Ø=8 mm, mounting length: 100 | 150 | 200 | 250 mm
Ambient condition	max. 85% rH short term condensation
Mounting	for duct sensors please use mounting flange MF8 (VA) for immersion sensors please use immersion pocket THVA / THMS
Notes	other temperature sensors on request

Duct/Immersion sensor -50..+160 °C – passive PT100 TP1	
Item description	Item No.
KFK03 PT100 100.08	37877
KFK03 PT100 150.08	37884
KFK03 PT100 200.08	37891
KFK03 PT100 250.08	37907

Duct/Immersion sensor -50..+160 °C – passive PT100 1/3 DIN TP1	
Item description	Item No.
KFK03 PT100 1/3 DIN 100.08	37914
KFK03 PT100 1/3 DIN 150.08	37921
KFK03 PT100 1/3 DIN 200.08	37938
KFK03 PT100 1/3 DIN 250.08	37945

Duct/Immersion sensor -50..+160 °C – passive PT1000 TP1	
Item description	Item No.
KFK03 PT1000 100.08	37952
KFK03 PT1000 150.08	37969
KFK03 PT1000 200.08	37976
KFK03 PT1000 250.08	37983

Duct/Immersion sensor -50..+160 °C – passive PT1000 1/3 DIN TP1	
Item description	Item No.
KFK03 PT1000 1/3 DIN 100.08	37990
KFK03 PT1000 1/3 DIN 150.08	39765
KFK03 PT1000 1/3 DIN 200.08	39772
KFK03 PT1000 1/3 DIN 250.08	39789

KFK03 passive

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor -50..+160 °C – passive Ni1000	TP1
Item description	Item No.
KFK03 Ni1000 100.08	39796
KFK03 Ni1000 150.08	39802
KFK03 Ni1000 200.08	39819
KFK03 Ni1000 250.08	39826

Duct/Immersion sensor -50..+160 °C – passive Ni1000TK5000	TP1
Item description	Item No.
KFK03 Ni1000TK5000 100.08	39833
KFK03 Ni1000TK5000 150.08	39840
KFK03 Ni1000TK5000 200.08	39857
KFK03 Ni1000TK5000 250.08	39864

Duct/Immersion sensor -50..+150 °C – passive NTC10k	TP1
Item description	Item No.
KFK03 NTC10k 100.08	39918
KFK03 NTC10k 150.08	39925
KFK03 NTC10k 200.08	39932
KFK03 NTC10k 250.08	39949

Duct/Immersion sensor -50..+150 °C – passive NTC10k Precon	TP1
Item description	Item No.
KFK03 NTC10k Precon 100.08	39994
KFK03 NTC10k Precon 150.08	40006
KFK03 NTC10k Precon 200.08	40013
KFK03 NTC10k Precon 250.08	40020

Duct/Immersion sensor -50..+150 °C – passive NTC20k	TP1
Item description	Item No.
KFK03 NTC20k 100.08	39956
KFK03 NTC20k 150.08	39963
KFK03 NTC20k 200.08	39970
KFK03 NTC20k 250.08	39987

Duct/Immersion sensor -50..+150 °C – passive NTC1,8k	TP1
Item description	Item No.
KFK03 NTC1,8k 100.08	325912
KFK03 NTC1,8k 150.08	349031
KFK03 NTC1,8k 200.08	298803
KFK03 NTC1,8k 250.08	314329

Duct/Immersion sensor -50..+120 °C – passive LM235Z	TP1
Item description	Item No.
KFK03 LM235Z 100.08	40037
KFK03 LM235Z 150.08	40044
KFK03 LM235Z 200.08	40051
KFK03 LM235Z 250.08	40068

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

Accessories for KFK03			AS1
Item description		Item No.	On stock
Mounting flange MF8 (VA)		103305	●

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=8 mm			AS2
Item description	Length	Item No.	On stock
VA thermowell pocket 100 mm type THVA100 (KFK03)	100 mm	584180	●
VA thermowell pocket 150 mm type THVA150 (KFK03)	150 mm	584197	●
VA thermowell pocket 200 mm type THVA200 (KFK03)	200 mm	584203	●
VA thermowell pocket 250 mm type THVA250 (KFK03)	250 mm	594738	●



KFK03 active

DATA SHEETS

Duct sensor for measuring air temperature and other gaseous media for HVAC applications (e.g. in supply and exhaust ducts).

0..10 V / 4..20 mA SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V, min. load 3 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) SELV
Power consumption	TRV: max. 1 W (24 V =) TRA: max. 0,5 W (24 V =)
Output signal range temp.	Scaling analog output: type-dependent TRV1 | TRA1: -50..+50 °C TRV2 | TRA2: -10..+120 °C TRV3 | TRA3: 0..+50 °C TRV4 | TRA4: 0..+160 °C TRV5 | TRA5: 0..+250 °C
Operating temperature range	permissible working temperature: pocket -50..+160 °C, optional -80..+260 °C (T260) enclosure: -35..+70 °C
Accuracy temperature	±0,2 K ±0,1% of measured value (typ. at 21 °C)
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529, SI-Protection
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Pocket	stainless steel V4A, Ø=8 mm mounting length: 100 | 150 | 200 | 250 mm
Ambient condition	max. 85% rH short term condensation
Mounting	for duct sensors please use mounting flange MF8 (VA) for immersion sensors please use immersion pocket THVA / THMS

Duct/Immersion sensor -50..+50 °C – active 0..10 V	TP1
Item description	Item No.
KFK03 TRV1 100.08	350983
KFK03 TRV1 150.08	351010
KFK03 TRV1 200.08	277860
KFK03 TRV1 250.08	286879

Duct/Immersion sensor -10..+120 °C – active 0..10 V	TP1
Item description	Item No.
KFK03 TRV2 100.08	332453
KFK03 TRV2 150.08	326711
KFK03 TRV2 200.08	351096
KFK03 TRV2 250.08	347242

KFK03 active

Item description: product | TRVx/TRAx | pocket (length.Ø)

Duct/Immersion sensor 0..+50 °C – active 0..10 V	TP1
Item description	Item No.
KFK03 TRV3 100.08	272315
KFK03 TRV3 150.08	351027
KFK03 TRV3 200.08	284905
KFK03 TRV3 250.08	285094

Duct/Immersion sensor 0..+160 °C – active 0..10 V	TP1
Item description	Item No.
KFK03 TRV4 100.08	351003
KFK03 TRV4 150.08	261418
KFK03 TRV4 200.08	351102
KFK03 TRV4 250.08	347969

Duct/Immersion sensor 0..+250 °C – active 0..10 V	TP1
Item description	Item No.
KFK03 TRV5 100.08	350990
KFK03 TRV5 150.08	309127
KFK03 TRV5 200.08	351119
KFK03 TRV5 250.08	335607

Duct/Immersion sensor -50..+50 °C – active 4..20 mA	TP1
Item description	Item No.
KFK03 TRA1 100.08	152464
KFK03 TRA1 150.08	165334
KFK03 TRA1 200.08	232166
KFK03 TRA1 250.08	204668

Duct/Immersion sensor -10..+120 °C – active 4..20 mA	TP1
Item description	Item No.
KFK03 TRA2 100.08	242639
KFK03 TRA2 150.08	351034
KFK03 TRA2 200.08	351041
KFK03 TRA2 250.08	351133

Duct/Immersion sensor 0..+50 °C – active 4..20 mA	TP1
Item description	Item No.
KFK03 TRA3 100.08	338585
KFK03 TRA3 150.08	170239
KFK03 TRA3 200.08	161909
KFK03 TRA3 250.08	134804

Duct/Immersion sensor 0..+160 °C – active 4..20 mA	TP1
Item description	Item No.
KFK03 TRA4 100.08	315920
KFK03 TRA4 150.08	338981
KFK03 TRA4 200.08	337380
KFK03 TRA4 250.08	303057

Duct/Immersion sensor 0..+250 °C – active 4..20 mA	TP1
Item description	Item No.
KFK03 TRA5 100.08	239080
KFK03 TRA5 150.08	320948
KFK03 TRA5 200.08	404792
KFK03 TRA5 250.08	281577

Accessories for KFK03		AS1
Item description	Item No.	On stock
Mounting flange MF8 (VA)	103305	⛁

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=8 mm			AS2
Item description	Length	Item No.	On stock
VA thermowell pocket 100 mm type THVA100 (KFK03)	100 mm	584180	⛁
VA thermowell pocket 150 mm type THVA150 (KFK03)	150 mm	584197	⛁
VA thermowell pocket 200 mm type THVA200 (KFK03)	200 mm	584203	⛁
VA thermowell pocket 250 mm type THVA250 (KFK03)	250 mm	594738	⛁

RG03 passive

DATA SHEETS

Duct sensor (high temperature) for temperature measurement of liquids in duct applications for heating, ventilation and air-conditioning. Also suitable for exhaust systems.



TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT1000
Measuring range temp.	passive: 0..+600 °C
Operating temperature range	permissible working temperature: pocket 0..+500 °C, temporarily up to +600 °C enclosure: -35..+90 °C
Accuracy temperature	depending on used sensor
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Pocket	stainless steel V4A, Ø=11 mm mounting length: 250 | 500 mm
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting flange

Item description: product | sensor | pocket (length.Ø)

Duct/Immersion sensor 0..+600 °C – passive PT100/PT1000	TP1
Item description	Item No.
RG03 PT100 250.11	64361
RG03 PT100 500.11	64378
RG03 PT1000 250.11	64385
RG03 PT1000 500.11	64392

RG03 active

DATA SHEETS

Duct sensor (high temperature) for temperature measurement of liquids in duct applications for heating, ventilation and air-conditioning. Also suitable for exhaust systems.



0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V, min. load 3 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) SELV
Power consumption	TRV: max. 1 W (24 V =), TRA: max. 0,5 W (24 V =)
Output signal range temp.	TRV | TRA: Scaling analog output, type-dependent: TRV6 | TRA6: 0..+400 °C TRV7 | TRA7: 0..+600 °C
Operating temperature range	permissible working temperature: pocket 0..+500 °C, temporarily up to +600 °C enclosure: -35..+70 °C
Accuracy temperature	±0,2 K ±0,1% of measured value (typ. at 21 °C)
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Pocket	stainless steel V4A, Ø=11 mm mounting length: 250 | 500 mm
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting flange

Item description: product | TRV/TRA | pocket (length.Ø)

Duct/Immersion sensor 0..+400 °C – active 0..10 V | 4..20 mA TP1	
Item description	Item No.
RG03 TRV6 250.11	261982
RG03 TRV6 500.11	240789
RG03 TRA6 250.11	177405
RG03 TRA6 500.11	143936

Duct/Immersion sensor 0..+600 °C – active 0..10 V | 4..20 mA TP1	
Item description	Item No.
RG03 TRV7 250.11	64408
RG03 TRV7 500.11	242127
RG03 TRA7 250.11	64422
RG03 TRA7 500.11	78283

MWF+

DATA SHEETS

Duct averaging temperature sensor for measuring the average temperature in air ducts. The sensor detects the applied temperature value throughout the entire length (with NTC selectively). A spring at the connection head reduces vibrations. Mounting angles for uncomplicated duct mounting are included in delivery. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



MWF+ passive / active



MWF+ passive (NTCxx)



MWF+ relay / BUS



MWF+ LCD

0..10 V / 4..20 mA USEapp Modbus BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Output passive	PT1000 | Ni1000 | Ni1000TK5000 | Ni891 NTC10k | NTC 10k Precon | NTC20k
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	passive: -50..+80 °C NTCxx: 0..+50 °C
Output signal range temp.	TRV | TRA: Scaling analog output: -20..+80 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer
Operating temperature range	permissible working temperature: sensor rod -50..+80 °C enclosure: -35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range) passive: ±0,4 K (typ. at 0 °C), NTC10k: ±0,2 K (typ. at 25 °C)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Sensor rod	3000 mm, 6000 mm
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting flange, incl. installation set

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 5 kΩ
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, TRA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output: -20..+80 °C (default setting), selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer, optionally configurable via Thermokon USEapp
Operating temperature range	permissible working temperature: sensor rod -50..+80 °C, enclosure: -35..+70 °C, LCD: -20..+70 °C
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white, LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²

MWF+ passive

Item description: product | sensor | cable length (L)

Duct averaging sensor -50..+80 °C – passive	TP1
Item description	Item No.
MWF+ PT1000 L3000 incl. installation kit	620413
MWF+ PT1000 L6000 incl. installation kit	620420
MWF+ Ni1000 L3000 incl. installation kit	620437
MWF+ Ni1000 L6000 incl. installation kit	620444
MWF+ Ni1000TK5000 L3000 incl. installation kit	675888
MWF+ Ni1000TK5000 L6000 incl. installation kit	674324
MWF+ Ni891 L3000 incl. installation kit	699297
MWF+ Ni891 L6000 incl. installation kit	699303

Duct averaging sensor 0..+50 °C – passive	TP1
Item description	Item No.
MWF+ NTC10k L3000 incl. installation kit	670128
MWF+ NTC10k L6000 incl. installation kit	670135
MWF+ NTC10k Precon L3000 incl. installation kit	670142
MWF+ NTC10k Precon L6000 incl. installation kit	670159
MWF+ NTC20k L3000 incl. installation kit	670166
MWF+ NTC20k L6000 incl. installation kit	670173

MWF+ active

Item description: product | TRV/TRA MultiRange | cable length (L)

Duct averaging sensor -50..+80 °C – active 0..10 V | 4..20 mA	TP1
Item description	Item No.
MWF+ TRV MultiRange L3000 incl. installation kit	620475
MWF+ TRV MultiRange L6000 incl. installation kit	620482
MWF+ TRA MultiRange L3000 incl. installation kit	620499
MWF+ TRA MultiRange L6000 incl. installation kit	620505

MWF+ LCD / relay

Item description: product | TRV/TRA MultiRange | cable length (L)

Duct averaging sensor -50..+80 °C – active 0..10 V + relay			TP1
Item description	USEapp	Item No.	
MWF+ TRV MultiRange relay L3000 incl. installation kit	✓	662758	
MWF+ TRV MultiRange relay L6000 incl. installation kit	✓	662765	
MWF+ LCD TRV MultiRange relay L3000 incl. installation kit	✓	662819	
MWF+ LCD TRV MultiRange relay L6000 incl. installation kit	✓	662826	

Duct averaging sensor -50..+80 °C – active 0..10 V | 4..20 mA			TP1
Item description	USEapp	Item No.	
MWF+ LCD TRV MultiRange L3000 incl. installation kit	✓	662772	
MWF+ LCD TRV MultiRange L6000 incl. installation kit	✓	662789	
MWF+ LCD TRA MultiRange L3000 incl. installation kit	✓	662796	
MWF+ LCD TRA MultiRange L6000 incl. installation kit	✓	662802	

MWF+ BUS

Item description: product | BUS | cable length (L)

Modbus

Duct averaging sensor -50..+80 °C – active RS485 Modbus			TP1
Item description	USEapp	Item No.	
MWF+ RS485 Modbus L3000 incl. installation kit	✓	662833	
MWF+ RS485 Modbus L6000 incl. installation kit	✓	662840	
MWF+ LCD RS485 Modbus L3000 incl. installation kit	✓	662857	
MWF+ LCD RS485 Modbus L6000 incl. installation kit	✓	662864	

BACnet

Duct averaging sensor -50..+80 °C – active RS485 BACnet (MS/TP)			TP1
Item description	USEapp	Item No.	
MWF+ RS485 BACnet (MS/TP) L3000 incl. installation kit	✓	699310	
MWF+ RS485 BACnet (MS/TP) L6000 incl. installation kit	✓	699327	
MWF+ LCD RS485 BACnet (MS/TP) L3000 incl. installation kit	✓	699334	
MWF+ LCD RS485 BACnet (MS/TP) L6000 incl. installation kit	✓	699341	

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES – MWF+ passive / MWF+ active

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-S pure white	667722	●	

ACCESSORIES – MWF+ LCD / relay / MWF+ BUS

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354	●	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●	

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Mounting flange MF6 flexible (suitable for Ø=4 | 6 | 7 mm)	399098	●	
Mounting flange MF7 (brass)	102360	●	
Installation set TFR/MWF	458399	●	
For cable entries and sealing inserts please refer to chapter "Accessories"			

MWF400+

DATA SHEETS

Duct averaging temperature sensor with flexible sensor rod for measuring the average temperature in gaseous media, e.g. in ventilation and air conditioning ducts. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



MWF400+



MWF400+ relay / BUS

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Output passive	PT100 | PT1000 | Ni1000 | Ni1000TK5000 | Ni891 NTC10k | NTC20k | NTC1,8k
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Measuring range temp.	passive: -30..+80 °C, depending on used sensor
Output signal range temp.	TRV | TRA: Scaling analog output: -20..+80 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature: sensor rod -30..+80 °C enclosure: -35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range) passive: depending on used sensor
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Sensor rod	copper, Ø=4 mm, mounting length 400 mm Sensor neck: stainless steel V4A, Ø=6 mm
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting clip enclosure USE-S pure white

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp) min. load 5 kΩ
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, TRA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output: -20..+80 °C (default setting), selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer, optionally configurable via Thermokon USEapp
Operating temperature range	permissible working temperature: sensor rod -30..+80 °C, enclosure: -35..+70 °C, LCD: -20..+70 °C
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white, LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²
Delivery contents	incl. mounting flange MF6DS flexible

MWF400+ passive

Item description: product | sensor

Duct averaging sensor -30..+80 °C – passive	TP1
Item description	Item No.
MWF400+ PT100	654166
MWF400+ PT1000	660518
MWF400+ Ni1000	641395
MWF400+ Ni1000TK5000	641425
MWF400+ Ni891	699358
MWF400+ NTC10k	641449
MWF400+ NTC20k	670319
MWF400+ NTC1,8k	670333

MWF400+ active

Item description: product | TRV/TRA MultiRange

Duct averaging sensor -30..+80 °C – active 0..10 V | 4..20 mA	TP1
Item description	Item No.
MWF400+ TRV MultiRange	642088
MWF400+ TRA MultiRange	642095

MWF400+ LCD / relay

Item description: product | TRV/TRA MultiRange

Duct averaging sensor -30..+80 °C – active 0..10 V + relay			TP1
Item description	USEapp	Item No.	
MWF400+ TRV MultiRange relay	✓	662871	
MWF400+ LCD TRV MultiRange relay	✓	662963	

Duct averaging sensor -30..+80 °C – active 0..10 V | 4..20 mA			TP1
Item description	USEapp	Item No.	
MWF400+ LCD TRV MultiRange	✓	662925	
MWF400+ LCD TRA MultiRange	✓	662956	

MWF400+ BUS

Item description: product | BUS

Modbus

Duct averaging sensor -30..+80 °C – active RS485 Modbus			TP1
Item description	USEapp	Item No.	
MWF400+ RS485 Modbus	✓	662970	
MWF400+ LCD RS485 Modbus	✓	662987	

BACnet

Duct averaging sensor -30..+80 °C – active RS485 BACnet			TP1
Item description	USEapp	Item No.	
MWF400+ RS485 BACnet (MS/TP)	✓	699365	
MWF400+ LCD RS485 BACnet (MS/TP)	✓	699372	

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES – MWF400+ passive / MWF400+ active

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-S pure white	667722		

ACCESSORIES – MWF400+ LCD / relay / MWF400+ BUS

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354		

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Mounting flange MF6DS flexible (suitable for Ø=6 mm; AS2)	669016		
Mounting flange MF7 (brass)	102360		
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262		
For cable entries and sealing inserts please refer to chapter "Accessories"			



TFR

DATA SHEETS

The frost protection thermostat TFR is used for downstream temperature monitoring of water air heaters in ventilation and air-conditioning systems to prevent frost damages. It has a small differential gap and a high reproducibility. The reset can be done automatically or manually in case of type '-R'. The frost protection thermostat can be used to initiate the following frost protection functions: Stop fan, Close outside air dampers, Open heating coil valve 100%, Star heating coil pump, Switch-off chiller (condenser) and humidifier, Trigger visual and/or audible frost alarm

TECHNICAL DATA	
Measuring values	temperature
Medium	air
Output switch contact	single pole change over, switching capacity max. 10 A (250 V ~)
Accuracy temperature	repeatability ±0,5 K
Set point range	-10..+15 °C (default +5 °C)
Switching values	switching differential: 2 °C ±1 °C
Enclosure	PA6, light grey, cover ABS, transparent
Protection	IP65 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 2,5 mm²
Capillary pipe	copper with tube filling R507, length 1,8 | 3 | 6 | 12 m, sensor operating length approx. 600 mm
Ambient condition	-35..+70 °C, max. 85% rH short term condensation
Delivery contents	Installation set TFR/MWF (6 pcs)

Frost protection thermostat – automatical reset			TP1
Item description	Item No.	On stock	
TFR 1800 incl. mounting angle	426435		
TFR 3000 incl. mounting angle	430371		
TFR 6000 incl. mounting angle	430395		
TFR 12000 incl. mounting angle	541916		

Frost protection thermostat – manual reset			TP1
Item description	Item No.	On stock	
TFR-R 1800 incl. mounting angle	430364		
TFR-R 3000 incl. mounting angle	430388		
TFR-R 6000 incl. mounting angle	430401		
TFR-R 12000 incl. mounting angle	656061		

Accessories for TFR			AS1
Item description	Item No.	On stock	
Mounting flange MF2 (for frost protection thermostats)	435642		
Installation set TFR/MWF	458399		

TFRe

DATA SHEETS

Electronic frost protection thermostat for temperature monitoring of air/hot water heat exchangers to prevent damage to the ventilation system. The temperature measurement is typically carried out by a fast-response sensor in the outlet of the heat exchanger. When the set limit value is exceeded, the TFRe overrides the original control signal of the heating valve to a larger valve opening in order to prevent freezing. If the temperature drops further, the fan is stopped for system protection and the control unit gets an alert. For temperature detection in the water outlet of the heat exchanger a fast-response sensor (e.g. TF14 with KL4VA) should be used (not in delivery).



TECHNICAL DATA	
Measuring values	temperature
Output voltage	2x 0..10 V, temperature, actuating variable valve drive
Output switch contact	Fan: floating contact NO, 250 V ~ / 6 A Alarm: floating contact NO, 30 V ~ / 1 A
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 2 VA (24 V ~)
Measuring range temp.	-10..+100 °C
Accuracy temperature	±1 K (typ. at 0 °C)
Inputs	for passive sensor NTC10K (default), PT1000, Ni1000, Ni1000TK5000, adjustable for external controller defining control value for valve for fan (floating contact)
Functions	frost protection function controlling valve actuator, alarm adjustable P-Controller (temperature)
Display	LED green – indicator valve actuator, LED red – alarm, LED yellow – fan
Enclosure	ABS, white
Protection	IP20 according to EN 60529
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Ambient condition	-40..+70 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

Electronic frost protection thermostat	TP1
Item description	Item No.
TFRe	667203

SFK02+

DATA SHEETS

Immersion sensor for temperature measurement of gases and liquids in pipework applications. The sensor can optionally be screwed directly into a bonded pocket (see accessories). Types SFKH02+ with a 70 mm neck pipe are designed for applications with insulation materials. The measuring insert can be exchanged without disassembling the entire sensor. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



SFK02+



SFKH02+



SFK02+ relay / BUS



SFK02+ LCD



SFKH02+ relay / BUS

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Medium	gases, fluids
Output voltage	TRV: 1x 0..10 V or 0..5 V
Output ampere	TRA: 1x 4..20 mA
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k, LM235Z
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Measuring range temp.	passive: PT / Ni: -50..+160 °C (T160), NTC: -50..+150 °C (T150), LM235Z: -50..+120 °C (T120)
Output signal range temp.	TRV | TRA: Scaling analog output: 0..+160 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature: pocket -50..+160 °C, optional -80..+260 °C (T260) enclosure active: -35..+70 °C, enclosure passive: -35..+90 °C
Accuracy temperature	passive: depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B), Ni1000: ±0,4 K (typ. at 0 °C), Ni1000TK5000: ±0,4 K (typ. at 0 °C), NTC10K: ±0,22 K (typ. at 25 °C) TRV/TRA: ±0,5 K (typ. at 21 °C within default measuring range)
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Neck pipe	optionally (types SFKH02+), stainless steel V2A, Ø=12 mm, L=70 mm
Pocket	stainless steel V4A, Ø=8 mm, thread G 1/2" mounting length: 50 | 100 | 150 | 200 | 250 | 450 mm
Ambient condition	max. 85% rH short term condensation
Notes	types with LCD, relay and BUS in enclosure USE-M with different technical data other temperature sensors on request

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp)
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, A: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output: -20..+80 °C (default setting), selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C optionally configurable via Thermokon USEapp
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²

SFK02+ passive

Item description: product | sensor | pocket (length.Ø)

Immersion sensor -50..+160 °C – passive PT100	TP2
Item description	Item No.
SFK02+ PT100 050.08	622295
SFK02+ PT100 100.08	622301
SFK02+ PT100 150.08	622318
SFK02+ PT100 200.08	622325
SFK02+ PT100 250.08	622332
SFK02+ PT100 450.08	622349

Immersion sensor -50..+160 °C – passive PT100 1/3 DIN	TP2
Item description	Item No.
SFK02+ PT100 1/3 DIN 050.08	622356
SFK02+ PT100 1/3 DIN 100.08	622363
SFK02+ PT100 1/3 DIN 150.08	622370
SFK02+ PT100 1/3 DIN 200.08	622387
SFK02+ PT100 1/3 DIN 250.08	622394
SFK02+ PT100 1/3 DIN 450.08	622400

Immersion sensor -50..+160 °C – passive PT1000	TP2
Item description	Item No.
SFK02+ PT1000 050.08	622417
SFK02+ PT1000 100.08	622424
SFK02+ PT1000 150.08	622431
SFK02+ PT1000 200.08	622448
SFK02+ PT1000 250.08	622455
SFK02+ PT1000 450.08	622462

Immersion sensor -50..+160 °C – passive PT1000 1/3 DIN	TP2
Item description	Item No.
SFK02+ PT1000 1/3 DIN 050.08	621946
SFK02+ PT1000 1/3 DIN 100.08	621953
SFK02+ PT1000 1/3 DIN 150.08	621960
SFK02+ PT1000 1/3 DIN 200.08	621977
SFK02+ PT1000 1/3 DIN 250.08	621984
SFK02+ PT1000 1/3 DIN 450.08	621991

Immersion sensor -50..+160 °C – passive Ni1000	TP2
Item description	Item No.
SFK02+ Ni1000 050.08	622080
SFK02+ Ni1000 100.08	622097
SFK02+ Ni1000 150.08	622103
SFK02+ Ni1000 200.08	622110
SFK02+ Ni1000 250.08	622127
SFK02+ Ni1000 450.08	622141

Immersion sensor -50..+160 °C – passive Ni1000TK5000	TP2
Item description	Item No.
SFK02+ Ni1000TK5000 050.08	622158
SFK02+ Ni1000TK5000 100.08	622165
SFK02+ Ni1000TK5000 150.08	622189
SFK02+ Ni1000TK5000 200.08	622196
SFK02+ Ni1000TK5000 250.08	622202
SFK02+ Ni1000TK5000 450.08	622219

Immersion sensor -50..+150 °C – passive NTC10k	TP2
Item description	Item No.
SFK02+ NTC10k 050.08	622004
SFK02+ NTC10k 100.08	622011
SFK02+ NTC10k 150.08	622028
SFK02+ NTC10k 200.08	622035
SFK02+ NTC10k 250.08	622042
SFK02+ NTC10k 450.08	622059

Immersion sensor -50..+150 °C – passive NTC10k Precon	TP2
Item description	Item No.
SFK02+ NTC10k Precon 050.08	622479
SFK02+ NTC10k Precon 100.08	622486
SFK02+ NTC10k Precon 150.08	622493
SFK02+ NTC10k Precon 200.08	622509
SFK02+ NTC10k Precon 250.08	622516
SFK02+ NTC10k Precon 450.08	622523

SFK02+ passive

Item description: product | sensor | pocket (length.Ø)

Immersion sensor -50..+150 °C – passive NTC20k	TP2
Item description	Item No.
SFK02+ NTC20k 050.08	622530
SFK02+ NTC20k 100.08	622547
SFK02+ NTC20k 150.08	622554
SFK02+ NTC20k 200.08	622561
SFK02+ NTC20k 250.08	622578
SFK02+ NTC20k 450.08	622585

Immersion sensor -50..+150 °C – passive NTC1,8k	TP2
Item description	Item No.
SFK02+ NTC1,8k 050.08	668668
SFK02+ NTC1,8k 100.08	668675
SFK02+ NTC1,8k 150.08	668682
SFK02+ NTC1,8k 200.08	668699
SFK02+ NTC1,8k 250.08	668705
SFK02+ NTC1,8k 450.08	668712

Immersion sensor -50..+120 °C – passive LM235Z	TP2
Item description	Item No.
SFK02+ LM235Z 050.08	622226
SFK02+ LM235Z 100.08	622233
SFK02+ LM235Z 150.08	622240
SFK02+ LM235Z 200.08	622257
SFK02+ LM235Z 250.08	622264
SFK02+ LM235Z 450.08	622288

Options
Item description
Neck pipe 70.12 (for applications with insulation materials)
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT
Price reduction to PT100 for sensor KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210

SFK02+ active

Item description: product | TRV/TRA MultiRange | pocket (length.Ø)

Immersion sensor -50..+160 °C – active 0..10 V	TP2
Item description	Item No.
SFK02+ TRV MultiRange 050.08	622592
SFK02+ TRV MultiRange 100.08	622608
SFK02+ TRV MultiRange 150.08	622615
SFK02+ TRV MultiRange 200.08	622622
SFK02+ TRV MultiRange 250.08	622639
SFK02+ TRV MultiRange 450.08	622646

Immersion sensor -50..+160 °C – active 4..20 mA	TP2
Item description	Item No.
SFK02+ TRA MultiRange 050.08	622653
SFK02+ TRA MultiRange 100.08	622660
SFK02+ TRA MultiRange 150.08	622677
SFK02+ TRA MultiRange 200.08	622684
SFK02+ TRA MultiRange 250.08	622691
SFK02+ TRA MultiRange 450.08	622707

Options
Item description
Neck pipe 70.12 (for applications with insulation materials)
Temperature -80..+260 °C (T260)

SFK02+ LCD / relay

Item description: product | TRV/TRA MultiRange | pocket (length.Ø)

Immersion sensor -50..+160 °C – active 0..10 V + relay		TP2
Item description	**USE**app	Item No.
SFK02+ TRV MultiRange 050.08 relay	✓	665568
SFK02+ TRV MultiRange 100.08 relay	✓	665575
SFK02+ TRV MultiRange 150.08 relay	✓	665582
SFK02+ TRV MultiRange 200.08 relay	✓	665599
SFK02+ TRV MultiRange 250.08 relay	✓	665605
SFK02+ TRV MultiRange 450.08 relay	✓	665612

Immersion sensor -50..+160 °C – active 0..10 V		TP2
Item description	**USE**app	Item No.
SFK02+ LCD TRV MultiRange 050.08	✓	665476
SFK02+ LCD TRV MultiRange 100.08	✓	665483
SFK02+ LCD TRV MultiRange 150.08	✓	665490
SFK02+ LCD TRV MultiRange 200.08	✓	665506
SFK02+ LCD TRV MultiRange 250.08	✓	665513
SFK02+ LCD TRV MultiRange 450.08	✓	665520

Immersion sensor -50..+160 °C – active 4..20 mA		TP2
Item description	**USE**app	Item No.
SFK02+ LCD TRA MultiRange 050.08	✓	665681
SFK02+ LCD TRA MultiRange 100.08	✓	665698
SFK02+ LCD TRA MultiRange 150.08	✓	665704
SFK02+ LCD TRA MultiRange 200.08	✓	665711
SFK02+ LCD TRA MultiRange 250.08	✓	665728
SFK02+ LCD TRA MultiRange 450.08	✓	665735

Immersion sensor -50..+160 °C – active 0..10 V + relay		TP2
Item description	**USE**app	Item No.
SFK02+ LCD TRV MultiRange 050.08 relay	✓	665629
SFK02+ LCD TRV MultiRange 100.08 relay	✓	665636
SFK02+ LCD TRV MultiRange 150.08 relay	✓	665643
SFK02+ LCD TRV MultiRange 200.08 relay	✓	665650
SFK02+ LCD TRV MultiRange 250.08 relay	✓	665667
SFK02+ LCD TRV MultiRange 450.08 relay	✓	665674

Options
Item description
Neck pipe 70.12 (for applications with insulation materials)

SFK02+ BUS

Item description: product | BUS | pocket (length.Ø)

Immersion sensor -50..+160 °C – active RS485 Modbus			TP2
Item description	USEapp	Item No.	
SFK02+ RS485 Modbus 050.08	✓	665742	
SFK02+ RS485 Modbus 100.08	✓	665759	
SFK02+ RS485 Modbus 150.08	✓	665766	
SFK02+ RS485 Modbus 200.08	✓	665773	
SFK02+ RS485 Modbus 250.08	✓	665780	
SFK02+ RS485 Modbus 450.08	✓	665797	

Immersion sensor -50..+160 °C – active RS485 Modbus			TP2
Item description	USEapp	Item No.	
SFK02+ LCD RS485 Modbus 050.08	✓	665803	
SFK02+ LCD RS485 Modbus 100.08	✓	665810	
SFK02+ LCD RS485 Modbus 150.08	✓	665827	
SFK02+ LCD RS485 Modbus 200.08	✓	665834	
SFK02+ LCD RS485 Modbus 250.08	✓	665841	
SFK02+ LCD RS485 Modbus 450.08	✓	665858	

Immersion sensor -50..+160 °C – active RS485 BACnet			TP2
Item description	USEapp	Item No.	
SFK02+ RS485 BACnet 050.08	✓	699389	
SFK02+ RS485 BACnet 100.08	✓	699396	
SFK02+ RS485 BACnet 150.08	✓	699402	
SFK02+ RS485 BACnet 200.08	✓	699419	
SFK02+ RS485 BACnet 250.08	✓	699426	
SFK02+ RS485 BACnet 450.08	✓	699433	

Immersion sensor -50..+160 °C – active RS485 BACnet			TP2
Item description	USEapp	Item No.	
SFK02+ LCD RS485 BACnet 050.08	✓	699440	
SFK02+ LCD RS485 BACnet 100.08	✓	699457	
SFK02+ LCD RS485 BACnet 150.08	✓	699464	
SFK02+ LCD RS485 BACnet 200.08	✓	699471	
SFK02+ LCD RS485 BACnet 250.08	✓	699488	
SFK02+ LCD RS485 BACnet 450.08	✓	699495	

Options
Item description
Neck pipe 70.12 (for applications with insulation materials)
Add to price of RS485 Modbus for LON FT

ACCESSORIES

Accessories for SFK02+		AS1
Item description	Item No.	On stock
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●
For cable entries and sealing inserts please refer to chapter "Accessories"		

Accessories – bonded pockets				AS1
Item description	Length	Pocket length	Item No.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●

SFK02+ FR

DATA SHEETS

Immersion sensor with pocket Ø=4 mm for faster response and integrated thermowell pocket for temperature measurement of gases and liquids in pipework applications. Bonded pockets are available in accessories. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



SFK02+ FR



SFK02+ FR relay / BUS



SFK02+ FR LCD

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Medium	gases, fluids
Output voltage	TRV: 1x 0..10 V or 0..5 V
Output ampere	TRA: 1x 4..20 mA
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Measuring range temp.	passive: PT / Ni: -50..+160 °C (T160), NTC: -50..+150 °C (T150)
Output signal range temp.	TRV | TRA: Scaling analog output 0..+160 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature: pocket -50..+160 °C enclosure active: -35..+70 °C, enclosure passive: -35..+90 °C
Accuracy temperature	passive: depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B), Ni1000: ±0,4 K (typ. at 0 °C), Ni1000TK5000: ±0,4 K (typ. at 0 °C), NTC10K: ±0,22 K (typ. at 25 °C) TRV/TRA: ±0,5 K (typ. at 21 °C within default measuring range)
Sensor	passive: 2-wire
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pocket	stainless steel V4A, Ø=6 mm, end of sensor Ø=4 mm 50 mm: Ø=4 mm, thread R 1/2" mounting length: 50 | 100 | 200 mm
Ambient condition	max. 85% rH short term condensation
Notes	other temperature sensors on request multi-conductor connection on request

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp)
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, TRA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output: 0..+160 °C (default setting), selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer, optionally configurable via Thermokon USEapp
Operating temperature range	permissible working temperature: pocket -50..+160 °C enclosure: -35..+70 °C, LCD: -20..+70 °C
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²

SFK02+ FR passive

Item description: product | sensor | pocket (length.Ø)

Immersion sensor -50..+160 °C – passive PT100	TP2
Item description	Item No.
SFK02+ FR PT100 050.04	665926
SFK02+ FR PT100 100.06/04	665933
SFK02+ FR PT100 200.06/04	665940

Immersion sensor -50..+160 °C – passive PT100 1/3 DIN	TP2
Item description	Item No.
SFK02+ FR PT100 1/3 DIN 050.04	665957
SFK02+ FR PT100 1/3 DIN 100.06/04	665964
SFK02+ FR PT100 1/3 DIN 200.06/04	665971

Immersion sensor -50..+160 °C – passive PT1000	TP2
Item description	Item No.
SFK02+ FR PT1000 050.04	655583
SFK02+ FR PT1000 100.06/04	638807
SFK02+ FR PT1000 200.06/04	640749

Immersion sensor -50..+160 °C – passive PT1000 1/3 DIN	TP2
Item description	Item No.
SFK02+ FR PT1000 1/3 DIN 050.04	665988
SFK02+ FR PT1000 1/3 DIN 100.06/04	665995
SFK02+ FR PT1000 1/3 DIN 200.06/04	666008

Immersion sensor -50..+160 °C – passive Ni1000	TP2
Item description	Item No.
SFK02+ FR Ni1000 050.04	666015
SFK02+ FR Ni1000 100.06/04	657280
SFK02+ FR Ni1000 200.06/04	666022

Immersion sensor -50..+160 °C – passive Ni1000TK5000	TP2
Item description	Item No.
SFK02+ FR Ni1000TK5000 050.04	655590
SFK02+ FR Ni1000TK5000 100.06/04	640732
SFK02+ FR Ni1000TK5000 200.06/04	640770

SFK02+ FR passive

Item description: product | sensor | pocket (length.Ø)

Immersion sensor -50..+150 °C – passive NTC10k	TP2
Item description	Item No.
SFK02+ FR NTC10k 050.04	655545
SFK02+ FR NTC10k 100.06/04	640725
SFK02+ FR NTC10k 200.06/04	640763

Immersion sensor -50..+150 °C – passive NTC10k Precon	TP2
Item description	Item No.
SFK02+ FR NTC10k Precon 050.04	666053
SFK02+ FR NTC10k Precon 100.06/04	666060
SFK02+ FR NTC10k Precon 200.06/04	666077

Immersion sensor -50..+150 °C – passive NTC20k	TP2
Item description	Item No.
SFK02+ FR NTC20k 050.04	655552
SFK02+ FR NTC20k 100.06/04	645690
SFK02+ FR NTC20k 200.06/04	655576

Immersion sensor -50..+150 °C – passive NTC1,8k	TP2
Item description	Item No.
SFK02+ FR NTC1,8k 050.04	655538
SFK02+ FR NTC1,8k 100.06/04	640718
SFK02+ FR NTC1,8k 200.06/04	640756

Options
Item description
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

SFK02+ FR active

Item description: product | TRV/TRA MultiRange | pocket (length.Ø)

Immersion sensor -50..+160 °C – active 0..10 V	TP2
Item description	Item No.
SFK02+ FR TRV MultiRange 050.04	655620
SFK02+ FR TRV MultiRange 100.06/04	645881
SFK02+ FR TRV MultiRange 200.06/04	655637

Immersion sensor -50..+160 °C – active 4..20 mA	TP2
Item description	Item No.
SFK02+ FR TRA MultiRange 050.04	655606
SFK02+ FR TRA MultiRange 100.06/04	645867
SFK02+ FR TRA MultiRange 200.06/04	655613

Item description: product | TRV/TRA MultiRange | relay | pocket (length.Ø)

SFK02+ FR LCD / relay

Immersion sensor -50..+160 °C – active 0..10 V + relay			TP2
Item description	**USE**app	Item No.	
SFK02+ FR TRV MultiRange 050.04 relay	✓	666169	
SFK02+ FR TRV MultiRange 100.06/04 relay	✓	666176	
SFK02+ FR TRV MultiRange 200.06/04 relay	✓	666183	

Immersion sensor -50..+160 °C – active 0..10 V			TP2
Item description	**USE**app	Item No.	
SFK02+ FR LCD TRV MultiRange 050.04	✓	666091	
SFK02+ FR LCD TRV MultiRange 100.06/04	✓	666107	
SFK02+ FR LCD TRV MultiRange 200.06/04	✓	666114	

Immersion sensor -50..+160 °C – active 4..20 mA			TP2
Item description	**USE**app	Item No.	
SFK02+ FR LCD TRA MultiRange 050.04	✓	666121	
SFK02+ FR LCD TRA MultiRange 100.06/04	✓	666138	
SFK02+ FR LCD TRA MultiRange 200.06/04	✓	666145	

Immersion sensor -50..+160 °C – active 0..10 V + relay			TP2
Item description	**USE**app	Item No.	
SFK02+ FR LCD TRV MultiRange 050.04 relay	✓	666190	
SFK02+ FR LCD TRV MultiRange 100.06/04 relay	✓	666206	
SFK02+ FR LCD TRV MultiRange 200.06/04 relay	✓	666213	

SFK02+ FR BUS

Item description: product | BUS | pocket (length.Ø)

Immersion sensor -50..+160 °C – active RS485 Modbus			TP2
Item description	USEapp	Item No.	
SFK02+ FR RS485 Modbus 050.04	✓	666220	
SFK02+ FR RS485 Modbus 100.06/04	✓	666237	
SFK02+ FR RS485 Modbus 200.06/04	✓	666244	

Immersion sensor -50..+160 °C – active RS485 Modbus			TP2
Item description	USEapp	Item No.	
SFK02+ FR LCD RS485 Modbus 050.04	✓	666251	
SFK02+ FR LCD RS485 Modbus 100.06/04	✓	666268	
SFK02+ FR LCD RS485 Modbus 200.06/04	✓	666275	

Immersion sensor -50..+160 °C – active RS485 BACnet			TP2
Item description	USEapp	Item No.	
SFK02+ FR RS485 BACnet 050.04	✓	699501	
SFK02+ FR RS485 BACnet 100.06/04	✓	699518	
SFK02+ FR RS485 BACnet 200.06/04	✓	699525	

Immersion sensor -50..+160 °C – active RS485 BACnet			TP2
Item description	USEapp	Item No.	
SFK02+ FR LCD RS485 BACnet 050.04	✓	699532	
SFK02+ FR LCD RS485 BACnet 100.06/04	✓	699549	
SFK02+ FR LCD RS485 BACnet 200.06/04	✓	699556	

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262		
For cable entries and sealing inserts please refer to chapter "Accessories"			

SFK01

DATA SHEETS

Passive immersion sensor with integrated thermowell pocket for high temperature measurement of liquids in duct applications. Types SFKH01 with a 70 mm neck pipe are designed for applications with insulation materials.



SFK01



SFKH01

SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Medium	gases, fluids
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k LM235Z
Measuring range temp.	PT / Ni: -50..+160 °C (T160), optional -80..+260 °C (T260) NTC: -50..+150 °C (T150) LM235Z: -50..+120 °C (T120)
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	2-wire (standard), 3-wire or 4-wire
Enclosure	shape J, aluminium
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Neck pipe	optionally (types SFKH01), stainless steel V2A, Ø=12 mm, L=70 mm
Pocket	stainless steel V4A, Ø=8 mm, thread G 1/2" mounting length: 50 | 100 | 150 | 200 | 250 | 450 mm
Ambient condition	-50..+160 | +150 | +120 °C (only sensor tip), optional -80..+260 °C (only sensor tip) enclosure: -25..+90 °C, max. 85% rH short term condensation
Notes	other temperature sensors on request

SFK01

Item description: product | sensor | pocket (length.Ø)

Immersion sensor -50..+160 °C – passive PT100	TP1
Item description	Item No.
SFK01 PT100 050.08	37662
SFK01 PT100 100.08	27717
SFK01 PT100 150.08	27724
SFK01 PT100 200.08	27731
SFK01 PT100 250.08	27748
SFK01 PT100 450.08	27755

Immersion sensor -50..+160 °C – passive PT100 1/3 DIN	TP1
Item description	Item No.
SFK01 PT100 1/3 DIN 050.08	27762
SFK01 PT100 1/3 DIN 100.08	27779
SFK01 PT100 1/3 DIN 150.08	27786
SFK01 PT100 1/3 DIN 200.08	27793
SFK01 PT100 1/3 DIN 250.08	27809
SFK01 PT100 1/3 DIN 450.08	27816

Immersion sensor -50..+160 °C – passive PT1000	TP1
Item description	Item No.
SFK01 PT1000 050.08	27823
SFK01 PT1000 100.08	27830
SFK01 PT1000 150.08	27847
SFK01 PT1000 200.08	27854
SFK01 PT1000 250.08	27861
SFK01 PT1000 450.08	27878

Immersion sensor -50..+160 °C – passive PT1000 1/3 DIN	TP1
Item description	Item No.
SFK01 PT1000 1/3 DIN 050.08	27885
SFK01 PT1000 1/3 DIN 100.08	27892
SFK01 PT1000 1/3 DIN 150.08	36740
SFK01 PT1000 1/3 DIN 200.08	36757
SFK01 PT1000 1/3 DIN 250.08	36764
SFK01 PT1000 1/3 DIN 450.08	36771

Immersion sensor -50..+160 °C – passive Ni1000	TP1
Item description	Item No.
SFK01 Ni1000 050.08	36788
SFK01 Ni1000 100.08	36795
SFK01 Ni1000 150.08	36801
SFK01 Ni1000 200.08	36818
SFK01 Ni1000 250.08	36825
SFK01 Ni1000 450.08	45292

Immersion sensor -50..+160 °C – passive Ni1000TK5000	TP1
Item description	Item No.
SFK01 Ni1000TK5000 050.08	45308
SFK01 Ni1000TK5000 100.08	45315
SFK01 Ni1000TK5000 150.08	45322
SFK01 Ni1000TK5000 200.08	45339
SFK01 Ni1000TK5000 250.08	45346
SFK01 Ni1000TK5000 450.08	45353

Immersion sensor -50..+150 °C – passive NTC10k	TP1
Item description	Item No.
SFK01 NTC10k 050.08	45421
SFK01 NTC10k 100.08	45438
SFK01 NTC10k 150.08	45445
SFK01 NTC10k 200.08	45452
SFK01 NTC10k 250.08	45469
SFK01 NTC10k 450.08	45476

Immersion sensor -50..+150 °C – passive NTC10k Precon	TP1
Item description	Item No.
SFK01 NTC10k Precon 050.08	45544
SFK01 NTC10k Precon 100.08	45551
SFK01 NTC10k Precon 150.08	45568
SFK01 NTC10k Precon 200.08	45575
SFK01 NTC10k Precon 250.08	45582
SFK01 NTC10k Precon 450.08	45599

SFK01

Item description: product | sensor | pocket (length.Ø)

Immersion sensor -50..+150 °C – passive NTC20k	TP1
Item description	Item No.
SFK01 NTC20k 050.08	45483
SFK01 NTC20k 100.08	45490
SFK01 NTC20k 150.08	45506
SFK01 NTC20k 200.08	45513
SFK01 NTC20k 250.08	45520
SFK01 NTC20k 450.08	45537

Immersion sensor -50..+150 °C – passive NTC1,8k	TP1
Item description	Item No.
SFK01 NTC1,8k 050.08	351140
SFK01 NTC1,8k 100.08	270311
SFK01 NTC1,8k 150.08	270304
SFK01 NTC1,8k 200.08	263566
SFK01 NTC1,8k 250.08	249362
SFK01 NTC1,8k 450.08	293655

Immersion sensor -50..+120 °C – passive LM235Z	TP1
Item description	Item No.
SFK01 LM235Z 050.08	45605
SFK01 LM235Z 100.08	45612
SFK01 LM235Z 150.08	45629
SFK01 LM235Z 200.08	45636
SFK01 LM235Z 250.08	45643
SFK01 LM235Z 450.08	45650

Options
Item description
Neck pipe 70.12 (for applications with insulation materials)
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

SFK01 | FeT | 450.08 | 3-wire | T260

SFK01 = product
FeT = sensor
450.08 = pocket (length.Ø)
3-wire = number of wires
T260 = temperature

Accessories – bonded pockets				AS1
Item description	Length	Pocket length	Item No.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	●
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	●
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	●
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	●



SFK03 passive

DATA SHEETS

Immersion sensor in enclosure form B integrated thermowell pocket for high temperature measurement of liquids in duct applications. Types SFKH03 with a 70 mm neck pipe are designed for applications with insulation materials.

SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Medium	gases, fluids
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC20k | NTC1,8k LM235Z
Measuring range temp.	PT / Ni: -50..+160 °C (T160), optional -80..+260 °C (T260) NTC: -50..+150 °C (T150) LM235Z: -50..+120 °C (T120)
Accuracy temperature	depending on used sensor, PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B), Ni1000: ±0,4 K (typ. at 0 °C), Ni1000TK5000: ±0,4 K (typ. at 0 °C), NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	2-wire (standard), 3-wire or 4-wire
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529, SI-Protection
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Neck pipe	optionally (types SFKH03), stainless steel V2A, Ø=15 mm, L=70 mm
Pocket	stainless steel V4A, Ø=8 mm, thread G 1/2" mounting length: 100 | 150 | 200 | 250 mm
Ambient condition	enclosure: -25..+90 °C, max. 85% rH short term condensation
Notes	other temperature sensors on request

Immersion sensor -50..+160 °C – passive PT100	TP1
Item description	Item No.
SFK03 PT100 100.08	64309
SFK03 PT100 150.08	71079
SFK03 PT100 200.08	71086
SFK03 PT100 250.08	71093

Immersion sensor -50..+160 °C – passive PT100 1/3 DIN	TP1
Item description	Item No.
SFK03 PT100 1/3 DIN 100.08	71109
SFK03 PT100 1/3 DIN 150.08	71116
SFK03 PT100 1/3 DIN 200.08	71123
SFK03 PT100 1/3 DIN 250.08	71130

Immersion sensor -50..+160 °C – passive PT1000	TP1
Item description	Item No.
SFK03 PT1000 100.08	71147
SFK03 PT1000 150.08	71154
SFK03 PT1000 200.08	71161
SFK03 PT1000 250.08	71178

Immersion sensor -50..+160 °C – passive PT1000 1/3 DIN	TP1
Item description	Item No.
SFK03 PT1000 1/3 DIN 100.08	71185
SFK03 PT1000 1/3 DIN 150.08	71192
SFK03 PT1000 1/3 DIN 200.08	71208
SFK03 PT1000 1/3 DIN 250.08	71215

SFK03 passive

Item description: product | sensor | pocket (length.Ø)

Immersion sensor -50..+160 °C – passive Ni1000	TP1
Item description	Item No.
SFK03 Ni1000 100.08	71222
SFK03 Ni1000 150.08	71239
SFK03 Ni1000 200.08	71246
SFK03 Ni1000 250.08	71253

Immersion sensor -50..+160 °C – passive Ni1000TK5000	TP1
Item description	Item No.
SFK03 Ni1000TK5000 100.08	71260
SFK03 Ni1000TK5000 150.08	71277
SFK03 Ni1000TK5000 200.08	71284
SFK03 Ni1000TK5000 250.08	71291

Immersion sensor -50..+150 °C – passive NTC10k	TP1
Item description	Item No.
SFK03 NTC10k 100.08	71345
SFK03 NTC10k 150.08	71352
SFK03 NTC10k 200.08	71369
SFK03 NTC10k 250.08	71376

Immersion sensor -50..+150 °C – passive NTC10k Precon	TP1
Item description	Item No.
SFK03 NTC10k Precon 100.08	71420
SFK03 NTC10k Precon 150.08	71437
SFK03 NTC10k Precon 200.08	71444
SFK03 NTC10k Precon 250.08	71451

Immersion sensor -50..+150 °C – passive NTC20k	TP1
Item description	Item No.
SFK03 NTC20k 100.08	71383
SFK03 NTC20k 150.08	71390
SFK03 NTC20k 200.08	71406
SFK03 NTC20k 250.08	71413

Immersion sensor -50..+150 °C – passive NTC1,8k	TP1
Item description	Item No.
SFK03 NTC1,8k 100.08	351652
SFK03 NTC1,8k 150.08	351676
SFK03 NTC1,8k 200.08	351683
SFK03 NTC1,8k 250.08	351706

Immersion sensor -50..+120 °C – passive LM235Z	TP1
Item description	Item No.
SFK03 LM235Z 100.08	71468
SFK03 LM235Z 150.08	71475
SFK03 LM235Z 200.08	71482
SFK03 LM235Z 250.08	71499

Options
Item description
Neck pipe 70.15 (for applications with insulation materials)
3-wire connection (3-wire)
4-wire connection (4-wire)
Temperature -80..+260 °C (T260)
Add to price of NTC10k for sensor NTC5k | NTC10k Carel
Add to price of PT100 for sensor FeT

Accessories – bonded pockets				AS1
Item description	Length	Pocket length	Item No.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	⛁
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	⛁
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	⛁
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	⛁

SFK03 active

DATA SHEETS

Immersion sensor in enclosure form B integrated thermowell pocket for high temperature measurement of liquids in duct applications. Types SFKH03 with a 70 mm neck pipe are designed for applications with insulation materials.



SFK03 active



SFKH03 active

0..10 V / 4..20 mA SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Medium	gases, fluids
Output voltage	TRV: 1x 0..10 V
Output ampere	TRA: 1x 4..20 mA
Power supply	TRV: 15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 1 W (24 V =) | 1,4 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Output signal range temp.	Scaling analog output, type-dependent: TRV1 | TRA1: -50..+50 °C TRV2 | TRA2: -10..+120 °C TRV3 | TRA3: 0..+50 °C TRV4 | TRA4: 0..+160 °C TRV5 | TRA5: 0..+300 °C
Operating temperature range	permissible working temperature pocket -50..+160 °C, optional -80..+260 °C (T260) enclosure: -35..+70 °C
Accuracy temperature	±0,2 K ±0,1% of measured value (typ. at 21 °C)
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529, SI-Protection
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Neck pipe	optionally (types SFKH03), stainless steel V2A, Ø=15 mm, L=70 mm
Pocket	stainless steel V4A, Ø=8 mm, thread G 1/2" mounting length: 100 | 150 | 200 | 250 mm
Ambient condition	max. 85% rH short term condensation

SFK03 active

Item description: product | TRVx / TRAx | pocket (length.Ø)

Immersion sensor -50..+50 °C – active TRV1 0..10 V	TP1
Item description	Item No.
SFK03 TRV1 100.08	318853
SFK03 TRV1 150.08	352024
SFK03 TRV1 200.08	352062
SFK03 TRV1 250.08	352109

Immersion sensor -10..+120 °C – active TRV2 0..10 V	TP1
Item description	Item No.
SFK03 TRV2 100.08	335744
SFK03 TRV2 150.08	352031
SFK03 TRV2 200.08	246958
SFK03 TRV2 250.08	352253

Immersion sensor 0..+50 °C – active TRV3 0..10 V	TP1
Item description	Item No.
SFK03 TRV3 100.08	281775
SFK03 TRV3 150.08	352048
SFK03 TRV3 200.08	352079
SFK03 TRV3 250.08	352260

Immersion sensor 0..+160 °C – active TRV4 0..10 V	TP1
Item description	Item No.
SFK03 TRV4 100.08	298414
SFK03 TRV4 150.08	292115
SFK03 TRV4 200.08	324403
SFK03 TRV4 250.08	352277

Immersion sensor 0..+300 °C – active TRV5 0..10 V	TP1
Item description	Item No.
SFK03 TRV5 100.08	243933
SFK03 TRV5 150.08	295314
SFK03 TRV5 200.08	297509
SFK03 TRV5 250.08	306607

Immersion sensor -50..+50 °C – active TRA1 4..20 mA	TP1
Item description	Item No.
SFK03 TRA1 100.08	194440
SFK03 TRA1 150.08	200899
SFK03 TRA1 200.08	352055
SFK03 TRA1 250.08	254908

Immersion sensor -10..+120 °C – active TRA2 4..20 mA	TP1
Item description	Item No.
SFK03 TRA2 100.08	189316
SFK03 TRA2 150.08	344166
SFK03 TRA2 200.08	315746
SFK03 TRA2 250.08	352086

Immersion sensor 0..+50 °C – active TRA3 4..20 mA	TP1
Item description	Item No.
SFK03 TRA3 100.08	132220
SFK03 TRA3 150.08	165044
SFK03 TRA3 200.08	165280
SFK03 TRA3 250.08	303835

Immersion sensor 0..+160 °C – active TRA4 4..20 mA	TP1
Item description	Item No.
SFK03 TRA4 100.08	293051
SFK03 TRA4 150.08	295024
SFK03 TRA4 200.08	239226
SFK03 TRA4 250.08	352093

Immersion sensor 0..+300 °C – active TRA5 4..20 mA	TP1
Item description	Item No.
SFK03 TRA5 100.08	131674
SFK03 TRA5 150.08	146821
SFK03 TRA5 200.08	152884
SFK03 TRA5 250.08	157421

Options
Item description
Neck pipe 70.15 (for applications with insulation materials)



RGS03 passive

DATA SHEETS

Immersion sensor (high temperature) with integrated thermowell pocket for temperature measurement of liquids in duct applications for heating, ventilation and air-conditioning. Also suitable for exhaust systems.

TECHNICAL DATA	
Measuring values	temperature
Medium	gases, fluids
Output passive	PT100 | PT1000
Measuring range temp.	max. +600 °C
Operating temperature range	pocket 0..+500 °C, temporarily up to +600 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	3-wire
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Neck pipe	stainless steel V2A
Pocket	stainless steel V4A, Ø=9 mm, thread G 1/2" mounting length: 250 | 500 mm
Ambient condition	enclosure: -25..+90 °C, max. 85% rH short term condensation

Item description: product | sensor | pocket (length.Ø)

Immersion sensor 0..+600 °C – passive PT100/PT1000	TP1
Item description	Item No.
RGS03 PT100 250.09 3-wire	79297
RGS03 PT100 500.09 3-wire	385190
RGS03 PT1000 250.09 3-wire	79310
RGS03 PT1000 500.09 3-wire	79327



RGS03 active

DATA SHEETS

Immersion sensor (high temperature) with integrated thermowell pocket for temperature measurement of liquids in duct applications for heating, ventilation and air-conditioning. Also suitable for exhaust systems.

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Medium	gases, fluids
Output voltage	TRV: 1x 0..10 V
Output ampere	TRA: 1x 4..20 mA
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 1 W (24 V =) | 1,4 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Output signal range temp.	Scaling analog output, type-dependent: TRV6 | TRA6: 0..+400 °C, TRV7 | TRA7: 0..+600 °C
Operating temperature range	pocket 0..+500 °C, temporarily up to +600 °C, enclosure: -35..+70 °C
Accuracy temperature	±0,2 K ±0,1% of measured value (typ. at 21 °C)
Enclosure	shape B, aluminium
Protection	IP66 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Neck pipe	stainless steel V2A
Pocket	stainless steel V4A, Ø=9 mm, thread G 1/2", mounting length: 250 | 500 mm
Ambient condition	max. 85% rH short term condensation

Item description: product | TRVx/TRAx | pocket (length.Ø)

Immersion sensor temperature 0..+400 °C – active TRV6 0..10 V | TRA6 4..20 mA	TP1
Item description	Item No.
RGS03 TRV6 250.09	223942
RGS03 TRV6 500.09	351959
RGS03 TRA6 250.09	164115
RGS03 TRA6 500.09	155281

Immersion sensor temperature 0..+600 °C – active TRV7 0..10 V | TRA7 4..20 mA	TP1
Item description	Item No.
RGS03 TRV7 250.09	351935
RGS03 TRV7 500.09	244824
RGS03 TRA7 250.09	79334
RGS03 TRA7 500.09	79341

AGS54+

DATA SHEETS

Passive sensor for outdoor temperature measurement, in cold rooms, greenhouses, production plants and warehouses. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k LM235Z | DS18B20 1-wire KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210
Measuring range temp.	depending on used sensor
Operating temperature range	permissible working temperature, enclosure: -35..+90 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-S pure white
Notes	other temperature sensors on request

AGS54+

Item description: product | sensor

Outdoor sensor -35..+90 °C – passive			TP2
Item description	Item No.	On stock	
AGS54+ without sensor	622776		
AGS54+ PT100	622837	●	
AGS54+ PT100 1/3 DIN	622844		
AGS54+ PT1000	622851	●	
AGS54+ PT1000 1/3 DIN	622783		
AGS54+ Ni1000	622806	●	
AGS54+ Ni1000TK5000	622813	●	
AGS54+ NTC10k	622790	●	
AGS54+ NTC10k Precon	622868		
AGS54+ NTC5k	624275		
AGS54+ NTC20k	622875	●	
AGS54+ NTC1,8k	643825	●	
AGS54+ LM235Z	622820	●	
AGS54+ KTY81-110	622899		
AGS54+ KTY81-121	622905		
AGS54+ KTY81-122	622912		
AGS54+ KTY81-210	622929		

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC10k Carel
Add to price of PT100 for sensor FeT

Order example for different items:

AGS54+ | FeT

AGS54+ = product
FeT = sensor

Accessories			AS1
Item description	Item No.	On stock	
Mounting clip enclosure USE-S pure white	667739	●	
Mounting base enclosure USE-S pure white	667722	●	
Rawlplugs and screws (2 pcs. each)	102209	●	
Sun/rain protection RS150	103329	●	
For cable entries and sealing inserts please refer to chapter "Accessories"			

AGS55+

DATA SHEETS

Sensor with stainless steel external probe for faster response to measure temperature in outdoor areas, cold rooms, greenhouses, production plants and warehouses. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



AGS55+



AGS55+ relay / BUS



AGS55+ LCD

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V
Output ampere	TRA: 1x 4..20 mA
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k LM235Z KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Measuring range temp.	passive: depending on used sensor
Output signal range temp.	TRV | TRA: Scaling analog output: -50..+50 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer
Operating temperature range	permissible working temperature: enclosure active: -35..+70 °C, enclosure passive: -35..+90 °C
Accuracy temperature	passive: depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B), Ni1000: ±0,4 K (typ. at 0 °C), Ni1000TK5000: ±0,4 K (typ. at 0 °C), NTC10K: ±0,22 K (typ. at 25 °C) TRV/TRA: ±0,5 K (typ. at 21 °C within default measuring range)
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529, SI-Protection (not possible for electronic Sensors)
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pocket	stainless steel V2A, Ø=6 mm, L=25 mm
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-S pure white
Notes	other temperature sensors on request

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 5 kΩ
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, TRA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output -50..+50 °C (default setting), selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable via Thermokon USEapp
Operating temperature range	permissible working temperature: enclosure: -35..+70 °C, LCD: -20..+70 °C
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white, LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²
Delivery contents	incl. mounting base enclosure USE-M pure white

AGS55+ passive

Item description: product | sensor

Outdoor sensor -35..+90 °C – passive		TP2
Item description	Item No.	On stock
AGS55+ PT100	622998	●
AGS55+ PT100 1/3 DIN	623001	
AGS55+ PT1000	623018	●
AGS55+ PT1000 1/3 DIN	622943	
AGS55+ Ni1000	622967	●
AGS55+ Ni1000TK5000	622974	●
AGS55+ NTC10k	622950	●
AGS55+ NTC10k Precon	623025	
AGS55+ NTC5k	624268	
AGS55+ NTC20k	623032	●
AGS55+ NTC1,8k	645812	●
AGS55+ LM235Z	622981	●
AGS55+ KTY81-110	623049	
AGS55+ KTY81-121	623056	
AGS55+ KTY81-122	623063	
AGS55+ KTY81-210	623070	

AGS55+ passive

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC10k Carel
Add to price of PT100 for sensor FeT

AGS55+ active

Item description: product | TRV/TRA MultiRange

Outdoor sensor -35..+70 °C – active 0..10 V | 4..20 mA		TP2
Item description	Item No.	On stock
AGS55+ TRV MultiRange	623087	
AGS55+ TRA MultiRange	623094	

AGS55+ LCD_Relais

Item description: product | TRV/TRA MultiRange

Outdoor sensor -35..+70 °C – active 0..10 V + relay		TP2
Item description	USEapp	Item No.
AGS55+ TRV MultiRange relay	✓	663069
AGS55+ LCD TRV MultiRange relay	✓	663076

Outdoor sensor -35..+70 °C – active 0..10 V | 4..20 mA		TP2
Item description	USEapp	Item No.
AGS55+ LCD TRV MultiRange	✓	658614
AGS55+ LCD TRA MultiRange	✓	658621

AGS55+ BUS

Item description: product | BUS

Outdoor sensor -35..+70 °C – active RS485 Modbus		TP2
Item description	USEapp	Item No.
AGS55+ RS485 Modbus	✓	658584
AGS55+ LCD RS485 Modbus	✓	658607

Outdoor sensor -35..+70 °C – active RS485 BACnet		TP2
Item description	USEapp	Item No.
AGS55+ RS485 BACnet (MS/TP)	✓	699686
AGS55+ LCD RS485 BACnet (MS/TP)	✓	699693

AGS55+ BUS

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES – AGS55+ passive / AGS55+ active

Accessories			AS1
Item description	Item No.	On stock	
Mounting clip enclosure USE-S pure white	667739		
Mounting base enclosure USE-S pure white	667722		

ACCESSORIES – AGS55+ LCD_Relais / AGS55+ BUS

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354		
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262		

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209		
Sun/rain protection RS150	103329		
For cable entries and sealing inserts please refer to chapter "Accessories"			

VFG54+

DATA SHEETS

Sensor for temperature measurement at the surface of pipes (cold or warm water) and round surfaces. Spring loaded brass contact sensor with direct contact for fast response. For tightening straps and contact fluid please see accessories. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



VFG54+



VFG54+ relay / BUS



VFG54+ LCD

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k LM235Z | DS18B20 1-wire KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,42 W (24 V =) | 0,84 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Measuring range temp.	passive: -35..+90 °C
Output signal range temp.	TRV | TRA: Scaling analog output: 0..+100 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature: sensor pocket | holder -35..+120 °C enclosure active: -35..+70 °C, enclosure passive: -35..+90 °C
Accuracy temperature	measuring current typ. <1 mA, ±0,5 K (typ. at 21 °C within default measuring range) passive: depending on used sensor
Sensor	passive: 2-wire (standard), 3-wire or 4-wire
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529 SI-Protection (not possible for electronic Sensors)
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pocket	brass, spring loaded sensor
Ambient condition	max. 85% rH short term condensation
Mounting	along the pipe or sideways
Notes	other temperature sensors on request

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 5 kΩ
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, TRA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output 0..+100 °C (default setting), selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer, optionally configurable via Thermokon USEapp
Operating temperature range	permissible working temperature: sensor pocket | holder -35..+120 °C, enclosure: -35..+70 °C, LCD: -20..+70 °C
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²

VFG54+ passive

Contact sensor -35..+90 °C – passive		TP3
Item description	Item No.	On stock
VFG54+ PT100	620642	●
VFG54+ PT100 1/3 DIN	620659	
VFG54+ PT1000	620666	●
VFG54+ PT1000 1/3 DIN	620598	
VFG54+ Ni1000	620611	●
VFG54+ Ni1000TK5000	620628	●
VFG54+ NTC10k	620604	●
VFG54+ NTC10k Precon	620673	
VFG54+ NTC5k	624244	
VFG54+ NTC20k	620680	●
VFG54+ NTC1,8k	643832	●
VFG54+ LM235Z	620635	●
VFG54+ KTY81-110	620697	
VFG54+ KTY81-121	620703	
VFG54+ KTY81-122	620710	
VFG54+ KTY81-210	620727	

VFG54+ passive

Options
Item description
3-wire connection (3-wire)
4-wire connection (4-wire)
Add to price of NTC10k for sensor NTC10k Carel
Add to price of PT100 for sensor FeT

VFG54+ active

Item description: product | TRV/TRA MultiRange

Contact sensors -35..+70 °C – active 0..10 V | 4..20 mA		TP2
Item description	Item No.	On stock
VFG54+ TRV MultiRange	620741	●
VFG54+ TRA MultiRange	620758	●

VFG54+ LCD_Relais

Item description: product | TRV/TRA MultiRange

Contact sensors -35..+70 °C – active 0..10 V + relay			TP2
Item description	**USE**app	Item No.	
VFG54+ TRV MultiRange relay	✓	662994	

Contact sensors -35..+70 °C – active 0..10 V | 4..20 mA | relay			TP2
Item description	**USE**app	Item No.	
VFG54+ LCD TRV MultiRange	✓	663014	
VFG54+ LCD TRA MultiRange	✓	663021	
VFG54+ LCD TRV MultiRange relay	✓	663038	

VFG54+ BUS

Item description: product | BUS

Modbus

Contact sensors -35..+70 °C – active RS485 Modbus			TP2
Item description	**USE**app	Item No.	
VFG54+ RS485 Modbus	✓	663045	
VFG54+ LCD RS485 Modbus	✓	663052	

BACnet

Contact sensors -35..+70 °C – active RS485 BACnet			TP2
Item description	**USE**app	Item No.	
VFG54+ RS485 BACnet (MS/TP)	✓	699709	
VFG54+ LCD RS485 BACnet (MS/TP)	✓	699716	

VFG54+ BUS

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES – VFG54+ LCD_Relais / VFG54+ BUS

Accessories			AS1
Item description	Item No.	On stock	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262		

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911		
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103		
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071		
For cable entries and sealing inserts please refer to chapter "Accessories"			

AF25 passive

DATA SHEETS

Contact sensor with connection cable and brass strap used to measure the surface temperature of pipes (cold or hot water) and other contact surfaces. Tightening strap/tension clamp and thermal contact fluid are available as accessories.



SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k
Measuring range temp.	-35..+100 °C, optionally: -50..+135 °C (T135)
Operating temperature range	permissible working temperature: -35..+100 °C optionally: -50..+135 °C (T135)
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C) depending on length of connection wire
Sensor	2-wire (standard), 3-wire or 4-wire
Protection	IP65 according to EN 60529, SI-Protection
Pocket	brass, Ø=6 mm, mounting length 35 mm
Ambient condition	max. 85% rH short term condensation
Notes	other sensors and cable lengths on request

AF25 passive

Item description: product | sensor | temperaure | cable length (L)

Contact sensor -35..+100 °C – passive		TP3
Item description	Item No.	
AF25 PT100 T100 L1000	81610	
AF25 PT100 1/3 DIN T100 L1000	46411	
AF25 PT1000 T100 L1000	54263	
AF25 PT1000 1/3 DIN T100 L1000	54300	
AF25 Ni1000 T100 L1000	54348	
AF25 Ni1000TK5000 T100 L1000	54386	
AF25 NTC10k T100 L1000	92005	
AF25 NTC10k Precon T100 L1000	92043	
AF25 NTC5k T100 L1000	54461	
AF25 NTC20k T100 L1000	141994	
AF25 NTC1,8k T100 L1000	241687	
AF25 LM235Z T100 L1000	715270	

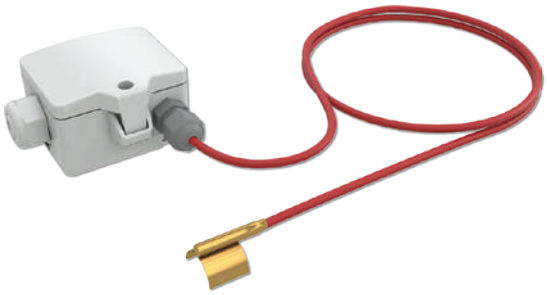
Options
Item description
3-wire connection -35..+100 °C (3-wire)
4-wire connection -35..+100 °C (4-wire)
Add per meter of connection cable 2-wire -35..+100 °C
Add per meter of connection cable 3-wire -35..+100 °C
Add per meter of connection cable 4-wire -35..+100 °C
Temperature -50..+135 °C
3-wire connection -50..+135 °C (3-wire)
4-wire connection -50..+135 °C (4-wire)

Accessories			AS1
Item description	Item No.	On stock	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911		
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103		
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071		

AF25+ active

DATA SHEETS

Contact sensor with enclosure USE-S, connection cable and brass strap used to measure the surface temperature of pipes (cold or hot water) and other contact surfaces. Tightening strap/tension clamp and thermal contact fluid are available as accessories.



0..10 V / 4..20 mA SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Output signal range temp.	TRV | TRA: Scaling analog output: 0..+160 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature: pocket -50..+135 °C enclosure: -35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² sensor wire active silicone, Ø=25 mm 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	brass, Ø=6 mm, mounting length 35 mm
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-S pure white
Notes	other cable lengths on request

AF25+ active

Item description: product | TRV/TRA MultiRange | temperature | cable length (L)

Contact sensors -50..+135 °C – active 0..10 V | 4..20 mA		TP2
Item description	Item No.	
AF25+ TRV MultiRange T135 L1000	658751	
AF25+ TRA MultiRange T135 L1000	658768	

Options
Item description
Add per meter of connection cable -50..+135 °C

Accessories			AS1
Item description	Item No.	On stock	
Mounting clip enclosure USE-S pure white	667739		
Mounting base enclosure USE-S pure white	667722		
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911		
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103		
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071		
For cable entries and sealing inserts please refer to chapter "Accessories"			

PR25 passive

DATA SHEETS

The contact sensor with connection cable and aluminum prism is used to measure the surface temperature of pipes (cold or hot water) and other contact surfaces. Tightening strap/tension clamp and thermal contact fluid are available as accessories.



SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k LM235Z KTY81-110 | KTY81-121 | KTY81-210
Measuring range temp.	-35..+100 °C optionally: PT / Ni: -50..+180 °C (T180), NTC / KTY: -50..+150 °C (T150), LM235Z: -50..+120 °C (T120)
Operating temperature range	permissible working temperature: -35..+100 °C optionally: -50..+180 | +150 | +120 °C, depending on used sensor
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C) depending on length of connection wire
Sensor	2-wire (standard), 3-wire or 4-wire
Protection	IP65 according to EN 60529, SI-Protection
Pocket	aluminium, Ø=11 mm, mounting length 28 mm
Ambient condition	-35..+100 °C, optionally: -50..+180 | +150 | +120 °C max. 85% rH short term condensation
Notes	other sensors and cable lengths on request

PR25 passive

Item description: product | sensor | cable length (L)

Sensor for pipes and round surfaces -35..+100 °C – passive		TP2
Item description	Item No.	
PR25 PT100 T100 L1000	81696	
PR25 PT100 1/3 DIN T100 L1000	94771	
PR25 PT1000 T100 L1000	94894	
PR25 PT1000 1/3 DIN T100 L1000	94931	
PR25 Ni1000 T100 L1000	94979	
PR25 Ni1000TK5000 T100 L1000	95686	
PR25 NTC10k T100 L1000	95808	
PR25 NTC10k Precon T100 L1000	95846	
PR25 NTC5k T100 L1000	95761	
PR25 NTC20k T100 L1000	362641	
PR25 NTC1,8k T100 L1000	287128	
PR25 LM235Z T100 L1000	96089	
PR25 KTY81-110 T100 L1000	95884	
PR25 KTY81-121 T100 L1000	95921	
PR25 KTY81-210 T100 L1000	96003	

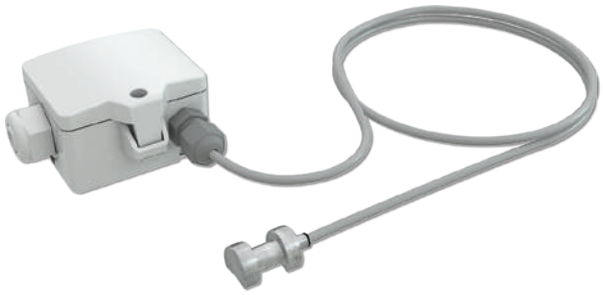
Options
Item description
3-wire connection -35..+100 °C (3-wire)
4-wire connection -35..+100 °C (4-wire)
Add per meter of connection cable 2-wire -35..+100 °C
Add per meter of connection cable 3-wire -35..+100 °C
Add per meter of connection cable 4-wire -35..+100 °C
Temperature -50..+180 °C
3-wire connection -50..+180 °C (3-wire)
4-wire connection -50..+180 °C (4-wire)

Accessories			AS1
Item description	Item No.	On stock	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911		
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103		
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071		

PR25+ active

DATA SHEETS

The contact sensor with enclosure USE-S, connection cable and aluminum prism is used to measure the surface temperature of pipes (cold or hot water) and other contact surfaces. Tightening strap/tension clamp and thermal contact fluid are available as accessories.



0..10 V / 4..20 mA SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Output signal range temp.	Scaling analog output: 0..+160 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature: pocket -50..+180 °C enclosure: -35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529, SI-Protection
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² sensor wire active silicone, Ø=25 mm 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	aluminium, Ø=11 mm, mounting length 28 mm
Ambient condition	enclosure: -35..+70 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-S pure white
Notes	other cable lengths on request

PR25+ active

Item description: product | TRV/TRA | cable length (L)

Contact sensors -50..+180 °C – active 0..10 V | 4..20 mA		TP2
Item description	Item No.	
PR25+ TRV MultiRange T180 L1000	658782	
PR25+ TRA MultiRange T180 L1000	658799	

Options
Item description
Add per meter of connection cable -50..+180 °C

Accessories			AS1
Item description	Item No.	On stock	
Mounting clip enclosure USE-S pure white	667739		
Mounting base enclosure USE-S pure white	667722		
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911		
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103		
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071		
For cable entries and sealing inserts please refer to chapter "Accessories"			

OF14 passive

DATA SHEETS

Sensor for temperature measurement on glass surfaces or similar. Designed for control and monitoring applications.



TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k LM235Z
Measuring range temp.	-35..+70 °C
Operating temperature range	permissible working temperature: -35..+70 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C) depending on length of connection wire
Sensor	2-wire (standard), 3-wire or 4-wire
Protection	IP65 according to EN 60529
Pocket	aluminium dimensions: 35x10x6 mm
Ambient condition	-35..+70 °C, max. 85% rH short term condensation
Mounting	surface mounting due to self-adhesive sensor surface
Notes	other sensors and cable lengths on request

OF14 passive

Item description: product | sensor | cable length (L)

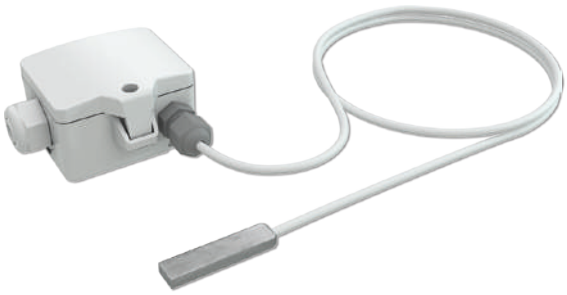
Contact sensor -35..+70 °C – passive	TP2
Item description	Item No.
OF14 PT100 L1000	132596
OF14 PT100 1/3 DIN L1000	167307
OF14 PT1000 L1000	114851
OF14 PT1000 1/3 DIN L1000	219303
OF14 Ni1000 L1000	113922
OF14 Ni1000TK5000 L1000	141864
OF14 NTC10k L1000	190367
OF14 NTC10k Precon L1000	165006
OF14 NTC5k L1000	351263
OF14 NTC20k L1000	147736
OF14 NTC1,8k L1000	356541
OF14 LM235Z L1000	216760

Options
Item description
Add per meter of connection cable -35..+100 °C
Add to price of NTC10k for sensor NTC10k Carel
Connection box USE-S

OF14+ active

DATA SHEETS

Sensor for temperature measurement on glass surfaces or similar in enclosure USE-S. Designed for control and monitoring applications.



0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	TRV: 15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Output signal range temp.	Scaling analog output: 0..+50 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature: pocket 0..+50 °C enclosure: -35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² connection wire PVC, 2x Ø=0,25 mm², grey 1 m (default), 2 m, 4 m, 6 m, for other lengths please request
Pocket	aluminium dimensions: 35x10x6 mm
Ambient condition	max. 85% rH short term condensation
Mounting	surface mounting due to self-adhesive sensor surface
Delivery contents	incl. mounting base enclosure USE-S pure white
Notes	other cable lengths on request

OF14+ active

Item description: product | TRV3/TRA3 | cable length (L)

Contact sensors 0..+50 °C – active 0..10 V | 4..20 mA		TP2
Item description	Item No.	
OF14+ TRV3 L1000	658812	
OF14+ TRA3 L1000	658836	

Options
Item description
Add per meter of connection cable -35..+100 °C

Accessories		AS1
Item description	Item No.	On stock
Mounting clip enclosure USE-S pure white	667739	
Mounting base enclosure USE-S pure white	667722	
For cable entries and sealing inserts please refer to chapter "Accessories"		

TF14 passive

DATA SHEETS

Cable sensor for temperature measurement in HVAC applications. Depending on the application, PVC, silicone and PTFE cables are available.



SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k
Measuring range temp.	-35..+100 °C, PT / Ni: -50..180 °C | -80..+250 °C, NTC: -50..+150 °C
Operating temperature range	permissible working temperature connection wire: PVC -35..+100 °C, silicone -50..+180 °C, PTFE -80..+250 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Protection	IP65 according to EN 60529, 16-point pressed Rolled: IP67 according to EN 60529, with SI-Protection
Pocket	stainless steel V4A, Ø=4 mm mounting length: 50 | 100 | 150 | 200 | 400 mm
Notes	other temperature sensors on request other probe lengths on request

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

TF14 passive 100 °C

Cable sensors -35..+100 °C – PT100	TP3
Item description	Item No.
TF14 PT100 T100 050.04 L1000	64347
TF14 PT100 T100 100.04 L1000	57554
TF14 PT100 T100 150.04 L1000	57561

Cable sensors -35..+100 °C PT100 1/3 DIN	TP3
Item description	Item No.
TF14 PT100 1/3 DIN T100 050.04 L1000	69106
TF14 PT100 1/3 DIN T100 100.04 L1000	69113
TF14 PT100 1/3 DIN T100 150.04 L1000	69120

Cable sensors -35..+100 °C – PT1000	TP3
Item description	Item No.
TF14 PT1000 T100 050.04 L1000	69267
TF14 PT1000 T100 100.04 L1000	69274
TF14 PT1000 T100 150.04 L1000	69281

Cable sensors -35..+100 °C – PT1000 1/3 DIN	TP3
Item description	Item No.
TF14 PT1000 1/3 DIN T100 050.04 L1000	69427
TF14 PT1000 1/3 DIN T100 100.04 L1000	69434
TF14 PT1000 1/3 DIN T100 150.04 L1000	69441

Cable sensors -35..+100 °C – Ni1000	TP3
Item description	Item No.
TF14 Ni1000 T100 050.04 L1000	73080
TF14 Ni1000 T100 100.04 L1000	73097
TF14 Ni1000 T100 150.04 L1000	73103

Cable sensors -35..+100 °C – Ni1000TK5000	TP3
Item description	Item No.
TF14 Ni1000TK5000 T100 050.04 L1000	73240
TF14 Ni1000TK5000 T100 100.04 L1000	73257
TF14 Ni1000TK5000 T100 150.04 L1000	73264

Cable sensors -35..+100 °C – NTC10k	TP3
Item description	Item No.
TF14 NTC10k T100 050.04 L1000	73844
TF14 NTC10k T100 100.04 L1000	73851
TF14 NTC10k T100 150.04 L1000	73868

Cable sensors -35..+100 °C – NTC10k Precon	TP3
Item description	Item No.
TF14 NTC10k Precon T100 050.04 L1000	77002
TF14 NTC10k Precon T100 100.04 L1000	77019
TF14 NTC10k Precon T100 150.04 L1000	77026

Cable sensors -35..+100 °C – NTC5k	TP3
Item description	Item No.
TF14 NTC5k T100 050.04 L1000	73806
TF14 NTC5k T100 100.04 L1000	73813
TF14 NTC5k T100 150.04 L1000	73820

Cable sensors -35..+100 °C – NTC20k	TP3
Item description	Item No.
TF14 NTC20k T100 050.04 L1000	73899
TF14 NTC20k T100 100.04 L1000	73905
TF14 NTC20k T100 150.04 L1000	73912

Cable sensors -35..+100 °C – NTC1,8k	TP3
Item description	Item No.
TF14 NTC1,8k T100 050.04 L1000	270687
TF14 NTC1,8k T100 100.04 L1000	355797
TF14 NTC1,8k T100 150.04 L1000	233293

Options
Item description
Add per meter of connection cable 2-wire -35..+100 °C
Protection class IP67
Add to price of NTC10k for sensor NTC10k Carel
Connection box USE-S

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

TF14 passive 150 | 180 °C

Cable sensors -50..+180 °C – PT100	TP3
Item description	Item No.
TF14 PT100 T180 050.04 L1000	64354
TF14 PT100 T180 100.04 L1000	78009
TF14 PT100 T180 150.04 L1000	78016

Cable sensors -50..+180 °C – PT100 1/3 DIN	TP3
Item description	Item No.
TF14 PT100 1/3 DIN T180 050.04 L1000	78207
TF14 PT100 1/3 DIN T180 100.04 L1000	78214
TF14 PT100 1/3 DIN T180 150.04 L1000	78221

Cable sensors -50..+180 °C – PT1000	TP3
Item description	Item No.
TF14 PT1000 T180 050.04 L1000	78405
TF14 PT1000 T180 100.04 L1000	78443
TF14 PT1000 T180 150.04 L1000	78481

Cable sensors -50..+180 °C – PT1000 1/3 DIN	TP3
Item description	Item No.
TF14 PT1000 1/3 DIN T180 050.04 L1000	78603
TF14 PT1000 1/3 DIN T180 100.04 L1000	78641
TF14 PT1000 1/3 DIN T180 150.04 L1000	78689

Cable sensors -50..+180 °C – Ni1000	TP3
Item description	Item No.
TF14 Ni1000 T180 050.04 L1000	78795
TF14 Ni1000 T180 100.04 L1000	78832
TF14 Ni1000 T180 150.04 L1000	78870

Cable sensors -50..+180 °C – Ni1000TK5000	TP3
Item description	Item No.
TF14 Ni1000TK5000 T180 050.04 L1000	78993
TF14 Ni1000TK5000 T180 100.04 L1000	79037
TF14 Ni1000TK5000 T180 150.04 L1000	79075

Cable sensors -50..+150 °C – NTC10k	TP3
Item description	Item No.
TF14 NTC10k T150 050.04 L1000	80408
TF14 NTC10k T150 100.04 L1000	81443
TF14 NTC10k T150 150.04 L1000	80484

Cable sensors -50..+150 °C – NTC10k Precon	TP3
Item description	Item No.
TF14 NTC10k Precon T150 050.04 L1000	76807
TF14 NTC10k Precon T150 100.04 L1000	76845
TF14 NTC10k Precon T150 150.04 L1000	76883

Cable sensors -50..+150 °C – NTC5k	TP3
Item description	Item No.
TF14 NTC5k T150 050.04 L1000	80200
TF14 NTC5k T150 100.04 L1000	80248
TF14 NTC5k T150 150.04 L1000	76975

Cable sensors -50..+150 °C – NTC20k	TP3
Item description	Item No.
TF14 NTC20k T150 050.04 L1000	80606
TF14 NTC20k T150 100.04 L1000	80644
TF14 NTC20k T150 150.04 L1000	80682

Cable sensors -50..+150 °C – NTC1,8k	TP3
Item description	Item No.
TF14 NTC1,8k T150 050.04 L1000	256131
TF14 NTC1,8k T150 100.04 L1000	352307
TF14 NTC1,8k T150 150.04 L1000	352291

Options
Item description
Add per meter of connection cable -50..+180 °C
Protection class IP67
Add to price of NTC10k for sensor NTC10k Carel
Connection box USE-S

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

TF14 passive 250 °C

Cable sensors -80..+250 °C – PT100	TP3
Item description	Item No.
TF14 PT100 T250 050.04 L1000	95563
TF14 PT100 T250 100.04 L1000	96126
TF14 PT100 T250 150.04 L1000	96195

Cable sensors -80..+250 °C – PT100 1/3 DIN	TP3
Item description	Item No.
TF14 PT100 1/3 DIN T250 050.04 L1000	96775
TF14 PT100 1/3 DIN T250 100.04 L1000	96805
TF14 PT100 1/3 DIN T250 150.04 L1000	96843

Cable sensors -80..+250 °C – PT1000	TP3
Item description	Item No.
TF14 PT1000 T250 050.04 L1000	97185
TF14 PT1000 T250 100.04 L1000	97239
TF14 PT1000 T250 150.04 L1000	91510

Cable sensors -80..+250 °C – PT1000 1/3 DIN	TP3
Item description	Item No.
TF14 PT1000 1/3 DIN T250 050.04 L1000	91633
TF14 PT1000 1/3 DIN T250 100.04 L1000	91671
TF14 PT1000 1/3 DIN T250 150.04 L1000	91718

Cable sensors -80..+250 °C – Ni1000	TP3
Item description	Item No.
TF14 Ni1000 T250 050.04 L1000	91831
TF14 Ni1000 T250 100.04 L1000	91879
TF14 Ni1000 T250 150.04 L1000	91916

Cable sensors -80..+250 °C – Ni1000TK5000	TP3
Item description	Item No.
TF14 Ni1000TK5000 T250 050.04 L1000	97338
TF14 Ni1000TK5000 T250 100.04 L1000	97376
TF14 Ni1000TK5000 T250 150.04 L1000	97413

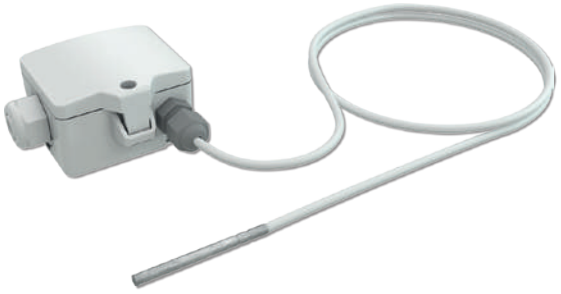
Options
Item description
3-wire connection -80..+250 °C (3-wire)
4-wire connection -80..+250 °C (4-wire)
Add per meter of connection cable 2-wire -80..+250 °C
Add per meter of connection cable 3-wire -80..+250 °C
Add per meter of connection cable 4-wire -80..+250 °C
Protection class IP67
Connection box USE-S

Accessories			AS1
Item description	Item No.	On stock	
Mounting clip enclosure USE-S pure white	667739	⛁	
Mounting base enclosure USE-S pure white	667722	⛁	
Mounting flange MF6 flexible (suitable for Ø=4 | 6 | 7 mm)	399098	⛁	
Mounting flange MF4 (brass)	102438	⛁	
KL4VA – Compression fittings G 1/4" for Ø=4 mm with cutting ring VA, stainless steel	103206	⛁	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	⛁	
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	⛁	
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071	⛁	
For cable entries and sealing inserts please refer to chapter "Accessories"			

TF14+ active

DATA SHEETS

Cable sensor for temperature measurement in HVAC applications. Depending on the application, PVC, silicone and PTFE cables are available. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



0..10 V / 4..20 mA SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	TRV: 15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) TRA: typ. 0,5 W (24 V =)
Output signal range temp.	Scaling analog output: 0..+160 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	pocket -50..+180 °C optional -50..+250 °C (T250) enclosure: -35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529, SI-Protection, 16-point pressed Rolled: IP67 according to EN 60529, with SI-Protection enclosure (active): IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pocket	stainless steel V4A, Ø=4 mm mounting length: 50 | 100 | 150 | 200 | 400 mm
Ambient condition	max. 85% rH short term condensation, with connection wire: PVC -35..+100 °C, silicone -50..+180 °C, PTFE -50..+250 °C
Delivery contents	incl. mounting base enclosure USE-S pure white
Notes	other probe lengths on request

Item description: product | TRV/TRA MultiRange | temperature | pocket (length.Ø) | cable length (L)

TF14+ active

Cable sensors -50..+180 °C – active TRV 0..10 V		TP2
Item description	Item No.	
TF14+ TRV MultiRange T180 050.04 L1000	658850	
TF14+ TRV MultiRange T180 100.04 L1000	658867	
TF14+ TRV MultiRange T180 150.04 L1000	658874	

Cable sensors -50..+180 °C – active TRA 4..20 mA		TP2
Item description	Item No.	
TF14+ TRA MultiRange T180 050.04 L1000	658881	
TF14+ TRA MultiRange T180 100.04 L1000	658898	
TF14+ TRA MultiRange T180 150.04 L1000	658904	

Options
Item description
TRV/TRA: Temperature -50..+250 °C (T250)
Protection class IP67
TRV/TRA: Add per meter of connection for measuring range up to 180 °C
TRV/TRA: Add per meter of connection for measuring range up to 250 °C

Accessories			AS1
Item description	Item No.	On stock	
Mounting clip enclosure USE-S pure white	667739		
Mounting base enclosure USE-S pure white	667722		
Mounting flange MF6 flexible (suitable for Ø=4 | 6 | 7 mm)	399098		
Mounting flange MF4 (brass)	102438		
KL4VA – Compression fittings G 1/4“ for Ø=4 mm with cutting ring VA, stainless steel	103206		
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911		
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103		
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071		
For cable entries and sealing inserts please refer to chapter "Accessories"			

TF25 passive

DATA SHEETS

Cable sensor for temperature measurement in HVAC or refrigeration applications. In combination with a thermowell pocket suitable for temperature measurement in duct applications. Depending on the application, PVC, silicone, high-temperature silicone and glass fiber cables are available.



SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k LM235Z | DS18B20 1-wire KTY81-110 | KTY81-121 | KTY81-122 | KTY81-210
Measuring range temp.	-35..+100 °C, PT / Ni: -50..180 °C | -50..+250 °C, NTC / KTY: -50..+150 °C, PT: -50..+400 °C
Operating temperature range	permissible working temperature connection wire: PVC -35..+100 °C, silicone -50..+180 °C, HT-silicone -50..+250 °C, GI/GI-V2A: -50..+400 °C
Accuracy temperature	depending on used sensor PT100 | PT1000: ±0,3 K (typ. at 0 °C, Kl.B) Ni1000: ±0,4 K (typ. at 0 °C) Ni1000TK5000: ±0,4 K (typ. at 0 °C) NTC10K: ±0,22 K (typ. at 25 °C)
Sensor	2-wire (standard), 3-wire or 4-wire sensor cable: 1 | 2 | 4 | 6 m
Protection	IP65 according to EN 60529, 16-point pressed Rolled: IP67 according to EN 60529, with SI-Protection
Pocket	stainless steel V4A, Ø=6 mm mounting length: 50 | 100 | 150 | 200 | 250 mm pocket 6x50 and T100: 16-point pressed; IP67 rolled tension spring (optional)
Notes	cable ends with conductor sleeves as standard other sensors and cable lengths on request PE connection wire available (please request)

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

TF25 passive 100 °C

Cable sensors -35..+100 °C – PT100	TP3
Item description	Item No.
TF25 PT100 T100 050.06 L1000	35019
TF25 PT100 T100 100.06 L1000	35026
TF25 PT100 T100 150.06 L1000	35033

Cable sensors -35..+100 °C PT100 1/3 DIN	TP3
Item description	Item No.
TF25 PT100 1/3 DIN T100 050.06 L1000	25799
TF25 PT100 1/3 DIN T100 100.06 L1000	35255
TF25 PT100 1/3 DIN T100 150.06 L1000	35262

Cable sensors -35..+100 °C – PT1000	TP3
Item description	Item No.
TF25 PT1000 T100 050.06 L1000	35484
TF25 PT1000 T100 100.06 L1000	35491
TF25 PT1000 T100 150.06 L1000	35507

Cable sensors -35..+100 °C – PT1000 1/3 DIN	TP3
Item description	Item No.
TF25 PT1000 1/3 DIN T100 050.06 L1000	35729
TF25 PT1000 1/3 DIN T100 100.06 L1000	35736
TF25 PT1000 1/3 DIN T100 150.06 L1000	35743

Cable sensors -35..+100 °C – Ni1000	TP3
Item description	Item No.
TF25 Ni1000 T100 050.06 L1000	26116
TF25 Ni1000 T100 100.06 L1000	26154
TF25 Ni1000 T100 150.06 L1000	26192

Cable sensors -35..+100 °C – Ni1000TK5000	TP3
Item description	Item No.
TF25 Ni1000TK5000 T100 050.06 L1000	26352
TF25 Ni1000TK5000 T100 100.06 L1000	26390
TF25 Ni1000TK5000 T100 150.06 L1000	388238

Cable sensors -35..+100 °C – NTC10k	TP3
Item description	Item No.
TF25 NTC10k T100 050.06 L1000	41539
TF25 NTC10k T100 100.06 L1000	41812
TF25 NTC10k T100 150.06 L1000	40723

Cable sensors -35..+100 °C – NTC10k Precon	TP3
Item description	Item No.
TF25 NTC10k Precon T100 050.06 L1000	41300
TF25 NTC10k Precon T100 100.06 L1000	41348
TF25 NTC10k Precon T100 150.06 L1000	41386

Cable sensors -35..+100 °C – NTC5k	TP3
Item description	Item No.
TF25 NTC5k T100 050.06 L1000	41522
TF25 NTC5k T100 100.06 L1000	41805
TF25 NTC5k T100 150.06 L1000	40716

Cable sensors -35..+100 °C – NTC20k	TP3
Item description	Item No.
TF25 NTC20k T100 050.06 L1000	41546
TF25 NTC20k T100 100.06 L1000	41829
TF25 NTC20k T100 150.06 L1000	40730

Cable sensors -35..+100 °C – NTC1,8k	TP3
Item description	Item No.
TF25 NTC1,8k T100 050.06 L1000	233309
TF25 NTC1,8k T100 100.06 L1000	258272
TF25 NTC1,8k T100 150.06 L1000	319201

Cable sensors -35..+100 °C – LM235Z	TP3
Item description	Item No.
TF25 LM235Z T100 050.06 L1000	43786
TF25 LM235Z T100 100.06 L1000	43823
TF25 LM235Z T100 150.06 L1000	43861

Cable sensors -35..+100 °C – KTY81-110	TP3
Item description	Item No.
TF25 KTY81-110 T100 050.06 L1000	42819
TF25 KTY81-110 T100 100.06 L1000	42857
TF25 KTY81-110 T100 150.06 L1000	42895

Cable sensors -35..+100 °C – KTY81-121	TP3
Item description	Item No.
TF25 KTY81-121 T100 050.06 L1000	42826
TF25 KTY81-121 T100 100.06 L1000	42864
TF25 KTY81-121 T100 150.06 L1000	42901

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

TF25 passive 100 °C

Cable sensors -35..+100 °C – KTY81-122	TP3
Item description	Item No.
TF25 KTY81-122 T100 050.06 L1000	42833
TF25 KTY81-122 T100 100.06 L1000	42871
TF25 KTY81-122 T100 150.06 L1000	42918

Cable sensors -35..+100 °C – KTY81-210	TP3
Item description	Item No.
TF25 KTY81-210 T100 050.06 L1000	42840
TF25 KTY81-210 T100 100.06 L1000	42888
TF25 KTY81-210 T100 150.06 L1000	42925

Options
Item description
3-wire connection -35..+100 °C (3-wire)
4-wire connection -35..+100 °C (4-wire)
Add per meter of connection cable 2-wire -35..+100 °C
Add per meter of connection cable 3-wire -35..+100 °C
Add per meter of connection cable 4-wire -35..+100 °C
Protection class IP67
Tension spring (tensp)
Connection box USE-S

TF25 passive 125 | 150 | 180 °C

Cable sensors -50..+180 °C – PT100	TP3
Item description	Item No.
TF25 PT100 T180 050.06 L1000	52771
TF25 PT100 T180 100.06 L1000	52788
TF25 PT100 T180 150.06 L1000	52795

Cable sensors -50..+180 °C – PT100 1/3 DIN	TP3
Item description	Item No.
TF25 PT100 1/3 DIN T180 050.06 L1000	57493
TF25 PT100 1/3 DIN T180 100.06 L1000	57509
TF25 PT100 1/3 DIN T180 150.06 L1000	57516

Cable sensors -50..+180 °C – PT1000	TP3
Item description	Item No.
TF25 PT1000 T180 050.06 L1000	58247
TF25 PT1000 T180 100.06 L1000	58254
TF25 PT1000 T180 150.06 L1000	58261

Cable sensors -50..+180 °C – PT1000 1/3 DIN	TP3
Item description	Item No.
TF25 PT1000 1/3 DIN T180 050.06 L1000	58483
TF25 PT1000 1/3 DIN T180 100.06 L1000	58490
TF25 PT1000 1/3 DIN T180 150.06 L1000	58506

Cable sensors -50..+180 °C – Ni1000	TP3
Item description	Item No.
TF25 Ni1000 T180 050.06 L1000	58728
TF25 Ni1000 T180 100.06 L1000	58735
TF25 Ni1000 T180 150.06 L1000	58742

Cable sensors -50..+180 °C – Ni1000TK5000	TP3
Item description	Item No.
TF25 Ni1000TK5000 T180 050.06 L1000	58964
TF25 Ni1000TK5000 T180 100.06 L1000	58971
TF25 Ni1000TK5000 T180 150.06 L1000	58988

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

TF25 passive 125 | 150 | 180 °C

Cable sensors -50..+150 °C – NTC10k	TP3
Item description	Item No.
TF25 NTC10k T150 050.06 L1000	59466
TF25 NTC10k T150 100.06 L1000	59473
TF25 NTC10k T150 150.06 L1000	59480

Cable sensors -50..+150 °C – NTC10k Precon	TP3
Item description	Item No.
TF25 NTC10k Precon T150 050.06 L1000	59718
TF25 NTC10k Precon T150 100.06 L1000	59725
TF25 NTC10k Precon T150 150.06 L1000	59732

Cable sensors -50..+150 °C – NTC5k	TP3
Item description	Item No.
TF25 NTC5k T150 050.06 L1000	59404
TF25 NTC5k T150 100.06 L1000	59411
TF25 NTC5k T150 150.06 L1000	59428

Cable sensors -50..+150 °C – NTC20k	TP3
Item description	Item No.
TF25 NTC20k T150 050.06 L1000	59527
TF25 NTC20k T150 100.06 L1000	59534
TF25 NTC20k T150 150.06 L1000	59541

Cable sensors -50..+150 °C – NTC1,8k	TP3
Item description	Item No.
TF25 NTC1,8k T150 050.06 L1000	259484
TF25 NTC1,8k T150 100.06 L1000	282611
TF25 NTC1,8k T150 150.06 L1000	388252

Cable sensors -50..+125 °C – LM235Z	TP3
Item description	Item No.
TF25 LM235Z T125 050.06 L1000	143042
TF25 LM235Z T125 100.06 L1000	141024
TF25 LM235Z T125 150.06 L1000	387521

Cable sensors -50..+150 °C – KTY81-110	TP3
Item description	Item No.
TF25 KTY81-110 T150 050.06 L1000	68031
TF25 KTY81-110 T150 100.06 L1000	68048
TF25 KTY81-110 T150 150.06 L1000	68055

Cable sensors -50..+150 °C – KTY81-121	TP3
Item description	Item No.
TF25 KTY81-121 T150 050.06 L1000	68093
TF25 KTY81-121 T150 100.06 L1000	68109
TF25 KTY81-121 T150 150.06 L1000	68116

Cable sensors -50..+150 °C – KTY81-122	TP3
Item description	Item No.
TF25 KTY81-122 T150 050.06 L1000	68154
TF25 KTY81-122 T150 100.06 L1000	68161
TF25 KTY81-122 T150 150.06 L1000	68178

Cable sensors -50..+150 °C – KTY81-210	TP3
Item description	Item No.
TF25 KTY81-210 T150 050.06 L1000	68215
TF25 KTY81-210 T150 100.06 L1000	68222
TF25 KTY81-210 T150 150.06 L1000	68239

Options
Item description
3-wire connection -50..+180 °C (3-wire)
4-wire connection -50..+180 °C (4-wire)
Add per meter of connection cable 2-wire -50..+180 °C
Add per meter of connection cable 3-wire -50..+180 °C
Add per meter of connection cable 4-wire -50..+180 °C
Protection class IP67
Tension spring (tensp)
Connection box USE-S

Item description: product | sensor | temperature | pocket (length.Ø) | cable length (L)

TF25 passive 250 °C

Cable sensors -50..+250 °C – PT100	TP3
Item description	Item No.
TF25 PT100 T250 050.06 L1000	167406
TF25 PT100 T250 100.06 L1000	209731
TF25 PT100 T250 150.06 L1000	205658

Cable sensors -50..+250 °C – PT100 1/3 DIN	TP3
Item description	Item No.
TF25 PT100 1/3 DIN T250 050.06 L1000	195478
TF25 PT100 1/3 DIN T250 100.06 L1000	345835
TF25 PT100 1/3 DIN T250 150.06 L1000	388276

Cable sensors -50..+250 °C – PT1000	TP3
Item description	Item No.
TF25 PT1000 T250 050.06 L1000	168717
TF25 PT1000 T250 100.06 L1000	209724
TF25 PT1000 T250 150.06 L1000	388283

Cable sensors -50..+250 °C – PT1000 1/3 DIN	TP3
Item description	Item No.
TF25 PT1000 1/3 DIN T250 050.06 L1000	356749
TF25 PT1000 1/3 DIN T250 100.06 L1000	356756
TF25 PT1000 1/3 DIN T250 150.06 L1000	388290

Cable sensors -50..+250 °C – Ni1000	TP3
Item description	Item No.
TF25 Ni1000 T250 050.06 L1000	151863
TF25 Ni1000 T250 100.06 L1000	182430
TF25 Ni1000 T250 150.06 L1000	388306

Cable sensors -50..+250 °C – Ni1000TK5000	TP3
Item description	Item No.
TF25 Ni1000TK5000 T250 050.06 L1000	150781
TF25 Ni1000TK5000 T250 100.06 L1000	157018
TF25 Ni1000TK5000 T250 150.06 L1000	388313

Options
Item description
Add per meter of connection cable 2-wire -50..+250 °C
Protection class IP67
Tension spring (tensp)
Connection box USE-S

TF25 passive 400 °C

Cable sensors -50..+400 °C – PT100/PT1000	TP3
Item description	Item No.
TF25 PT100 T400 050.06 L2000	166195
TF25 PT1000 T400 050.06 L2000	166201

Options
Item description
Add per meter of connection cable 2-wire -80..+400 °C
Protection class IP67
Tension spring (tensp)
Connection box USE-S

TF25+

DATA SHEETS

Cable sensor for temperature measurement in HVAC or refrigeration applications. In combination with a thermowell pocket suitable for temperature measurement in duct applications. Depending on the application, PVC, silicone, high-temperature silicone and glass fiber cables are available. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



TF25+



TF25+ relay / BUS

0..10 V / 4..20 mA USEapp Modbus BACnet LON LOCAL OPERATING NETWORK SI-Protection

TECHNICAL DATA	
Measuring values	temperature
Output voltage	TRV: 1x 0..10 V or 0..5 V, min. load 5 kΩ
Output ampere	TRA: 1x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV
Power consumption	TRV: max. 0,45 W (24 V =) | 0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =)
Output signal range temp.	TRV | TRA: Scaling analog output: 0..+160 °C (default setting) selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C, adjustable at the transducer
Operating temperature range	permissible working temperature: pocket -50..+180 °C, optional -50..+250 °C (T250) enclosure: -35..+70 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529, SI-Protection, 16-point pressed Rolled: IP67 according to EN 60529, with SI-Protection enclosure: IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pocket	stainless steel V4A, Ø=6 mm mounting length: 50 | 100 | 150 | 200 | 250 mm pocket 6x50 and T100: 16-point pressed; IP67 rolled tension spring (optional)
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-S pure white
Notes	other cable lengths on request PE connection wire available (please request)

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 5 kΩ
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output: -20..+80 °C (default setting), selectable from 8 temperature ranges -50..+50 | -20..+80 | -15..+35 | -10..+120 | 0..+50 | 0..+100 | 0..+160 | 0..+250 °C adjustable at the transducer, optionally configurable via Thermokon USEapp
Operating temperature range	permissible working temperature: pocket -50..+160 °C, optional -50..+250 °C (T250) enclosure: -35..+70 °C, LCD: -20..+70 °C
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²
Delivery contents	incl. mounting base enclosure USE-M pure white

Item description: product | TRV / TRA | temperature | pocket (length.Ø) | cable length (L)

TF25+ active

Cable sensors -50..+180 °C – active TRV 0..10 V	TP2
Item description	Item No.
TF25+ TRV MultiRange T180 050.06 L1000	658959
TF25+ TRV MultiRange T180 100.06 L1000	658966
TF25+ TRV MultiRange T180 150.06 L1000	658973

Cable sensors -50..+180 °C – active TRA 4..20 mA	TP2
Item description	Item No.
TF25+ TRA MultiRange T180 050.06 L1000	658980
TF25+ TRA MultiRange T180 100.06 L1000	658997
TF25+ TRA MultiRange T180 150.06 L1000	659000

Options
Item description
Protection class IP67 (rolled)
LCD
Add per meter of connection cable -50..+180 °C
Add per meter of connection cable -50..+250 °C
Tension spring (tensp)
Temperature -50..+250 °C (T250)

Item description: product | BUS | temperature | pocket (length.Ø) | cable length (L)

TF25+ LCD

Cable sensors -50..+160 °C – active TRV 0..10 V		TP2
Item description	USEapp	Item No.
TF25+ LCD TRV MultiRange T160 050.06 L1000	✓	707039
TF25+ LCD TRV MultiRange T160 100.06 L1000	✓	693806

Item description: product | BUS | temperature | pocket (length.Ø) | cable length (L)

TF25+ BUS

Cable sensors -50..+160 °C – active RS485 Modbus		TP2
Item description	USEapp	Item No.
TF25+ RS485 Modbus T160 050.06 L1000	✓	659024
TF25+ RS485 Modbus T160 100.06 L1000	✓	668255

Cable sensors -50..+160 °C – active RS485 BACnet		TP2
Item description	USEapp	Item No.
TF25+ RS485 BACnet (MS/TP) T160 050.06 L1000	✓	699723
TF25+ RS485 BACnet (MS/TP) T160 100.06 L1000	✓	699730

Options
Item description
Protection class IP67
Tension spring (tensp)
Add per meter of connection for measuring range up to 160 °C
Add to price of RS485 Modbus for LON FT
LCD

ACCESSORIES – TF25+ active

Zubehör			AS1
Item description		Item No.	On stock
Mounting base enclosure USE-S pure white		667722	

ACCESSORIES – TF25+ LCD / TF25+ BUS

Zubehör			AS1
Item description		Item No.	On stock
Mounting base enclosure USE-M pure white		668354	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)		668262	

ACCESSORIES

Accessories			AS1
Item description		Item No.	On stock
Mounting flange MF6DS flexible (suitable for Ø=6 mm; AS2)		669016	
Mounting flange MF6 (brass)		3407	
KL6VA – Compression fittings G 1/4“ for Ø=6 mm with cutting ring VA, stainless steel		103213	
For cable entries and sealing inserts please refer to chapter "Accessories"			

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	36 mm	611152	
VA-thermowell pocket 100 mm type THVADS100	100 mm	86 mm	611817	
VA-thermowell pocket 150 mm type THVADS150	150 mm	136 mm	611824	
VA-thermowell pocket 200 mm type THVADS200	200 mm	186 mm	611848	
VA-thermowell pocket 250 mm type THVADS250	250 mm	236 mm	611862	
VA-thermowell pocket 300 mm type THVADS300	300 mm	286 mm	611879	
VA-thermowell pocket 450 mm type THVADS450	450 mm	436 mm	611893	
VA-thermowell pocket 600 mm type THVADS600	600 mm	586 mm	611923	
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS (10 pcs)			666473	

Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	36 mm	610995	
MS-thermowell pocket 100 mm type THMSDS100	100 mm	86 mm	611008	
MS-thermowell pocket 150 mm type THMSDS150	150 mm	136 mm	611015	
MS-thermowell pocket 200 mm type THMSDS200	200 mm	186 mm	611022	
MS-thermowell pocket 250 mm type THMSDS250	250 mm	236 mm	611985	
MS-thermowell pocket 300 mm type THMSDS300	300 mm	286 mm	611039	
MS-thermowell pocket 450 mm type THMSDS450	450 mm	436 mm	611046	

Humidity

Humidity sensor for reliable detection of relative humidity and temperature in residential and commercial buildings, outdoor resp. in gaseous media of heating, ventilation and air conditioning systems.





Sample applications 265

Room sensors

NOVOS 5 rH	Surface mount sensor Temp. + rH	346
NOVOS 3 rH	Surface mount sensor Temp. + rH	348
FTW04	Surface mount sensor Temp. + rH	350
FTW04 dS	digitalSTROM sensor Temp. + rH	353
FTW06	Flush mount sensor Temp. + rH	354
FTW06 dS	digitalSTROM sensor Temp. + rH	356
FTP+	Room pendulum Temp. + rH	357
FT-RDF18+	Ceiling sensor Temp. + rH	358
FTB+	Wall sensor Temp. + rH	360

Duct sensors

FTK+	Duct sensor Temp. + rH	362

Outdoor sensors

WSA	Outdoor sensor Temp. + rH	366
FTA54+	Outdoor sensor Temp. + rH	368

Hygrostats

FSR01	Room humidistat	370
FSK01	Duct hygrostat	371

Condensation / Leakage

WK01+	Condensation sensor	372
WK02+	Condensation sensor	374
LS02+	Leakage sensor	376



» BENEFITS

- » Reliable measurement of relative humidity
- » High Accuracy
- » Optional temperature sensor



FTK+

Duct humidity/temperature sensor, available outputs: 0..10 V or 4..20 mA



NOVOS 3 rH

Room humidity/temperature sensor, available with RGB display (NOVOS 5 rH)

novos

BACnet KNX LON LOCAL OPERATING NETWORK enocean Modbus digitalSTROM

ALREADY WET HANDS?

Whether room or duct: Highest precision in relative humidity is of paramount importance. Not only for creating comfortable working conditions, a consistent and accurate monitoring of humidity is necessary. In increasingly insulated buildings, hazardous mold formations get observance to the sustainable protection of humans and the building. In order to act precautionary and to control this risk, humidity sensors are additionally equipped with temperature sensors and designed for communication in BUS systems, for wireless EnOcean communication and for direct hook-up.

NOVOS 5 rH

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 5 for measuring room humidity (relative, absolute, enthalpy, dew point) and temperature. The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device has an LC display with color change function for displaying the measured values. The threshold values and display settings can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 5 x in ‚Room Operating Units'.



NOVOS 5 rH



NOVOS 5 rH Design

0..10 V / 4..20 mA / Modbus

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV: 2x 0..10 V or 0..5 V, (live-zero configuration via Thermokon NOVOSapp) max. load 10 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =) | 1,0 VA (24 V ~)
Output signal range temp.	Scaling analog output, 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Measuring range humidity	0..100% rH non-condensing, enthalpy: 0..85 KJ/kg, absolute humidity: 0..50 | 0..80 g/m³, dew point: 0..+50 | -20..+80 °C, optionally configurable via Thermokon NOVOSapp or BUS
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Inputs	RS485 Modbus: 1x input for floating contact
Display	LCD 29x35 mm with RGB backlight
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP30 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 5 rH

Room sensor humidity + temperature – active 2x 0..10 V | 2x 4..20 mA		HU1
Item description	Item No.	
NOVOS 5 Temp_rH LCD VV	733595	
NOVOS 5 Temp_rH LCD AA	733601	

Room sensor humidity + temperature design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)		HU1
Item description	Item No.	
NOVOS 5 Temp_rH design LCD VV	733618	
NOVOS 5 Temp_rH design LCD AA	733625	

NOVOS 5 rH BUS

Room sensor humidity + temperature – active BUS		HU1
Item description	Item No.	
NOVOS 5 Temp_rH LCD RS485 Modbus	733649	

Room sensor humidity + temperature design – active BUS (please specify desired design cover)		HU1
Item description	Item No.	
NOVOS 5 Temp_rH design LCD RS485 Modbus	733656	

ACCESSORIES

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⛁
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁

Design cover (please order additionally with items design)		AS1
Item description		On stock
Design cover NOVOS 5 alu		⛁
Design cover NOVOS 5 black		⛁

NOVOS 3 rH

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 3 for measuring room humidity (relative, absolute, enthalpy, dew point) and temperature. The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The threshold values can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 3 x in ‚Room Operating Units'.



NOVOS 3 rH



NOVOS 3 rH Design

0..10 V / 4..20 mA / Modbus

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV: 2x 0..10 V or 0..5 V, (live-zero configuration via Thermokon NOVOSapp) min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =) | 1,0 VA (24 V ~)
Measuring range temp.	-35..+70 °C
Output signal range temp.	Scaling analog output, 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon NOVOSapp or BUS
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	-35..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 3 rH active

Room sensor humidity + temperature – active 2x 0..10 V | 2x 4..20 mA			HU2
Item description	Item No.	On stock	
NOVOS 3 Temp_rH VV	731904	≡	
NOVOS 3 Temp_rH AA	731911	≡	

Room sensor humidity + temperature design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)		HU2
Item description	Item No.	
NOVOS 3 Temp_rH design VV	733472	
NOVOS 3 Temp_rH design AA	733489	

NOVOS 3 rH BUS

Room sensor humidity + temperature – active BUS			HU2
Item description	Item No.	On stock	
NOVOS 3 Temp_rH RS485 Modbus	733496	≡	

Room sensor humidity + temperature design – active BUS (please specify desired design cover)		HU2
Item description	Item No.	
NOVOS 3 Temp_rH design RS485 Modbus	733502	

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	≡	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	≡	
Frame for surface mounting NOVOS 3/WRF04	111584	≡	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	≡	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 3 alu	≡	
Design cover NOVOS 3 black	≡	

FTW04

DATA SHEETS

The surface-mounted sensor measures relative humidity and temperature of air and non-aggressive indoor gases. Moisture detection makes it possible to achieve a pleasant indoor climate and prevent mold. The accuracy of the humidity sensor is 2%. Optionally, the sensor is available with LCD and control elements. The device can be mounted directly on the wall, on a flush-mounted box or in conjunction with a surface-mounted frame available as an accessory. Predetermined breaking points for surface-mounted installations are available.



FTW04



FTW04 LCD

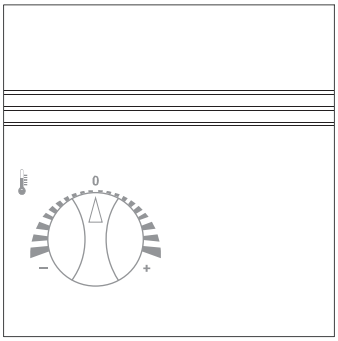
0..10 V / 4..20 mA Modbus BACnet KNX LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV | VVS: 2x 0..10 V (min. load 10 kΩ)
Output ampere	AA | AAS: 2x 4..20 mA (max. load 500 Ω)
Output passive	VVS | AAS: passive temperature sensor
Network technology	BACnet MS/TP, KNX (TP), LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV, AA | AAS: 15..24 V = (±10%) SELV, KNX: supply via BUS
Power consumption	VV | VVS: max. 0,3 W (24 V =) | 0,5 VA (24 V ~), AA | AAS: max. 1 W (24 V =), BACnet: typ. 0,4 W (24 V =) | 0,6 VA (24 V ~), RS485 Modbus: typ. 0,4 W (24 V =) | 0,6 VA (24 V ~)
Measuring range temp.	0..+50 °C, passive: -35..+70 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	passive: depending on used sensor ±0,5 K (typ. at 25 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Inputs	RS485 BACnet (MS/TP)/RS485 Modbus: 2 digital entries, floating, max. wire length 10 m
Display	LCD 29x12 mm, monochrome, optional
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm², KNX: KNX terminal block
Ambient condition	-35..+70 °C, KNX: -20..+60 °C, max. 85% rH short term condensation
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws, with frame for surface mounting (accessory) or directly on the wall, base part can be mounted and wired separately
Notes	special painting available on request, additional passive temperature sensor available (type VVS/AAS), for other operating elements please request

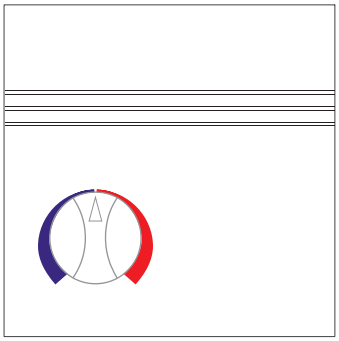
FTW04

Standard labelling (only with option potentiometer)

FTW04 P standard labelling
(ltypeS)



FTW04 P standard labelling colour
(refer to options – ltypeSC)



Item description: product | VV / AA

Room sensor humidity + temperature – active 2x 0..10 V | 2x 4..20 mA		HU2
Item description	Item No.	On stock
FTW04 VV	196352	
FTW04 AA	609555	

Options
Item description
LCD (only type VV | VVS)
Potentiometer (passive)
Default labelling P colour red+blue (ltypeSC)
Additional passive temperature sensor

Order example for different items:

FTW04 | P | VV | PT1000 | LCD

FTW04 = product
P = potentiometer (10 kOhm)
VV = 2x 0..10 V output
PT1000 = additional passive temperature sensor
LCD = display

FTW04 BUS

Item description: product | BUS

Room sensor humidity + temperature – active BUS			HU2
Item description	Item No.	On stock	
FTW04 RS485 Modbus	601153	●	
FTW04 RS485 BACnet (MS/TP)	548298		

Room sensor humidity + temperature – active BUS		HU1
Item description	Item No.	
FTW04 KNX	585606	
FTW04 LON	297776	

Options
Item description
LCD (available for LON and RS485 Modbus)
Potentiometer (passive; available for LON and RS485 Modbus)
Default labelling P colour red+blue (ItypeSC)

Order example for different items:

FTW04 | P | LON | LCD | standard labelling colour

FTW04 = product
P = potentiometer (10 kOhm)
LON = BUS
LCD = display
Labelling = standard red-blue

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	
Frame for surface mounting NOVOS 3/WRF04	111584	●	
Ball stroke protection BS150, transparent (for series WRF04)	647007	●	



FTW04 dS

DATA SHEETS

Room sensor for measuring temperature and relative humidity transmitting the measured data directly to the digitalSTROM system. This allows a closed loop for precise and comfortable control of the indoor climate. The device can be mounted directly on the wall, on a flush-mounted box or in conjunction with a surface-mounted frame available as an accessory. Predetermined breaking points for surface-mounted installations are available.

digitalSTROM

TECHNICAL DATA	
Measuring values	humidity, temperature
Network technology	digitalSTROM (dS)
Power supply	230 V ~ (±10%)
Power consumption	typ. 0,5 VA (230 V ~)
Measuring range temp.	-20..+60 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+70 °C, max. 85% rH short term condensation
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws, with frame for surface mounting (accessory) or directly on the wall, base part can be mounted and wired separately
Notes	special painting available on request

digitalSTROM

Room sensor temperature + humidity – active digitalSTROM		DS1
Item description	Item No.	
FTW04 dS	619219	

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛁	
Frame for surface mounting NOVOS 3/WRF04	111584	⛁	
Ball stroke protection BS150, transparent (for series WRF04)	647007	⛁	

FTW06

DATA SHEETS

Flush-mounted room sensor for humidity and temperature detection. The sensor meets increased design requirements and is available in standard switch ranges as well as in different color versions. The device is mounted in a flush-mounted box. The sensor is used for a comfortable indoor climate and for mold avoidance, e.g. in hotels, offices, living rooms and meeting rooms. The accuracy of the humidity sensor is 2%.



FTW06
Gira E2 pure white matt

0..10 V / 4..20 mA Modbus

TECHNICAL DATA	
Measuring values	temperature, humidity
Output voltage	VV | VVS: 2x 0..10 V (min. load 10 kΩ)
Output passive	PT100 | PT100 1/3 DIN | PT1000 | PT1000 1/3 DIN | Ni1000 | Ni1000TK5000 NTC10k | NTC 10k Precon | NTC5k | NTC20k | NTC1,8k
Network technology	RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV BUS: 15..35 V = or 19..29 V ~ SELV
Power consumption	VV | VVS: max. 0,3 W (24 V =) | 0,5 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 25 °C), passive: depending on used sensor
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, M-Pure, 1-M, Atelier-M, Artec *, Artec stainless steel *, Antik *
Switch range Peha	AURA, AURA glass
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², pluggable
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	* in switch program with intermediate frame, please specify frame design when ordering, additional passive sensor available (please specify in order), e.g.: PT100, PT1000, NI1000, NI1000TK5000, NTCxx, LM235Z, other sensors on request

FTW06

Item description: product | VV/BUS | switch range | colour

Room sensor humidity + temperature – active VV 2x 0..10 V		HU1
Item description	Item No.	
FTW06 VV pure white matt without frame	482721	
FTW06 VV pure white brilliant without frame	732161	
FTW06 VV aluminium without frame	732178	
FTW06 VV Jung aluminium without frame	732185	
FTW06 VV anthracite without frame	732192	

Room sensor humidity + temperature – active BUS		HU1
Item description	Item No.	
FTW06 RS485 Modbus pure white matt without frame	732208	
FTW06 RS485 Modbus pure white brilliant without frame	732215	
FTW06 RS485 Modbus aluminium without frame	732222	
FTW06 RS485 Modbus Jung aluminium without frame	732239	
FTW06 RS485 Modbus anthracite without frame	732246	

Options
Item description
Additional passive temperature sensor

ACCESSORIES

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass, stainless steel, aluminium (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Accessories			AS1
Item description	Item No.	On stock	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	



FTW06 dS
Gira E2 pure white matt

FTW06 dS

DATA SHEETS

Room sensor for measuring temperature and relative humidity transmitting the measured data directly to the digitalSTROM system. This allows a closed loop for precise and comfortable control of the indoor climate. The sensor meets increased design requirements and is available in standard switch ranges as well as in different color versions. The device is mounted in a flush-mounted box.

digitalSTROM

TECHNICAL DATA	
Measuring values	humidity, temperature
Network technology	digitalSTROM (dS)
Power supply	230 V ~ (±10%)
Power consumption	typ. 0,5 VA (230 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 25 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec *, Artec stainless steel *, Antik *
Switch range Peha	AURA, AURA glass
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², pluggable
Ambient condition	0..+40 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	* in switch program with intermediate frame please specify frame design when ordering

Room sensor humidity + temperature – active digitalSTROM	DS1
Item description	Item No.
FTW06 dS pure white matt without frame	732253
FTW06 dS pure white brilliant without frame	732260
FTW06 dS aluminium without frame	732277
FTW06 dS Jung aluminium without frame	732284
FTW06 dS anthracite without frame	732291

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass, stainless steel, aluminium (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

FTP+

DATA SHEETS

Room pendulum sensor for sectional measurement of relative humidity and temperature in large and high rooms (e.g. exhibition halls, churches or similar). Alternatively to relative humidity, the output can be set to absolute humidity, enthalpy or dew point. The design allows for an optimal installation with precise measurements. Accuracy of the humidity sensor is 2%.



0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV: 2x 0..10 V or 0..5 V (adjustable via jumper), min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV AA: 15..24 V = (±10%) SELV
Power consumption	typ. 0,4 W (24 V =) | 0,8 VA (24 V ~) AA: max. 1 W (24 V =)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, adjustable at the transducer, default setting: -20..+80 °C
Measuring range humidity	0..100% rH non-condensing, enthalpy: 0..85 KJ/kg, absolute humidity: 0..50 | 0..80 g/m³, dew point: 0..+50 | -20..+80 °C, adjustable at the transducer
Accuracy temperature	±0,3 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	enclosure USE-M, PC, pure white
Protection	enclosure: IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², sensor wire length=2 m or 4 m
Pipe	PA6, with stainless steel weight, black, Ø=20 mm, length 210 mm
Filter	stainless steel wire mesh
Ambient condition	-20..+70 °C, max. 85% rH non-condensing
Delivery contents	incl. mounting base enclosure USE-M pure white

Room pendulum sensor humidity + temperature – active 2x 0..10 V | 2x 4..20 mA	HU1
Item description	Item No.
FTP+ VV L2000	699952
FTP+ VV L4000	699983
FTP+ AA L2000	699976
FTP+ AA L4000	700016

FT-RDF18+

DATA SHEETS

Ceiling built-in sensor for measuring humidity and temperature indoors. The ideal solution for inconspicuous, architectural integration in the ceiling slab or hollow walls, e.g. in museums or showrooms. The precise data logging serves for a pleasant room climate and for mold avoidance.



0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV: 2x 0..10 V, min. load 5 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV AA: 15..24 V = (±10%) SELV
Power consumption	VV: max. 0,45 W (24 V =) | 0,8 VA (24 V ~) AA: max. 1 W (24 V =)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, adjustable at the transducer default setting: 0..+50 °C
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C adjustable at the transducer
Accuracy temperature	±0,3 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529 sensor head: IP30 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² connection wire sensor head to plug RJ12: PVC 0,15 m connection wire bush RJ12 to enclosure: PVC 3 m
Sensor head	ABS, white, Ø=30 mm
Ambient condition	-35..+70 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-S pure white

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	2x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp)
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Output signal range temp.	Scaling analog output: -20..+80 °C (default setting), selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C, optionally configurable via Thermokon USEapp
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm², connection wire sensor head to plug RJ12: PVC 0,15 m, connection wire bush RJ12 to enclosure: PVC 3 m
Delivery contents	incl. mounting base enclosure USE-M pure white

Ceiling sensor humidity + temperature – active 2x 0..10 V | 2x 4..20 mA	HU1
Item description	Item No.
FT-RDF18+ VV	659031
FT-RDF18+ AA	659055

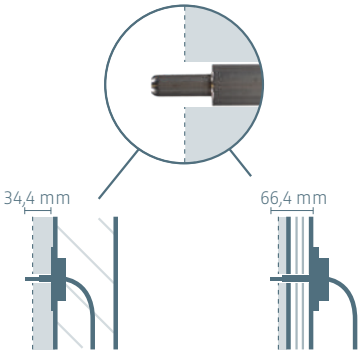
Options
Item description
LCD
RS485 Modbus (with enclosure USE-M)
Add to price of RS485 Modbus for LON FT
Add to price of RS485 Modbus for RS485 BACnet (MS/TP)

FTB+

DATA SHEETS

Wall-mounted recessed sensor measuring relative humidity and temperature for plastered flush-mounting boxes or installation in hollow walls with high-quality, inconspicuous stainless steel design. Especially for museums and exhibition rooms, where measurement accuracy and almost invisible sensors have to be installed due to aesthetics. The precise measurement serves for a comfortable room climate and to avoid mold.





0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV: 2x 0..10 V or 0..5 V (adjustable via jumper), min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV AA: 15..24 V = (±10%) SELV
Power consumption	AA: max. 1 W (24 V =)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, adjustable at the transducer default setting: -20..+80 °C
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C adjustable at the transducer
Accuracy temperature	±0,3 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	enclosure USE-M, PC, pure white
Protection	enclosure: IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² sensor wire PVC 15 m
Sensor head	stainless steel V2A, Ø=13 mm, length=34,4 | 66,4 mm
Ambient condition	-35..+70 °C, sensor: -40..+120 °C max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-M pure white

FTB+

Wall-mounted sensor humidity + temperature – active 2x 0..10 V | 2x 4..20 mA		HU1
Item description	Item No.	
FTB+ VV 34.06 L15m	689205	
FTB+ VV 66.06 L15m	689083	
FTB+ AA 34.06 L15m	700108	
FTB+ AA 66.06 L15m	700115	

ACCESSORIES

Accessories		AS1
Item description	Item No.	On stock
Mounting base enclosure USE-M pure white	668354	
Mounting kit universal for enclosure USE	698511	
For cable entries and sealing inserts please refer to chapter „Accessories“		

FTK+

DATA SHEETS

Duct sensor for measuring relative and absolute humidity, enthalpy, dew point and temperature in gaseous media of heating, ventilation and air-conditioning systems as well as in clean room technology. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Accuracy of the humidity sensor is 2%. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



FTK+



FTK+ relay / BUS



FTK+ LCD

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV | VVS: 2x 0..10 V (min. load 10 kΩ)
Output ampere	AA | AAS: 2x 4..20 mA (max. load 500 Ω)
Output passive	VVS | AAS: passive temperature sensor
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV AA: 15..24 V = (±10%) SELV
Power consumption	VV | VVS: max. 0,4 W (24 V =) | 0,8 VA (24 V ~) AA | AAS: max. 1 W (24 V =)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, adjustable at the transducer default setting: -20..+80 °C passive: depending on used sensor
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C adjustable at the transducer
Accuracy temperature	±0,3 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Air speed	max. 12 m/s
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pipe	PA6, black, Ø=19,5 mm length 140 | 270 | 400 mm
Filter	stainless steel wire mesh
Ambient condition	-20..+70 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting flange
Notes	additional passive temperature sensor available (type VVS/AAS)

DIFFERENT DATA FOR VERSIONS WITH RELAY / LCD / BUS	
Output voltage	2x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 10 kΩ
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, AA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, adjustable at the transducer, default setting: -20..+80 °C, optionally configurable via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing, enthalpy: 0..85 KJ/kg, absolute humidity: 0..50 | 0..80 g/m³, dew point: 0..+50 | -20..+80 °C, adjustable at the transducer, optionally configurable via Thermokon USEapp
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white, LCD: cover PC, transparent
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²

FTK+ active

Item description: product | pipe (length) | output (VV/AA)

Duct sensor humidity + temperature – active 2x 0..10 V		HU2
Item description	Item No.	On stock
FTK+ 140 VV incl. MF20	626347	
FTK+ 270 VV incl. MF20	626354	
FTK+ 400 VV incl. MF20	626361	

Duct sensor humidity + temperature – active 2x 4..20 mA		HU2
Item description	Item No.	On stock
FTK+ 140 AA incl. MF20	626378	
FTK+ 270 AA incl. MF20	626385	
FTK+ 400 AA incl. MF20	626392	

Options
Item description
Additional passive temperature sensor

FTK+ active

Item description: product | pipe (length) | output (VV/AA)

Duct sensor humidity + temperature – active 2x 0..10 V		HU1
Item description	USEapp	Item No.
FTK+ 140 LCD VV incl. MF20	✓	663083
FTK+ 270 LCD VV incl. MF20	✓	663090
FTK+ 400 LCD VV incl. MF20	✓	663113

Duct sensor humidity + temperature – active 2x 4..20 mA		HU1
Item description	USEapp	Item No.
FTK+ 140 LCD AA incl. MF20	✓	663120
FTK+ 270 LCD AA incl. MF20	✓	663137
FTK+ 400 LCD AA incl. MF20	✓	663144

Duct sensor humidity + temperature – active 2x 0..10 V + relay		HU1
Item description	USEapp	Item No.
FTK+ 140 VV relay incl. MF20	✓	663151
FTK+ 270 VV relay incl. MF20	✓	663168
FTK+ 400 VV relay incl. MF20	✓	663175
FTK+ 140 LCD VV relay incl. MF20	✓	663205
FTK+ 270 LCD VV relay incl. MF20	✓	663229
FTK+ 400 LCD VV relay incl. MF20	✓	663236

FTK+ BUS

Item description: product | pipe (length) | BUS

Modbus

Duct sensor humidity + temperature – active RS485 Modbus		HU1
Item description	USEapp	Item No.
FTK+ 140 RS485 Modbus incl. MF20	✓	659093
FTK+ 270 RS485 Modbus incl. MF20	✓	659109
FTK+ 400 RS485 Modbus incl. MF20	✓	659116
FTK+ 140 LCD RS485 Modbus incl. MF20	✓	663243
FTK+ 270 LCD RS485 Modbus incl. MF20	✓	663250
FTK+ 400 LCD RS485 Modbus incl. MF20	✓	663267

BACnet

Duct sensor humidity + temperature – active RS485 BACnet (MS/TP)		HU1
Item description	USEapp	Item No.
FTK+ 140 RS485 BACnet (MS/TP) incl. MF20	✓	700122
FTK+ 270 RS485 BACnet (MS/TP) incl. MF20	✓	700139
FTK+ 400 RS485 BACnet (MS/TP) incl. MF20	✓	700146
FTK+ 140 LCD RS485 BACnet (MS/TP) incl. MF20	✓	700153
FTK+ 270 LCD RS485 BACnet (MS/TP) incl. MF20	✓	692878
FTK+ 400 LCD RS485 BACnet (MS/TP) incl. MF20	✓	700177

FTK+ BUS

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES – FTK+ active

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-S pure white	667722	●	

ACCESSORIES – FTK+ active / FTK+ BUS

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354	●	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●	

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
Filter stainless steel, wire mesh (spare part)	231169	●	
Mounting flange MF20	612562	●	
Weather protection for FTK+, WSA (replacement)	625241	●	
For cable entries and sealing inserts please refer to chapter „Accessories“			

WSA

DATA SHEETS

Protected humidity and temperature sensor for outside applications. The radiation shield protects the outside sensors from rain and radiated heat. With the curved shape and color of the plates air flow is able to move across the sensors to keep radiated temperatures from rooftops and surrounding surfaces from affecting humidity readings. Typical applications are meteorology, greenhouses and industrial environments.



0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV: 2x 0..10 V, min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV AA: 15..24 V = (±10%) SELV BUS: 15..35 V = or 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~) VV: max. 0,4 W (24 V =) | 0,8 VA (24 V ~) AA: max. 1 W (24 V =)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, VV | AA: adjustable at the transducer default setting: -20..+80 °C
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon USEapp
Accuracy temperature	±0,3 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	enclosure USE-S BUS:, enclosure USE-M, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS terminal: removable plug-in terminal, max. 1,5 mm²
Pipe	PA6, black, Ø=19,5 mm
Filter	stainless steel wire mesh
Ambient condition	-20..+70 °C, max. 85% rH short term condensation
Mounting	mounting at the wall or at a pole

WSA

Weather protection outdoor sensor humidity + temperature – active 2x 0..10 V | 2x 4..20 mA		HU2
Item description	Item No.	
WSA VV	626408	
WSA AA	626415	

Weather protection outdoor sensor humidity + temperature – BUS			HU1
Item description	**USE**app	Item No.	
WSA RS485 Modbus	✓	626439	
WSA RS485 BACnet (MS/TP)	✓	700184	

Options
Item description
Add to price of RS485 Modbus for LON FT

Accessories			AS1
Item description	Item No.	On stock	
Filter stainless steel, wire mesh (spare part)	231169	●	
Weather protection for FTK+, WSA (replacement)	625241	●	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●	
For cable entries and sealing inserts please refer to chapter „Accessories“			

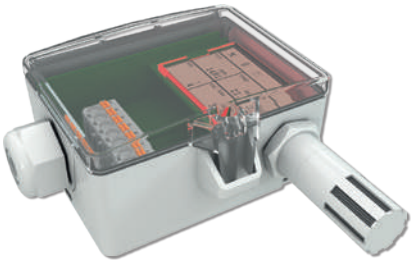
FTA54+

DATA SHEETS

Outdoor sensor for measuring humitiy and temperature in HVAC applications, greenhouses, industrial halls and in meteorology. Alternatively to relative humidity the output can be set to absolute humidity, enthalpy or dew point. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Accuracy of the humidity sensor is 2%. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



FTA54+



FTA54+ LCD

0..10 V / 4..20 mA USEapp Modbus BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	humidity, temperature
Output voltage	VV | VVS: 2x 0..10 V (min. load 10 kΩ)
Output ampere	AA | AAS: 2x 4..20 mA (max. load 500 Ω)
Output passive	VVS | AAS: passive temperature sensor
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV AA | AAS: 15..24 V = (±10%) SELV LCD/relay/BUS: 15..35 V = or 19..29 V ~ SELV
Power consumption	VV | VVS: max. 0,3 W (24 V =) | 0,5 VA (24 V ~) AA | AAS: max. 40 mA (24 V =) LCD/relay/BUS: max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, adjustable at the transducer LCD/relay/RS485 Modbus: optionally configurable via Thermokon USEapp default setting: -20..+80 °C passive: depending on used sensor
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C adjustable at the transducer LCD/relay/RS485 Modbus: optionally configurable via Thermokon USEapp
Accuracy temperature	±0,3 K (typ. at 21 °C within default measuring range) passive: depending on used sensor
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Display	LCD 29x35 mm with RGB backlight, optional
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent

Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS terminal: removable plug-in terminal, max. 1,5 mm²
Pipe	PC, pure white
Filter	stainless steel wire mesh
Ambient condition	-20..+70 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-M pure white, incl. rain protection PA6, white
Notes	other temperature sensors on request

FTA54+ active

Item description: product | VV / AA / BUS

Outdoor sensor humidity + temperature – active 2x 0..10 V | 2x 4..20 mA | relay				HU1
Item description	**USE**app	Item No.	On stock	
FTA54+ VV	✓	659147	●	
FTA54+ AA	✓	659154	●	
FTA54+ VV relay	✓	661003		
FTA54+ LCD VV	✓	660983		
FTA54+ LCD AA	✓	660990		
FTA54+ LCD VV relay	✓	661010		

FTA54+ BUS

Modbus BACnet

Outdoor sensor humidity + temperature – active BUS			HU1
Item description	**USE**app	Item No.	
FTA54+ RS485 Modbus	✓	659178	
FTA54+ LCD RS485 Modbus	✓	661034	
FTA54+ RS485 BACnet (MS/TP)	✓	700191	
FTA54+ LCD RS485 BACnet (MS/TP)	✓	700214	

LON
LOCAL OPERATING NETWORK

Options
Item description
Additional passive temperature sensor
Add to price of RS485 Modbus for LON FT

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354	●	
Rawlplugs and screws (2 pcs. each)	102209	●	
Filter stainless steel, wire mesh (spare part)	231169	●	
Sun/rain protection PA6 white for outdoor humidity sensors	587709	●	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●	
For cable entries and sealing inserts please refer to chapter „Accessories“			

FSR01

DATA SHEETS

FSR humidistats are designed for the on/off control of ventilation and air conditioning, humidification and dehumidification equipment in room applications.



FSR01
standard labelling for outside adjustment

TECHNICAL DATA	
Measuring values	humidity
Medium	air
Output switch contact	changeover contact, floating dehumidify, max. 250 V, 5 (1) A, min. 100mA, humidify, max. 250 V, 3 (1) A, min. 100mA
Measuring range humidity	30..100% rH non-condensing
Working range humidity	35..95% rH
Accuracy humidity	±3% rH (typ. at 50% rH), average temperature coefficient -0,2% / K, typ at 20 °C, 50% rH
Sensor	Polyga® measuring element, water resistant, washable
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+60 °C
Mounting	surface mounted on flush-mounting box (Ø=60 mm) to be mounted flat onto the surface using adhesive foil or screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	threshold adjustment via potentiometer or internal adjuster

Room hygrostat			HU1
Item description	Item No.	On stock	
FSR01	427623	●	
FSR01 internal adjuster	450607		

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
Frame for surface mounting NOVOS 3/WRF04	111584	●	

FSK01

DATA SHEETS

Hygrostat (ON-OFF controller) to control the relative air humidity. It is designed for applications, where air humidity has to be controlled or monitored as ventilation and air conditioning, humidification and dehumidification equipment, in offices and computer rooms, food stores, cooling rooms for fruit and vegetables, greenhouses for gardening use, textile industry, paper and printing industry, film industry, hospitals and similar applications.



FSK01



FSK01 internal adjuster

TECHNICAL DATA	
Measuring values	humidity
Medium	air
Output switch contact	switching difference, 4% rH (at 50% rH), changeover contact, floating, max. 250V, 15 (2) A
Measuring range humidity	30..100% rH non-condensing
Working range humidity	35..95% rH
Accuracy humidity	typ. ±3,5% (>50% rH), ±4% (<50% rH) average temperature coefficient -0,2% / K, typ at 20 °C, 50% rH
Air speed	max. 8 m/s, with sensor protection max. 15 m/s
Sensor	Polyga® measuring element, water resistant, washable
Enclosure	ABS, pure white, light grey
Protection	IP54 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Pipe	stainless steel, Ø=16 mm, length 220 mm
Ambient condition	0..+60 °C

Duct hygrostat			HU1
Item description	Item No.	On stock	
FSK01	427593	●	
FSK01 internal adjuster	708517		

Accessories			AS1
Item description	Item No.	On stock	
PTFE filter	429054	●	
Mounting flange MF19	527705	●	
Sensor protection (wire mash) for fan speeds 8..15 m/s	429047	●	
Wall mounting for duct hygrostat	429030	●	

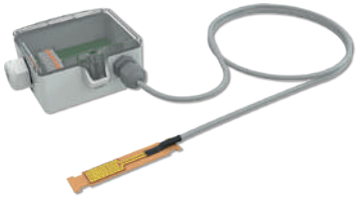
WK01+

DATA SHEETS

Condensation sensor with LED signal designed to provide a switched output signal to prevent condensation on chilled surfaces such as chilled beams. With signaling LED and relay contact for control and monitoring applications or for series connection with the cooling valve in order to interrupt the cooling water flow directly at the beginning of condensation. Type ext has a 2 m remote sensor.



WK01+ 24 V



WK01+ ext. 230 V



WK01 UP

TECHNICAL DATA	
Measuring values	Conductivity
Output switch contact	changeover contact 24 V: max. 24 V / 1,0 A (resistive, floating) 230 V: max. 230 V ~ / 0,5 A (resistive, floating)
Power supply	24 V: 15..24 V = (±10%) or 24 V ~ (±10%) SELV 230 V: 230 V ~ (±10%)
Power consumption	24 V: typ. 0,8 W (24 V =) | 1,6 VA (24 V ~) 230 V: typ. 3,5 VA
Display	LED green – power supply OK LED red – condensation
Enclosure	WK01+ 24 V: enclosure USE-S, PC, pure white WK01+ 230 V: enclosure USE-L, PC, pure white cover, transparent
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. Ø=8 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH short term condensation
Delivery contents	1x syringe with terminal contact fluid
Notes	WK01 UP: type flush mounting Berker K1 polar white brilliant, other switch programmes on request WK01 ext.: with external sensor (PVC, diameter 0,25 mm², L=2 m)

WK01+ 24 V

Condensation sensor – 24 V		HU2
Item description	Item No.	On stock
WK01+ 24 V	659215	
WK01+ ext. 24 V L2000	659222	

WK01+ 230 V

Condensation sensor – 230 V		HU2
Item description	Item No.	
WK01+ ext. 230 V L2000	659246	

WK01 UP 24V

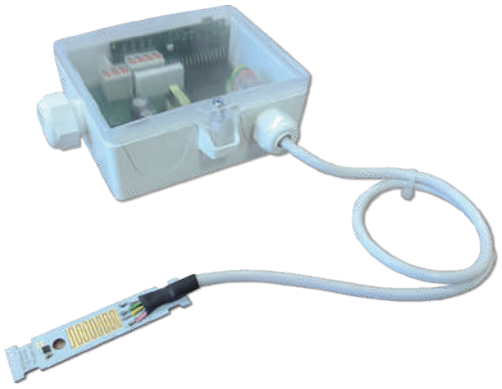
Item description: product | switch range | colour | volt

Condensation sensor flush mount – 24 V		HU2
Item description	Item No.	
WK01 UP L2500 Berker K.1 polar white brilliant 24 V	446624	

WK02+

DATA SHEETS

Condensation sensor with LED signal designed to provide a switched output signal to prevent condensation on chilled surfaces such as chilled beams. With signaling LED and relay contact for control and monitoring applications or for series connection with the cooling valve in order to interrupt the cooling water flow directly at the beginning of condensation. The sensor wire length is 2 meters.



WK02+

TECHNICAL DATA	
Measuring values	humidity, temperature, Conductivity
Output voltage	24 V / 230 V: 2x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp)
Output switch contact	changeover contact 24 V: max. 24 V / 1,0 A (resistive, floating) 230 V: max. 230 V ~ / 0,5 A (resistive, floating)
Power supply	24 V: 15..24 V = (±10%) or 24 V ~ (±10%) SELV 230 V: 230 V ~ (±10%)
Power consumption	24 V: typ. 0,8 W (24 V =) | 1,6 VA (24 V ~) 230 V: typ. 3,5 VA
Output signal range temp.	Scaling analog output, 0..+50 °C (default setting) selectable from 4 temperature ranges -40..+60 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing, enthalpy: 0..85 KJ/kg, absolute humidity: 0..50 | 0..80 g/m³, dew point: 0..+50 | -20..+80 °C, optionally configurable via Thermokon USEapp
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Display	LED green – power supply OK, LED red – condensation
Enclosure	enclosure USE-L, PC, pure white cover PC, transparent
Protection	IP65 according to EN 60529
Cable entry	M20 for wire max. Ø=10 mm incl. seal insert for double cable entry for wire max Ø=6 mm BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Delivery contents	1x syringe with terminal contact fluid, incl. mounting base enclosure USE-L pure white
Notes	other cable lengths on request

WK02+ 24 V

Condensation sensor – 24 V		HU2
Item description	Item No.	
WK02+ ext. 24 V L2000	737180	

WK02+ 230 V

Condensation sensor – 230 V		HU2
Item description	Item No.	
WK02+ ext. 230 V L2000	737197	

Options
Item description
RS485 BACnet (MS/TP)
RS485 Modbus
RS485 BACnet (MS/TP)/RS485 Modbus with 2x input for NTC10k or floating contact (2IN)

Accessories		AS1
Item description	Item No.	On stock
Mounting base enclosure USE-L pure white	668361	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	

LS02+

DATA SHEETS

The leakage sensor with switch contacts and two signal LEDs is used to monitor containers, false floors, false ceilings or rooms for unwanted ingress of water and thus helps to prevent major water damages. The height-adjustable sensor contacts allow to select the height level of water the device should respond on.



TECHNICAL DATA	
Measuring values	Conductivity
Output switch contact	changeover contact 24 V: max. 24 V / 1,0 A (resistive, floating)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,6 W (24 V =) | 1,5 VA (24 V ~)
Sensor	2x 2 detector electrodes stainless steel V2A
Display	LED green – power supply OK, LED red – alarm
Enclosure	enclosure USE-S, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Ambient condition	-35..+90 °C, max. 85% rH short term condensation
Mounting	adjustable contacts

Water leak detection sensor		HU2
Item description	Item No.	On stock
LS02+	659253	⛁

Accessories	AS1
Item description	
For cable entries and sealing inserts please refer to chapter „Accessories“	

Pressure & Velocity

Pressure and air flow sensors for cooling and air conditioning must resist extreme conditions. Therefore our products are customized to withstand even the harshest environments.





Sample applications 379

Gases

DPA+	Differential pressure transducer / Volume flow transducer	380
PS	Differential pressure switch	385
AVT	Air velocity and temp. transducer	386

Manometer

MM	Differential pressure manometer	387
DPG	Differential pressure manometer	388
DPGe	Diff. pressure manometer (electr.)	389

Fluids

DLF	Pressure transducer	390
DPL	Differential pressure transducer	392



» BENEFITS

- » Reliable detection of pressure, differential pressure & velocity
- » High protection
- » Highest accuracies for a precise monitoring
- » Selectable measuring ranges for flexibility



DPA+
Differential pressure and volume flow transducer with 8 selectable measuring ranges



DLF
Pressure transmitter for detecting pressure in liquid media



DPL
Differential pressure transducer for detecting differential pressure in liquid media



PS
Adjustable differential pressure switch for detecting differential air pressure



DPG
Differential pressure manometer for monitoring differential pressure

BACnet KNX LON LOCAL OPERATING NETWORK enocean Modbus

THE CORRECT PRESSURE

Our customized pressure and flow rate sensors are used for monitoring of pressure, differential pressure, flow rate of liquids and non-flammable gases in air filters, industrial air cooling cycles and ventilation ducts.

DPA+

DATA SHEETS

A versatile device for measuring and monitoring the overpressure, underpressure, differential pressure and volumetric flow of air and other non-aggressive gases in fans and filters in duct applications. With 8 adjustable pressure and volumetric flow ranges and high measuring accuracy, the sensor is suitable for air conditioning and ventilation applications as well as for clean room and process applications. The devices with relay outputs for a 2-point controller or a 2-stage 2-point controller and large LCD allow for a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation. Dual versions with 2 independent sensors for the output of 2x differential pressure and/or 2x volumetric flow are available. The mounting base (included in the delivery content) is used to mount the DPA+ on a flat surface (duct) or on DIN rail TS35 (35x7,5 mm) according to EN 60715.



DPA+



DPA+ LCD



DPA+
with additional cable entry
(refer to mounting accessories USE)



DPA+ Dual



DPA+ LCD Dual

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	differential pressure, volume flow
Medium	air or other non-flammable/non-aggressive gases
Output voltage	2x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), Dual: 2x 0..10 V (differential pressure) or 4x 0..10 V (differential pressure and volume flow), min. load 10 kΩ
Output ampere	2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range pressure	type 250: 0..+25 | 0..+50 | 0..+100 | 0..+250 | -25..+25 | -50..+50 | -100..+100 | -150..+150 Pa, type 2500: -100..+100 | 0..+100 | 0..+250 | 0..+500 | 0..+1000 | 0..+1500 | 0..+2000 | 0..+2500 Pa, type 7000: 0..+1000 | 0..+1500 | 0..+2000 | 0..+2500 | 0..+3000 | 0..+4000 | 0..+5000 | 0..+7000 Pa, selectable at the device, Volume flow 0..750.000 m³/h, optionally configurable via Thermokon USEapp
Accuracy pressure	type 250: ±1 Pa at range <250 Pa, type 2500: ±5 Pa at range <500 Pa, ±10 Pa at range >500 Pa, type 7000: ±10 Pa at range <2000 Pa, ±25 Pa at range >2000 Pa, deviation from calibration reference device (calibrator)
Max. working overpressure	40 kPa
Calibration	Automatic zero point calibration (optional)
Sensor	piezo measuring element
Inputs	RS485 BACnet (MS/TP)/RS485 Modbus: 2x input for NTC10k or floating contact (2IN), optional
Display	LCD 29x35 mm with RGB backlight, optional measured values: pressure in Pa or inchWC, volume flow in m3/h oder cfm, configurable via Thermokon USEapp
Enclosure	enclosure USE-L, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm, 4xV: M20 for wire max. Ø=10 mm incl. seal insert for double cable entry for wire max Ø=6 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²
Connection mechanical	pressure connection male Ø=5,0 mm / Ø=6,3 mm, connection tube: PVC, soft
Ambient condition	-10..+50 °C, max. 85% rH short term condensation
Mounting	screw mounted onto flat surface, prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	2 mounting screws, 2 plastic duct flanges, 2 m PVC connection tube, Dual: 2x2 each, incl. mounting base enclosure USE-L pure white

DPA+ active

Differential pressure and volume flow transducer – 2x 0..10 V				PR2
Item description	USEapp	Item No.	On stock	
DPA250+ VV MultiRange	✓	659321	≡	
DPA2500+ VV MultiRange	✓	659369	≡	
DPA7000+ VV MultiRange	✓	659376	≡	
DPA250+ VV AZ MultiRange	✓	692397		
DPA2500+ VV AZ MultiRange	✓	675970		
DPA7000+ VV AZ MultiRange	✓	675994		

Differential pressure and volume flow transducer – 2x 4..20 mA				PR2
Item description	USEapp	Item No.	On stock	
DPA250+ AA MultiRange	✓	666978	≡	
DPA2500+ AA MultiRange	✓	666985	≡	
DPA7000+ AA MultiRange	✓	666992	≡	
DPA250+ AA AZ MultiRange	✓	691598		
DPA2500+ AA AZ MultiRange	✓	693981		
DPA7000+ AA AZ MultiRange	✓	705325		

Differential pressure and volume flow transducer – 2x 0..10 V + relay			PR1
Item description	USEapp	Item No.	
DPA250+ VV MultiRange relay	✓	663687	
DPA2500+ VV MultiRange relay	✓	663694	
DPA7000+ VV MultiRange relay	✓	663700	

Differential pressure and volume flow transducer – 2x 0..10 V				PR1
Item description	USEapp	Item No.	On stock	
DPA250+ LCD VV MultiRange	✓	659383	≡	
DPA2500+ LCD VV MultiRange	✓	659390	≡	
DPA7000+ LCD VV MultiRange	✓	659406	≡	
DPA250+ LCD VV AZ MultiRange	✓	688420		
DPA2500+ LCD VV AZ MultiRange	✓	676007		
DPA7000+ LCD VV AZ MultiRange	✓	676021		

Differential pressure and volume flow transducer – 2x 4..20 mA				PR1
Item description	USEapp	Item No.	On stock	
DPA250+ LCD AA MultiRange	✓	667104	≡	
DPA2500+ LCD AA MultiRange	✓	667111	≡	
DPA7000+ LCD AA MultiRange	✓	667128	≡	
DPA250+ LCD AA AZ MultiRange	✓	700962		
DPA2500+ LCD AA AZ MultiRange	✓	679725		
DPA7000+ LCD AA AZ MultiRange	✓	703147		

Differential pressure and volume flow transducer – 2x 0..10 V + relay			PR1
Item description	USEapp	Item No.	
DPA250+ LCD VV MultiRange relay	✓	663724	
DPA2500+ LCD VV MultiRange relay	✓	663748	
DPA7000+ LCD VV MultiRange relay	✓	663755	

DPA+ BUS

Item description: product | BUS | AZ (automatic zero-point calibration) | MultiRange

Differential pressure and volume flow transducer – active RS485 Modbus			PR1
Item description	USEapp	Item No.	
DPA250+ RS485 Modbus MultiRange	✓	659413	
DPA2500+ RS485 Modbus MultiRange	✓	659420	
DPA7000+ RS485 Modbus MultiRange	✓	659437	
DPA250+ RS485 Modbus AZ MultiRange	✓	693745	
DPA2500+ RS485 Modbus AZ MultiRange	✓	676083	
DPA7000+ RS485 Modbus AZ MultiRange	✓	676090	

Differential pressure and volume flow transducer – active RS485 Modbus			PR1
Item description	USEapp	Item No.	
DPA250+ LCD RS485 Modbus MultiRange	✓	659444	
DPA2500+ LCD RS485 Modbus MultiRange	✓	659451	
DPA7000+ LCD RS485 Modbus MultiRange	✓	659468	
DPA250+ LCD RS485 Modbus AZ MultiRange	✓	697767	
DPA2500+ LCD RS485 Modbus AZ MultiRange	✓	676106	
DPA7000+ LCD RS485 Modbus AZ MultiRange	✓	676113	

Differential pressure and volume flow transducer – active RS485 BACnet (MS/TP)			PR1
Item description	USEapp	Item No.	
DPA250+ RS485 BACnet (MS/TP) MultiRange	✓	700221	
DPA2500+ RS485 BACnet (MS/TP) MultiRange	✓	700238	
DPA7000+ RS485 BACnet (MS/TP) MultiRange	✓	700252	
DPA250+ RS485 BACnet (MS/TP) AZ MultiRange	✓	705387	
DPA2500+ RS485 BACnet (MS/TP) AZ MultiRange	✓	700306	
DPA7000+ RS485 BACnet (MS/TP) AZ MultiRange	✓	700313	

Differential pressure and volume flow transducer – active RS485 BACnet (MS/TP)			PR1
Item description	USEapp	Item No.	
DPA250+ LCD RS485 BACnet (MS/TP) MultiRange	✓	700269	
DPA2500+ LCD RS485 BACnet (MS/TP) MultiRange	✓	682855	
DPA7000+ LCD RS485 BACnet (MS/TP) MultiRange	✓	683463	
DPA250+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	705370	
DPA2500+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	700320	
DPA7000+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	700337	

OPTIONS

Options	
Item description	
RS485 BACnet (MS/TP)/RS485 Modbus with 2x input for NTC10k or floating contact (2IN)	
Add to price of RS485 Modbus for LON FT	

DPA+ Dual active

Item description: product | VV/4xV | MultiRange

Dual differential pressure transducer – active 2x 0..10 V | 2x 4..20 mA			PR1
Item description	USEapp	Item No.	
DPA2500+ Dual VV MultiRange	✓	700344	
DPA2500+ Dual AA MultiRange	✓	702898	
DPA2500+ LCD Dual VV MultiRange	✓	705417	
DPA2500+ LCD Dual AA MultiRange	✓	705431	

Dual differential pressure and volume flow transducer – active 4x 0..10 V			PR1
Item description	USEapp	Item No.	
DPA2500+ Dual 4xV MultiRange	✓	705448	
DPA2500+ LCD Dual 4xV MultiRange	✓	700351	

DPA+ Dual BUS

Item description: product | BUS | MultiRange

Modbus BACnet

Dual differential pressure and volume flow transducer – active BUS			PR1
Item description	USEapp	Item No.	
DPA2500+ Dual RS485 Modbus	✓	703000	
DPA2500+ Dual RS485 BACnet (MS/TP)	✓	703017	
DPA2500+ LCD Dual RS485 Modbus	✓	705455	
DPA2500+ LCD Dual RS485 BACnet (MS/TP)	✓	705462	

LON
LOCAL OPERATING NETWORK

Options
Item description
Automatic zero-point calibration dual (2x AZ)
RS485 BACnet (MS/TP)/RS485 Modbus Dual with 2x input for NTC10k or floating contact (2IN)
Add to price of RS485 Modbus for LON FT

Accessories				AS1
Item description	Length	Item No.	On stock	
T-hose connector for pressure hoses Ø=4 mm (10 pcs)		668323		
Adapter 90° angle for pressure hoses Ø=4 mm		668330		
Mounting base enclosure USE-L pure white		668361		
Metal duct connector MKS40	40 mm	265138		
Metal duct connector MKS100	100 mm	302531		
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)		668262		
For cable entries and sealing inserts please refer to chapter „Accessories“				



PS

DATA SHEETS

Adjustable differential pressure switch with mounting accessories for air and other non-flammable and non-aggressive gases for monitoring of air filters in ventilation and differential pressure switches for clean rooms and industrial processing.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air, non-aggressive gases, non-flammable gases
Output switch contact	NO/NC circuit, switching difference, 20 Pa, PS1500: 80 Pa, PS4500: 180 Pa
Measuring range pressure	PS300: 30..300 Pa, PS500: 30..500 Pa, PS1500: 100..1500 Pa, PS4500: 500..4500 Pa
Accuracy pressure	typ. ±5 Pa, PS1500 typ. ±10 Pa, PS4500 typ. ±50 Pa
Max. working overpressure	50 kPa
Switching values	switching capacity max. 3 A resistive load, 2 A inductive load, max. 250 V ~, miniature switches with silver contacts, service life: >1.000.000 switching operations
Enclosure	ABS, cover PC, membrane silicone
Protection	IP54 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm
Connection electrical	terminal block, max. 1,5 mm²
Connection mechanical	pressure connection: ABS, connection tube: PVC, soft
Ambient condition	-20..+60 °C, max. 85% rH short term condensation
Delivery contents	2 mounting screws, 2 plastic duct flanges, 2 m PVC connection tube soft, Ø=4/7 mm

Differential pressure switch		PR2
Item description	Item No.	On stock
PS300	269971	
PS500	269995	
PS1500	255202	
PS4500	273138	

Accessories			AS1
Item description	Length	Item No.	On stock
T-hose connector for pressure hoses Ø=4 mm (10 pcs)		668323	
Adapter 90° angle for pressure hoses Ø=4 mm		668330	
Metal duct connector MKS40	40 mm	265138	
Metal duct connector MKS100	100 mm	302531	
Mounting bracket differential pressure switch 110x80x20 mm		669009	



AVT

DATA SHEETS

Air velocity and temperature transducer with 3 selectable ranges engineered for building automation in the HVAC/R industry measuring air velocity and temperature in ducts for fancoil, valve and electric heater applications. Optionally, an LCD as well as realy outputs for limiting and monitoring are available.

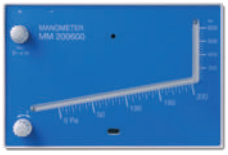
0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	air velocity, temperature
Medium	air or other non-flammable/non-aggressive gases
Output voltage	2x 0..10 V, min. load 1 kΩ
Output ampere	2x 4..20 mA, max. load 400 Ω
Output switch contact	AVT LCD relay: relay with change-over contact (volt free contact), 250 V ~ / 6 A, 30 V = / 6 A
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 2 W, AVT-R LCD: max. 2,4 W
Measuring range temp.	0..+50 °C
Measuring range velocity	0..2 m/s, 0..10 m/s, 0..20 m/s, selectable at the device
Accuracy temperature	‹0,5 K (v› 0,5 m/s), ±0,5 K (typ. at 21 °C)
Accuracy velocity	0..2 m/s: ‹0,2 m/s + 5% of measuring value, 0..10 m/s: ‹0,5 m/s + 5% of measuring value, 0..20 m/s: ‹1,0 m/s + 5% of measuring value (typ. at 21 °C)
Sensor	calorimetric measuring principle
Display	LCD 3,5“, 45.7 x 12.7 mm, optional, for indication of measured values
Enclosure	ABS, cover PC
Protection	IP54 according to EN 60529
Cable entry	M16 for wire max. Ø=8 mm, AVT-R LCD: 2x M16
Connection electrical	terminal block, max. 1,5 mm²
Pocket	stainless steel V2A, L=210 mm
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting flange
Notes	optional with display „LCD“, optional with relay, Adjustable Immersion length: 50..180 mm, using mounting flange, adjustable switching threshold and hysteresis

Air velocity transducer – 2x 0..10 V | 2x 4..20 mA			PR1
Item description	Item No.	On stock	
AVT	430005		
AVT LCD	430036		
AVT LCD relay	430067		

MM

DATA SHEETS



Compact differential pressure inclined tube manometer (mounting accessories included) for reliable display and monitoring of air pressure in ventilation and air conditioning technology.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air, non-aggressive gases non-flammable gases
Operating temperature range	-40..+60 °C MM PS: -20..+60 °C
Measuring range pressure	MM50: -50..50 Pa, MM100: -20..100 Pa, MM500: -100..500 Pa, MM600: 0..600 Pa
Accuracy pressure	MM50 | MM100: 1 Pa, MM500: 5 Pa (-100..0 Pa) / 25 Pa (1..500 Pa), MM600: 5 Pa (0..200 Pa) / 25 Pa (201..600 pA)
Max. working overpressure	200 kPa, MM PS: 50 kPa
Switching values	MM PS: switching capacity max. 3 A resistive load, 2 A inductive load
Enclosure	ABS, cover PMMA, MM PS: cover PC, membrane silicone
Protection	IP54 according to EN 60529
Cable entry	MM PS: M16 for wire max. Ø=8 mm
Connection electrical	MM PS: terminal block, max. 1,5 mm²
Connection mechanical	connection tube: PVC, soft, MM PS: pressure connection ABS
Ambient condition	MM PS: -40..+85 °C, max. 85% rH short term condensation
Delivery contents	2 mounting screws, 2 plastic duct flanges, 2 m PVC connection tube soft, Ø=4/7 mm, 30 ml gauge fluid, 2 indication stickers (red/green)

Differential pressure inclined tube manometer			PR1
Item description	Item No.	On stock	
MM50 (-50..+50 Pa)	268912	●	
MM100 (-20..100 Pa)	284516	●	
MM500 (-100..500 Pa)	384452	●	
MM600 (0..600 Pa)	255240	●	

Differential pressure inclined tube manometer with switch contact			PR1
Item description	Item No.	On stock	
MM600/PS600 (0..600 Pa)	255257	●	



DPG

DATA SHEETS

Compact differential pressure indicator including mounting accessories for reliable display and monitoring of air pressure in ventilation and air conditioning.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air, non-aggressive gases, non-flammable gases
Operating temperature range	-20..+60 °C
Measuring range pressure	DPG60: 0..60 Pa DPG100: 0..100 Pa DPG250: 0..250 Pa DPG500: 0..500 Pa DPG1500: 0..1500 Pa DPG2500: 0..2500 Pa
Accuracy pressure	‹±2% of measuring range DPG60: ‹±5% of measuring range DPG100: ‹±4% of measuring range
Display	display Ø=100 mm
Enclosure	aluminium cover PC, transparent
Protection	IP65 (mounted) according to EN 60529
Connection mechanical	connection tube: PVC, soft
Ambient condition	max. 85% rH short term condensation
Delivery contents	2 mounting screws, 2 plastic duct flanges, 2 m PVC connection tube, 2 m PVC connection tube soft, Ø=4/7 mm
Notes	please contact us for other ranges

Differential pressure gauge		PR1
Item description	Item No.	On stock
DPG60	718493	
DPG100	718509	
DPG250	718516	
DPG500	718523	
DPG1500	718530	
DPG2500	718547	

Accessories			AS1
Item description	Length	Item No.	On stock
T-hose connector for pressure hoses Ø=4 mm (10 pcs)		668323	
Adapter 90° angle for pressure hoses Ø=4 mm		668330	
Metal duct connector MKS40	40 mm	265138	
Metal duct connector MKS100	100 mm	302531	



DPGe

DATA SHEETS

Compact electronic differential pressure indicator including mounting accessories for reliable display and monitoring of air pressure in ventilation and air conditioning.

TECHNICAL DATA	
Measuring values	differential pressure
Medium	air, non-aggressive gases, non-flammable gases
Operating temperature range	-10..+50 °C
Measuring range pressure	0..2500 Pa, upper and lower limit selectable at the device
Display	LCD 29x35 mm with RGB backlight
Enclosure	enclosure USE-M, PC, pure white, cover PC, transparent
Protection	IP65 according to EN 60529
Connection mechanical	connection tube: PVC, soft
Ambient condition	max. 85% rH short term condensation
Delivery contents	incl. battery (type AAA), 2 plastic duct flanges, 2 m PVC connection tube, 2 m PVC connection tube soft, Ø=4/7 mm, incl. mounting base enclosure USE-M pure white, incl. universal mounting set (cover screw, self-drilling screws, dowels, spax screws and screw cover)

Electronic differential pressure indicator		PR1
Item description	Item No.	
DPGe	736176	

Accessories			AS1
Item description	Length	Item No.	On stock
Mounting base enclosure USE-M pure white		668354	
T-hose connector for pressure hoses Ø=4 mm (10 pcs)		668323	
Adapter 90° angle for pressure hoses Ø=4 mm		668330	
Metal duct connector MKS40	40 mm	265138	
Metal duct connector MKS100	100 mm	302531	



DLF

DATA SHEETS

Pressure transmitter for measuring the pressure in liquid media and in air or non-aggressive gases for refrigeration, hydraulics, plant engineering and process engineering. Thanks to the dense stainless steel membrane, the sensor can also be used in refrigerants. For easy connection we recommend the 5 m connecting cable with plug (see accessories).

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	pressure
Medium	fluids, air or other non-flammable/non-aggressive gases
Output voltage	0..10 V, min. load 5 kΩ
Output ampere	4..20 mA, max. load 600 Ω
Power supply	V: 15..24 V = (±10%) or 24 V ~ (±10%) SELV, A: 15..24 V = (±10%) SELV
Power consumption	V: typ. 0,15 W | 0,3 VA, A: max. 0,5 W
Operating temperature range	-40..+125 °C
Measuring range pressure	depending on device
Accuracy pressure	±0,5% (typ. at +25 °C)
Max. working overpressure	2 nominal pressure
Enclosure	wetted parts stainless steel V2A
Protection	IP65 according to EN 60529
Connection electrical	plug MVS according to DIN EN175301-803
Connection mechanical	G 1/2“, G 1/4“
Ambient condition	-40..+105 °C
Notes	please contact us for other ranges

Accessories			AS1
Item description	Item No.	On stock	
Connection wire DLF/DPL – connection plug and wire 5 m	668309	●	
UD-A – universal display for 4..20 mA	718189	●	

Pressure transmitter G1/4“ – 0..10 V			PR1
Item description	Item No.	On stock	
DLF-1..0 V G1/4“	665070		
DLF1 V G1/4“	665087	●	
DLF1,6 V G1/4“	665094		
DLF2 V G1/4“	665100		
DLF2,5 V G1/4“	665117	●	
DLF4 V G1/4“	665124	●	
DLF6 V G1/4“	665131	●	
DLF10 V G1/4“	665148	●	
DLF16 V G1/4“	665155	●	
DLF25 V G1/4“	665162	●	
DLF40 V G1/4“	665179		
DLF60 V G1/4“	665186		
DLF100 V G1/4“	665193		

DLF

Item description: product | V/A | thread

Pressure transmitter G1/2“ – 0..10 V			PR1
Item description	Item No.	On stock	
DLF-1..0 V G1/2“	682541		
DLF1 V G1/2“	681193	●	
DLF1,6 V G1/2“	682558		
DLF2 V G1/2“	682565		
DLF2,5 V G1/2“	681209	●	
DLF4 V G1/2“	681216	●	
DLF6 V G1/2“	681223	●	
DLF10 V G1/2“	681230	●	
DLF16 V G1/2“	681247	●	
DLF25 V G1/2“	681254	●	
DLF40 V G1/2“	682572		
DLF60 V G1/2“	682589		
DLF100 V G1/2“	682596		

Pressure transmitter G1/4“ – 4..20 mA			PR1
Item description	Item No.	On stock	
DLF-1..0 A G1/4“	665209		
DLF1 A G1/4“	665216	●	
DLF1,6 A G1/4“	665223		
DLF2 A G1/4“	665230		
DLF2,5 A G1/4“	665247	●	
DLF4 A G1/4“	665254	●	
DLF6 A G1/4“	665261	●	
DLF10 A G1/4“	665278	●	
DLF16 A G1/4“	665285	●	
DLF25 A G1/4“	665292	●	
DLF40 A G1/4“	665308		
DLF60 A G1/4“	665315		
DLF100 A G1/4“	665322		

Pressure transmitter G1/2“ – 4..20 mA			PR1
Item description	Item No.	On stock	
DLF-1..0 A G1/2“	682602		
DLF1 A G1/2“	681261	●	
DLF1,6 A G1/2“	682619		
DLF2 A G1/2“	682626		
DLF2,5 A G1/2“	681278	●	
DLF4 A G1/2“	681285	●	
DLF6 A G1/2“	681292	●	
DLF10 A G1/2“	681308	●	
DLF16 A G1/2“	681315	●	
DLF25 A G1/2“	681322	●	
DLF40 A G1/2“	682633		
DLF60 A G1/2“	682640		
DLF100 A G1/2“	682657		



DPL

DATA SHEETS

The differential pressure transmitter detects the differential pressure in liquid media. Typical areas of application include supply and return liquid flows in heating systems as well as the monitoring of filters and compressors. For easy connection we recommend the 5 m connecting cable with plug (see accessories).

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	differential pressure
Medium	fluids
Output voltage	0..10 V, min. load 2 kΩ
Output ampere	4..20 mA, max. load 900 Ω
Power supply	V: 15..24 V = (±10%) or 24 V ~ (±10%) SELV, A: 15..24 V = (±10%) SELV
Power consumption	V: typ. 0,37 W (24 V =) | 0,9 VA (24 V ~), A: max. 0,5 W
Operating temperature range	-10..+80 °C
Measuring range pressure	DPL1: 0..+1 bar, DPL2,5: 0..+2,5 bar, DPL4: 0..+4 bar, DPL6: 0..+6 bar
Accuracy pressure	<±1% of measuring range (typ. at -5..+75 °C)
Enclosure	stainless steel V2A, cover: aluminium pressure die casting, measuring cell ceramic
Protection	IP65 according to EN 60529
Connection electrical	angle plug according to DIN 43650
Connection mechanical	G 1/4“
Ambient condition	-10..+50 °C
Notes	please contact us for other ranges

Differential pressure transmitter – 0..10 V			PR1
Item description	Item No.	On stock	
DPL1 V	346580		
DPL2,5 V	346665		
DPL4 V	346672		
DPL6 V	346689		

Differential pressure transmitter – 4..20 mA			PR1
Item description	Item No.	On stock	
DPL1 A	346597		
DPL2,5 A	346696		
DPL4 A	346702		
DPL6 A	346719		

Accessories			AS1
Item description	Item No.	On stock	
Connection wire DLF/DPL – connection plug and wire 5 m	668309		
UD-A – universal display for 4..20 mA	718189		
Mounting bracket differential pressure transmitter 40x40x60 mm	663892		
Screw connection set Ø=6 mm stainless steel (2 pcs.)	373388		
Screw connection set Ø=6 mm brass (2 pcs.)	373401		
Screw connection set Ø=8 mm stainless steel (2 pcs.)	373395		
Screw connection set Ø=8 mm brass (2 pcs.)	373418		

Air Quality

Mixed gas and CO2 sensors provide for an individual and demand-controlled fresh air supply. In modern buildings the use of these sensors is essential in order to increase energy savings and care for highest comfort levels in living and working spaces.





Function overview duct sensors 395

Room sensors

NOVOS 5 CO2+VOC	Surf. mount air quality sens. CO2/VOC	396
NOVOS 5 CO2	Surface mount air quality sensor CO2	400
NOVOS 5 VOC	Surface mount air quality sensor VOC	404
NOVOS 3 CO2+VOC	Surf. mount air quality sens. CO2/VOC	408
NOVOS 3 CO2	Surface mount air quality sensor CO2	412
NOVOS 3 VOC	Surface mount air quality sensor VOC	416
WRF04 CO2	Surface mount air quality sensor CO2	420
LC-WRF04 CO2	Surface mount air quality sensor CO2	423
WRF06 AQ	Flush mount air quality sensor CO2	424
LP+	Pendulum air quality sensor CO2	428
LW04	Surface mount air quality sensor VOC	429

Duct sensors

LK+ CO2+VOC	Duct air quality sensor CO2/VOC	430
LK+ CO2	Duct air quality sensor CO2	434
LK+ VOC	Duct air quality sensor VOC	438

Outdoor sensors

LA+ CO2+VOC	Outdoor air quality sensor CO2/VOC	441
LA+ CO2	Outdoor air quality sensor CO2	444
LA+ VOC	Outdoor air quality sensor VOC	447

BACnet · KNX · LON LOCAL OPERATING NETWORK · enocean · Modbus

» ALL CO2 SENSORS WITH AUTOMATIC SELF CALIBRATION



1

LK+

Duct sensor

CO_2/VOC/temperature/rH

2

NOVOS 3 CO2 TLF

Room sensor CO2/temp./rH, available with display (NOVOS 5 CO2) and traffic light indication (TLF)

» BENEFITS

- » Reliable detection of CO2 and mixed gases (VOC)
- » Physical and emotional well-being through demand-controlled fresh air supply
- » Automatic self-calibration for CO_2 using intelligent “Dual Channel” technology
- » Optional temperature and humidity integrated

Function overview duct sensors

Duct sensors			LK+ CO2+VOC VV	LK+ CO2+VOC AA	LK+ CO2+VOC VV relay	LK+ CO2+VOC Temp 3xV	LK+ CO2+VOC Temp_rH 4xV	LK+ CO2 V	LK+ CO2 Temp VV	LK+ CO2 Temp AA	LK+ CO2 Temp VV relay	LK+ CO2 Temp_rH 3xV	LK+ CO2 100 V	LK+ CO2 100 Temp VV	LK+ CO2 100 Temp AA	LK+ CO2 100 Temp VV relay	LK+ CO2 100 Temp_rH 3xV	LK+ VOC V	LK+ VOC Temp VV	LK+ VOC Temp AA	LK+ VOC Temp VV relay	LK+ VOC Temp_rH 3xV
Page			starting from 430																			
Output	CO2	0..10 V	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
		4..20 mA		■						■					■							
	VOC	0..10 V	■	■	■	■	■											■	■	■	■	■
		4..20 mA		■																■		
	Temp.	0..10 V				■	■		■	■	■	■		■	■	■	■		■	■	■	■
		4..20 mA								■					■					■		
	Humidity	0..10 V					■					■					■					■
	BUS	RS485 Modbus	□			□	□		□			□		□			□		□			□
		RS485 BACnet	□			□	□		□			□		□			□		□			□
Pipe length		180 mm				■	■		■	■	■	■							■	■	■	■
		150 mm	■	■	■			■										■				
		100 mm												■	■	■	■					
		70 mm											■									
additional pass. Sensor			□	□					□	□				□	□				□	□		
Cable entry		M16	■	■				■	■	■			■	■	■			■	■	■		
		M20				■	■					■					■					■
		M25			■						■					■					■	
Relay		configur-able			■						■					■					■	
LCD			□	□	□	□	□		□	□	□	□		□	□	□	□	□	□	□	□	□
TLF		Traffic Light Function	□	□	□	□	□		□	□	□	□		□	□	□	□	□	□	□	□	□

Explanation: ■ standard □ optional

NOVOS 5 CO2+VOC

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 5 for measuring CO2 content and mixed gas and additionally temperature and humidity (relative, absolute, enthalpy, dew point). The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device has an LC display with color change function for displaying the measured values. The threshold values and display settings can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 5 x in 'Room Operating Units'.



NOVOS 5 CO2+VOC



NOVOS 5 CO2+VOC Design

0..10 V / 4..20 mA Modbus

TECHNICAL DATA	
Measuring values	CO2, VOC, temperature + humidity (depending on the device) each output can be set to get a variable mix of CO2 and VOC by configuration
Output voltage	VV: 2x 0..10 V 3xV: 3x 0..10 V 4xV: 4x 0..10 V 0..10 V or 0..5 V (live-zero can be configured via Thermokon NOVOSapp) min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Measuring range temp.	0..+50 °C
Output signal range temp.	Scaling analog output: 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon NOVOSapp or BUS
Measuring range CO2	0..2000 ppm | 0..5000 ppm (optionally configurable via Thermokon NOVOSapp or BUS)
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	self-calibration CO2: Dual Channel
Sensor	VOC sensor (heated metal oxide semiconductor) CO2: NDIR (non-dispersive, infrared)
Inputs	RS485 Modbus: 1x input for floating contact
Display	LCD 29x35 mm with RGB backlight indicating air quality by switching display color (traffic light function 'TLF')
Enclosure	PC V0, pure white design cover (optional)
Protection	IP30 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories) mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

NOVOS 5 CO2+VOC active

Room sensor CO2 + VOC or mix – active 2x 0..10 V | 2x 4..20 mA	AQ1
Item description	Item No.
NOVOS 5 CO2+VOC LCD VV	735599
NOVOS 5 CO2+VOC LCD AA	735667

Room sensor CO2 + VOC or mix design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)	AQ1
Item description	Item No.
NOVOS 5 CO2+VOC design LCD VV	735605
NOVOS 5 CO2+VOC design LCD AA	735674

Room sensor CO2 + VOC or mix + temperature – active 3x 0..10 V | 3x 4..20 mA	AQ1
Item description	Item No.
NOVOS 5 CO2+VOC Temp LCD 3xV	735629

Room sensor CO2 + VOC or mix + temperature design – active 3x 0..10 V | 3x 4..20 mA (please specify desired design cover)	AQ1
Item description	Item No.
NOVOS 5 CO2+VOC Temp design LCD 3xV	735636

Room sensor CO2 + VOC or mix + temperature + humidity – active 4x 0..10 V | 4x 4..20 mA	AQ1
Item description	Item No.
NOVOS 5 CO2+VOC Temp_rH LCD 4xV	735643

Room sensor CO2 + VOC or mix + temperature + humidity design – active 4x 0..10 V | 4x 4..20 mA (please specify desired design cover)	AQ1
Item description	Item No.
NOVOS 5 CO2+VOC Temp_rH design LCD 4xV	735650

NOVOS 5 CO2+VOC active

Room sensor CO2 + VOC or mix – active BUS		AQ1
Item description	Item No.	
NOVOS 5 CO2+VOC LCD RS485 Modbus	735513	

Room sensor CO2 + VOC or mix design – active BUS (please specify desired design cover)		AQ1
Item description	Item No.	
NOVOS 5 CO2+VOC design LCD RS485 Modbus	735520	

Room sensor CO2 + VOC or mix + temperature – active BUS		AQ1
Item description	Item No.	
NOVOS 5 CO2+VOC Temp LCD RS485 Modbus	735728	

Room sensor CO2 + VOC or mix + temperature design – active BUS (please specify desired design cover)		AQ1
Item description	Item No.	
NOVOS 5 CO2+VOC Temp design LCD RS485 Modbus	735735	

Room sensor CO2 + VOC or mix + temperature + humidity – active BUS		AQ1
Item description	Item No.	
NOVOS 5 CO2+VOC Temp_rH LCD RS485 Modbus	735742	

Room sensor CO2 + VOC or mix + temperature + humidity design – active BUS (please specify desired design cover)		AQ1
Item description	Item No.	
NOVOS 5 CO2+VOC Temp_rH design LCD RS485 Modbus	735759	

ACCESSORIES

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⛁
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁

Design cover (please order additionally with items design)		AS1
Item description		On stock
Design cover NOVOS 5 alu		⛁
Design cover NOVOS 5 black		⛁

NOVOS 5 CO2

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 5 for measuring CO2 content and additionally temperature and humidity (relative, absolute, enthalpy, dew point). The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device has an LC display with color change function for displaying the measured values. The threshold values and display settings can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 5 x in 'Room Operating Units'.



NOVOS 5 CO2



NOVOS 5 CO2 Design

0..10 V / 4..20 mA Modbus

TECHNICAL DATA	
Measuring values	CO2, temperature + humidity (depending on the device)
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V 3xV: 3x 0..10 V 0..10 V or 0..5 V (live-zero can be configured via Thermokon NOVOSapp) min. load 10 kΩ
Output ampere	A: 1x 4..20 mA AA: 2x 4..20 mA 3xA: 3x 4..20 mA max. load 500 Ω
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Measuring range temp.	0..+50 °C
Output signal range temp.	Scaling analog output, 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon NOVOSapp or BUS
Measuring range CO2	0..2000 ppm | 0..5000 ppm (optionally configurable via Thermokon NOVOSapp or BUS)
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Inputs	RS485 Modbus: 1x input for floating contact
Display	LCD 29x35 mm with RGB backlight indicating air quality by switching display color (traffic light function 'TLF')
Enclosure	PC V0, pure white design cover (optional)
Protection	IP30 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 5 CO2 active

Room sensor CO2 + temperature – active 2x 0..10 V | 2x 4..20 mA	AQ1
Item description	Item No.
NOVOS 5 CO2 Temp LCD VV	734202
NOVOS 5 CO2 Temp LCD AA	734240

Room sensor CO2 + temperature design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)	AQ1
Item description	Item No.
NOVOS 5 CO2 Temp design LCD VV	734219
NOVOS 5 CO2 Temp design LCD AA	734257

Room sensor CO2 + temperature + humidity – active 3x 0..10 V | 3x 4..20 mA	AQ1
Item description	Item No.
NOVOS 5 CO2 Temp_rH LCD 3xV	734226
NOVOS 5 CO2 Temp_rH LCD 3xA	734264

Room sensor CO2 + temperature + humidity design – active 3x 0..10 V | 3x 4..20 mA (please specify desired design cover)	AQ1
Item description	Item No.
NOVOS 5 CO2 Temp_rH design LCD 3xV	734233
NOVOS 5 CO2 Temp_rH design LCD 3xA	734271

NOVOS 5 CO2 BUS

Room sensor CO2 + temperature – active BUS		AQ1
Item description	Item No.	
NOVOS 5 CO2 Temp LCD RS485 Modbus	734295	

Room sensor CO2 + temperature design – active BUS (please specify desired design cover)		AQ1
Item description	Item No.	
NOVOS 5 CO2 Temp design LCD RS485 Modbus	734301	

Room sensor CO2 + temperature + humidity – active BUS		AQ1
Item description	Item No.	
NOVOS 5 CO2 Temp_rH LCD RS485 Modbus	734639	

Room sensor CO2 + temperature + humidity design – active BUS (please specify desired design cover)		AQ1
Item description	Item No.	
NOVOS 5 CO2 Temp_rH design LCD RS485 Modbus	734646	

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛁	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 5 alu	⛁	
Design cover NOVOS 5 black	⛁	

NOVOS 5 VOC

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 5 for measuring mixed gas and additionally temperature and humidity (relative, absolute, enthalpy, dew point). The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device has an LC display with color change function for displaying the measured values. The threshold values and display settings can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 5 x in 'Room Operating Units'.



NOVOS 5 VOC



NOVOS 5 VOC Design

0..10 V / 4..20 mA Modbus

TECHNICAL DATA	
Measuring values	VOC, temperature + humidity (depending on the device)
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V 3xV: 3x 0..10 V 0..10 V or 0..5 V (live-zero can be configured via Thermokon NOVOSapp) min. load 10 kΩ
Output ampere	A: 1x 4..20 mA AA: 2x 4..20 mA 3xA: 3x 4..20 mA max. load 500 Ω
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Measuring range temp.	0..+50 °C
Output signal range temp.	Scaling analog output: 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon NOVOSapp or BUS
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Calibration	self-calibration
Sensor	VOC sensor (heated metal oxide semiconductor)
Inputs	RS485 Modbus: 1x input for floating contact
Display	LCD 29x35 mm with RGB backlight indicating air quality by switching display color (traffic light function 'TLF')
Enclosure	PC V0, pure white design cover (optional)
Protection	IP30 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories) mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

NOVOS 5 VOC active

Room sensor VOC + temperature – active 2x 0..10 V | 2x 4..20 mA	AQ1
Item description	Item No.
NOVOS 5 VOC Temp LCD VV	735209
NOVOS 5 VOC Temp LCD AA	735247

Room sensor VOC + temperature design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)	AQ1
Item description	Item No.
NOVOS 5 VOC Temp design LCD VV	735216
NOVOS 5 VOC Temp design LCD AA	735254

Room sensor VOC + temperature + humidity – active 3x 0..10 V | 3x 4..20 mA	AQ1
Item description	Item No.
NOVOS 5 VOC Temp_rH LCD 3xV	735223
NOVOS 5 VOC Temp_rH LCD 3xA	735261

Room sensor VOC + temperature + humidity design – active 3x 0..10 V | 3x 4..20 mA (please specify desired design cover)	AQ1
Item description	Item No.
NOVOS 5 VOC Temp_rH design LCD 3xV	735230
NOVOS 5 VOC Temp_rH design LCD 3xA	735278

NOVOS 5 VOC active

Room sensor VOC + temperature – active BUS		AQ1
Item description	Item No.	
NOVOS 5 VOC Temp LCD RS485 Modbus	735292	

Room sensor VOC + temperature design – active BUS (please specify desired design cover)		AQ1
Item description	Item No.	
NOVOS 5 VOC Temp design LCD RS485 Modbus	735315	

Room sensor VOC + temperature + humidity – active BUS		AQ1
Item description	Item No.	
NOVOS 5 VOC Temp_rH LCD RS485 Modbus	735322	

Room sensor VOC + temperature + humidity design – active BUS (please specify desired design cover)		AQ1
Item description	Item No.	
NOVOS 5 VOC Temp_rH design LCD RS485 Modbus	735346	

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛁	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛁	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 5 alu	⛁	
Design cover NOVOS 5 black	⛁	

NOVOS 3 CO2+VOC

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 3 for measuring CO2 content and mixed gas and additionally temperature and humidity (relative, absolute, enthalpy, dew point). The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device is available with additional LED display (traffic light function). The threshold values can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 3 x in 'Room Operating Units'.



NOVOS 3 CO2+VOC



NOVOS 3 CO2+VOC TLF



NOVOS 3 CO2+VOC Design



NOVOS 3 CO2+VOC Design TLF

0..10 V / 4..20 mA Modbus

TECHNICAL DATA	
Measuring values	CO2, VOC, temperature + humidity (depending on the device) each output can be set to get a variable mix of CO2 and VOC by configuration
Output voltage	VV: 2x 0..10 V 3xV: 3x 0..10 V 4xV: 4x 0..10 V 0..10 V or 0..5 V (live-zero can be configured via Thermokon NOVOSapp) min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA 3xA: 3x 4..20 mA 4xA: 4x 4..20 mA max. load 500 Ω
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV AA | 3xA | 4xA: 15..35 V = SELV
Output signal range temp.	Scaling analog output: 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon NOVOSapp or BUS
Measuring range CO2	0..2000 ppm | 0..5000 ppm (optionally configurable via Thermokon NOVOSapp or BUS)
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	self-calibration CO2: Dual Channel
Sensor	VOC sensor (heated metal oxide semiconductor) CO2: NDIR (non-dispersive, infrared)
Inputs	RS485 Modbus: 1x input for floating contact
Display	RGB-LED indicating air quality (traffic light function 'TLF'), optional
Enclosure	PC V0, pure white
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories) mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

NOVOS 3 CO2+VOC active

Room sensor CO2 + VOC or mix – active 2x 0..10 V | 2x 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 CO2+VOC VV	735353
NOVOS 3 CO2+VOC AA	735421

Room sensor CO2 + VOC or mix design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 CO2+VOC design VV	735391
NOVOS 3 CO2+VOC design AA	735452

Room sensor CO2 + VOC or mix + temperature – active 3x 0..10 V | 3x 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 CO2+VOC Temp 3xV	735360
NOVOS 3 CO2+VOC Temp 3xA	735438

Room sensor CO2 + VOC or mix + temperature design – active 3x 0..10 V | 3x 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 CO2+VOC Temp design 3xV	735407
NOVOS 3 CO2+VOC Temp design 3xA	735469

Room sensor CO2 + VOC or mix + temperature + humidity – active 4x 0..10 V | 4x 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 CO2+VOC Temp_rH 4xV	735377
NOVOS 3 CO2+VOC Temp_rH 4xA	735445

Room sensor CO2 + VOC or mix + temperature + humidity design – active 4x 0..10 V | 4x 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 CO2+VOC Temp_rH design 4xV	735414
NOVOS 3 CO2+VOC Temp_rH design 4xA	735476

Options
Item description
TLF – traffic light function, RGB-LED indicating air quality

NOVOS 3 CO2+VOC BUS

Room sensor CO2 + VOC or mix – active BUS		AQ2
Item description	Item No.	
NOVOS 3 CO2+VOC RS485 Modbus	735483	

Room sensor CO2 + VOC or mix design – active BUS (please specify desired design cover)		AQ2
Item description	Item No.	
NOVOS 3 CO2+VOC design RS485 Modbus	735490	

Room sensor CO2 + VOC or mix + temperature – active BUS		AQ2
Item description	Item No.	
NOVOS 3 CO2+VOC Temp RS485 Modbus	735544	

Room sensor CO2 + VOC or mix + temperature design – active BUS (please specify desired design cover)		AQ2
Item description	Item No.	
NOVOS 3 CO2+VOC Temp design RS485 Modbus	735575	

Room sensor CO2 + VOC or mix + temperature + humidity – active BUS		AQ2
Item description	Item No.	
NOVOS 3 CO2+VOC Temp_rH RS485 Modbus	735568	

Room sensor CO2 + VOC or mix + temperature + humidity design – active BUS (please specify desired design cover)		AQ2
Item description	Item No.	
NOVOS 3 CO2+VOC Temp_rH design RS485 Modbus	735582	

Options
Item description
TLF – traffic light function, RGB-LED indicating air quality

ACCESSORIES

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	⛃
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛃
Frame for surface mounting NOVOS 3/WRF04	111584	⛃
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛃

Design cover (please order additionally with items design)	AS1
Item description	On stock
Design cover NOVOS 3 alu	⛃
Design cover NOVOS 3 black	⛃

NOVOS 3 CO2

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 3 for measuring CO2 content and additionally temperature and humidity (relative, absolute, enthalpy, dew point). The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device is available with additional LED display (traffic light function). The threshold values can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 3 x in 'Room Operating Units'.



NOVOS 3 CO2



NOVOS 3 CO2 TLF



NOVOS 3 CO2 Design



NOVOS 3 CO2 Design TLF

0..10 V / 4..20 mA Modbus

TECHNICAL DATA	
Measuring values	CO2, temperature + humidity (depending on the device)
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V 3xV: 3x 0..10 V 0..10 V or 0..5 V (live-zero can be configured via Thermokon NOVOSapp) min. load 10 kΩ
Output ampere	A: 1x 4..20 mA AA: 2x 4..20 mA 3xA: 3x 4..20 mA max. load 500 Ω
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV A | AA | 3xA:, 15..35 V = SELV
Output signal range temp.	Scaling analog output: 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon NOVOSapp or BUS
Measuring range CO2	0..2000 ppm | 0..5000 ppm (optionally configurable via Thermokon NOVOSapp or BUS)
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Inputs	RS485 Modbus: 1x input for floating contact
Display	RGB-LED indicating air quality (traffic light function 'TLF'), optional
Enclosure	PC V0, pure white
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories)

NOVOS 3 CO2 active

Room sensor CO2 – active 0..10 V | 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 CO2 V	733663
NOVOS 3 CO2 A	733724

Room sensor CO2 design – active 0..10 V | 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 CO2 design V	733694
NOVOS 3 CO2 design A	733755

Room sensor CO2 + temperature – active 2x 0..10 V | 2x 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 CO2 Temp VV	733670
NOVOS 3 CO2 Temp AA	733731

Room sensor CO2 + temperature design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 CO2 Temp design VV	733700
NOVOS 3 CO2 Temp design AA	733762

Room sensor CO2 + temperature + humidity – active 3x 0..10 V | 3x 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 CO2 Temp_rH 3xV	733687
NOVOS 3 CO2 Temp_rH 3xA	733748

Room sensor CO2 + temperature + humidity design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 CO2 Temp_rH design 3xV	733717
NOVOS 3 CO2 Temp_rH design 3xA	733779

Options
Item description
TLF – traffic light function, RGB-LED indicating air quality

NOVOS 3 CO2 BUS

Room sensor CO2 + temperature – active BUS		AQ2
Item description	Item No.	
NOVOS 3 CO2 Temp RS485 Modbus	734165	

Room sensor CO2 + temperature design – active BUS (please specify desired design cover)		AQ2
Item description	Item No.	
NOVOS 3 CO2 Temp design RS485 Modbus	734189	

Room sensor CO2 + temperature + humidity – active BUS		AQ2
Item description	Item No.	
NOVOS 3 CO2 Temp_rH RS485 Modbus	734172	

Room sensor CO2 + temperature + humidity design – active BUS (please specify desired design cover)		AQ2
Item description	Item No.	
NOVOS 3 CO2 Temp_rH design RS485 Modbus	734196	

Options
Item description
TLF – traffic light function, RGB-LED indicating air quality

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	≡	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	≡	
Frame for surface mounting NOVOS 3/WRF04	111584	≡	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	≡	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 3 alu	≡	
Design cover NOVOS 3 black	≡	

NOVOS 3 VOC

DATA SHEETS

Room sensor in the new Thermokon enclosure NOVOS 3 for measuring mixed gas and additionally temperature and humidity (relative, absolute, enthalpy, dew point). The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar. The device is available with additional LED display (traffic light function). The threshold values can be individually configured via the Thermokon NOVOSapp. For set point and fan stage adjustment, manual override for room and office applications please refer to NOVOS 3 x in 'Room Operating Units'.



NOVOS 3 VOC



NOVOS 3 VOC TLF



NOVOS 3 VOC Design



NOVOS 3 VOC Design TLF

0..10 V / 4..20 mA Modbus

TECHNICAL DATA	
Measuring values	VOC, temperature + humidity (depending on the device)
Output voltage	V: 1x 0..10 V VV: 2x 0..10 V 3xV: 3x 0..10 V 0..10 V or 0..5 V (live-zero can be configured via Thermokon NOVOSapp), min. load 10 kΩ
Output ampere	A: 1x 4..20 mA AA: 2x 4..20 mA 3xA: 3x 4..20 mA max. load 500 Ω
Network technology	RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV A | AA | 3xA: 15..35 V = SELV
Output signal range temp.	Scaling analog output, 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50 | 0..+50 | -20..+80 | -15..+35 °C optionally configurable via Thermokon NOVOSapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon NOVOSapp or BUS
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Calibration	self-calibration
Sensor	VOC sensor (heated metal oxide semiconductor)
Inputs	RS485 Modbus: 1x input for floating contact
Display	RGB-LED indicating air quality (traffic light function 'TLF'), optional
Enclosure	PC V0, pure white, design cover (optional)
Protection	IP20 according to EN 60529
Cable entry	rear entry, breaking points bottom, drill mark top
Connection electrical	tool-free mountable spring clamp, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm), or to be mounted flat onto the surface using screws base part can be mounted and wired separately
Notes	for configuration an optional programming dongle (Bluetooth) is available (refer to accessories) mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

NOVOS 3 VOC active

Room sensor VOC – active 0..10 V | 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 VOC V	734653
NOVOS 3 VOC A	734738

Room sensor VOC design – active 0..10 V | 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 VOC design V	734684
NOVOS 3 VOC design A	734769

Room sensor VOC + temperature – active 2x 0..10 V | 2x 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 VOC Temp VV	734660
NOVOS 3 VOC Temp AA	734745

Room sensor VOC + temperature design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 VOC Temp design VV	734707
NOVOS 3 VOC Temp design AA	734783

Room sensor VOC + temperature + humidity – active 3x 0..10 V | 3x 4..20 mA	AQ2
Item description	Item No.
NOVOS 3 VOC Temp_rH 3xV	734677
NOVOS 3 VOC Temp_rH 3xA	734752

Room sensor VOC + temperature + humidity design – active 2x 0..10 V | 2x 4..20 mA (please specify desired design cover)	AQ2
Item description	Item No.
NOVOS 3 VOC Temp_rH design 3xV	734721
NOVOS 3 VOC Temp_rH design 3xA	734790

Options
Item description
TLF – traffic light function, RGB-LED indicating air quality

NOVOS 3 VOC BUS

Room sensor VOC + temperature – active BUS		AQ2
Item description	Item No.	
NOVOS 3 VOC Temp RS485 Modbus	734813	

Room sensor VOC + temperature design – active BUS (please specify desired design cover)		AQ2
Item description	Item No.	
NOVOS 3 VOC Temp design RS485 Modbus	734868	

Room sensor VOC + temperature + humidity – active BUS		AQ2
Item description	Item No.	
NOVOS 3 VOC Temp_rH RS485 Modbus	734820	

Room sensor VOC + temperature + humidity design – active BUS (please specify desired design cover)		AQ2
Item description	Item No.	
NOVOS 3 VOC Temp_rH design RS485 Modbus	734875	

Options
Item description
TLF – traffic light function, RGB-LED indicating air quality

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	≡	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	≡	
Frame for surface mounting NOVOS 3/WRF04	111584	≡	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	≡	

Design cover (please order additionally with items design)		AS1
Item description	On stock	
Design cover NOVOS 3 alu	≡	
Design cover NOVOS 3 black	≡	

WRF04 CO2

DATA SHEETS

Room sensor for measuring CO2 content and optionally temperature and humidity. The maintenance-free sensor creates the conditions for a pleasant room climate and increased well-being. Typical applications are schools, office buildings, hotels, cinemas and similar. The device is additionally available with LED display (traffic light function), LCD and relay output with adjustable threshold values. The device is mounted directly on the wall, on a flush-mounted box or in conjunction with a frame for surface-mounting (see accessories).



WRF04 CO2



WRF04 CO2 LCD TLF



WRF04 CO2 LCD / WRF04 CO2 TLF

0..10 V / 4..20 mA Modbus BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	CO2, humidity, temperature
Output voltage	VV: 2x 0..10 V, 3xV: 3x 0..10 V, max. load 10 kΩ
Output switch contact	relay with change-over contact (volt free contact, optional), adjustable CO2 threshold value (valid with version active VV | 3xV)
Network technology	BACnet MS/TP, LON FT (free topology), RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 3 W (24 V =) | 6 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2000 ppm
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±75 ppm, >750 ppm: ±10% (typ. at 21 °C, 1015 hPa)
Calibration	self-calibration, Dual Channel
Sensor	CO2: NDIR (non-dispersive, infrared)
Display	LCD 29x12 mm, monochrome, optional, not with BACnet 3 LEDs indicating air quality (CO2, traffic light function 'TLF')
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	optional with display "LCD", optional with relay (floating, max. 24 V / 2 A (ohmic)), optional with traffic light function "TLF"

WRF04 CO2

Item description: product | humidity (rH) | 3xV | LCD | TLF (traffic light function)

Room sensor CO2 + temperature – active 2x 0..10 V		AQ2
Item description	Item No.	On stock
WRF04 CO2 VV	423717	
WRF04 CO2 VV LCD	423731	
WRF04 CO2 VV TLF	423724	
WRF04 CO2 VV LCD TLF	439114	

Room sensor CO2 + temperature + relative humidity – active 3xV 0..10 V		AQ2
Item description	Item No.	On stock
WRF04 CO2 rH 3xV	423748	
WRF04 CO2 rH 3xV LCD	423762	
WRF04 CO2 rH 3xV TLF	423755	
WRF04 CO2 rH 3xV LCD TLF	447164	

Options
Item description
Potential free relay output with adjustable CO2 threshold value (relay 2 A / 24 V ~ or 24 V =)

Item description: product | BUS | LCD | TLF (traffic light function)

Room sensor CO2 + temperature – active RS485 Modbus		AQ2
Item description	Item No.	
WRF04 CO2 RS485 Modbus	470629	
WRF04 CO2 RS485 Modbus LCD	470643	
WRF04 CO2 RS485 Modbus TLF	470636	
WRF04 CO2 RS485 Modbus LCD TLF	630344	

Room sensor CO2 + temperature – active BACnet MS/TP		AQ2
Item description	Item No.	
WRF04 CO2 RS485 BACnet (MS/TP)	548274	
WRF04 CO2 RS485 BACnet (MS/TP) TLF	548847	

Room sensor CO2 + temperature – active LON		AQ1
Item description	Item No.	
WRF04 CO2 LON	470544	
WRF04 CO2 LON LCD	470575	
WRF04 CO2 LON TLF	470551	
WRF04 CO2 LON LCD TLF	630337	

Item description: product | humidity (rH) | BUS | LCD | TLF (traffic light function)

WRF04 CO2

Room sensor CO2 + temperature + relative humidity – active RS485 Modbus		AQ2
Item description	Item No.	
WRF04 CO2 rH RS485 Modbus	470650	
WRF04 CO2 rH RS485 Modbus LCD	470674	
WRF04 CO2 rH RS485 Modbus TLF	470667	
WRF04 CO2 rH RS485 Modbus LCD TLF	630351	

Room sensor CO2 + temperature + relative humidity – active BACnet MS/TP		AQ2
Item description	Item No.	
WRF04 CO2 rH RS485 BACnet (MS/TP)	548854	
WRF04 CO2 rH RS485 BACnet (MS/TP) TLF	597012	

Room sensor CO2 + temperature + relative humidity – active LON		AQ1
Item description	Item No.	
WRF04 CO2 rH LON	470582	
WRF04 CO2 rH LON LCD	470612	
WRF04 CO2 rH LON TLF	470599	
WRF04 CO2 rH LON LCD TLF	630368	

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209		
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737		
Frame for surface mounting NOVOS 3/WRF04	111584		
Ball stroke protection BS150, transparent (for series WRF04)	647007		

LC-WRF04 CO2

DATA SHEETS



Room sensor for measuring CO2 content in living rooms and bedrooms, offices and classrooms. The maintenance-free sensor creates the conditions for a pleasant room climate and increased well-being. The device is mounted directly on the wall, on a flush-mounted box or in conjunction with a frame for surface-mounting (see accessories).

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	V: CO2
Output voltage	V: 1x 0..10 V, max. load 10 kΩ
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 3 W (24 V =) | 6 VA (24 V ~)
Measuring range CO2	0..2000 ppm
Accuracy CO2	±75 ppm, >750 ppm: ±10% (typ. at 21 °C, 1015 hPa)
Calibration	self-calibration, Dual Channel
Sensor	CO2: NDIR (non-dispersive, infrared)
Enclosure	PC, pure white
Protection	IP20 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	for devices with temperature sensor, humidity sensor, display and traffic light function please refer to product WRF04 CO2

Room sensor CO2 – active 0..10 V			AQ2
Item description	Item No.	On stock	
LC-WRF04 CO2	547994	●	
LC-WRF04 CO2 with operating unit (potentiometer/switch + LED) on request			

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	
Frame for surface mounting NOVOS 3/WRF04	111584	●	
Ball stroke protection BS150, transparent (for series WRF04)	647007	●	

WRF06 AQ

DATA SHEETS

Flush-mounted air quality sensor for measuring CO2 and/or mixed gas, optionally with temperature and humidity. The sensor meets increased design requirements and is available in standard switch ranges as well as in different color versions. The sensor is typically used in offices, living rooms and hotels. The maintenance-free sensor creates the conditions for a pleasant room climate and increased well-being. The device is additionally available with LED display (traffic light function).



WRF06 CO2 3xV,
Gira E2 pure white matt



WRF06 CO2 3xV TLF,
Gira E2 pure white matt

0..10 V / 4..20 mA Modbus

TECHNICAL DATA	
Measuring values	CO2, VOC, humidity, temperature, depending on the device
Output voltage	V: 1x 0..10 V, VV: 2x 0..10 V, 3xV: 3x 0..10 V, 4xV: 4x 0..10 V, max. load 10 kΩ
Network technology	RS485 Modbus
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 1,6 W (24 V =) | 3,9 VA (24 V ~)
Measuring range temp.	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..2000 ppm, BUS: 0..5000 ppm
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	self-calibration, CO2: Dual Channel
Sensor	VOC sensor (heated metal oxide semiconductor), CO2: NDIR (non-dispersive, infrared)
Switch range Berker	S.1, B.3 aluminum, B.7 glass
Switch range Busch-Jaeger	Busch-balance® SI, solo® *, future® linear *, Busch-axcent® *
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart, M-Plan, 1-M, Atelier-M, M-Pure, Artec *
Switch range Peha	AURA, AURA glass
Display	3 LEDs indicating air quality (CO2, traffic light function 'TLF'), optional
Protection	IP30 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Notes	* in switch program with intermediate frame optional with traffic light function "TLF" please specify frame design when ordering

WRF06 AQ active

Room sensor CO2 + VOC – active 2x 0..10 V	AQ1
Item description	Item No.
WRF06 CO2+VOC VV pure white matt without frame	732420
WRF06 CO2+VOC VV pure white brilliant without frame	732437
WRF06 CO2+VOC VV aluminium without frame	732444
WRF06 CO2+VOC VV Jung aluminium without frame	732451
WRF06 CO2+VOC VV anthracite without frame	732468

Room sensor CO2 + VOC + temperature + relative humidity – active 4x 0..10 V	AQ1
Item description	Item No.
WRF06 CO2+VOC Temp_rH 4xV pure white matt without frame	732475
WRF06 CO2+VOC Temp_rH 4xV pure white brilliant without frame	732482
WRF06 CO2+VOC Temp_rH 4xV aluminium without frame	732499
WRF06 CO2+VOC Temp_rH 4xV Jung aluminium without frame	732505
WRF06 CO2+VOC Temp_rH 4xV anthracite without frame	732512

Room sensor CO2 – active 0..10 V	AQ1
Item description	Item No.
WRF06 CO2 V pure white matt without frame	732529
WRF06 CO2 V pure white brilliant without frame	731515
WRF06 CO2 V aluminium without frame	732536
WRF06 CO2 V Jung aluminium without frame	732543
WRF06 CO2 V anthracite without frame	725828

Room sensor CO2 + temperature – active 2x 0..10 V	AQ1
Item description	Item No.
WRF06 CO2 Temp VV pure white matt without frame	728492
WRF06 CO2 Temp VV pure white brilliant without frame	724555
WRF06 CO2 Temp VV aluminium without frame	732550
WRF06 CO2 Temp VV Jung aluminium without frame	732567
WRF06 CO2 Temp VV anthracite without frame	732123

Room sensor CO2 + temperature + relative humidity – active 3x 0..10 V	AQ1
Item description	Item No.
WRF06 CO2 Temp_rH 3xV pure white matt without frame	732598
WRF06 CO2 Temp_rH 3xV pure white brilliant without frame	726641
WRF06 CO2 Temp_rH 3xV aluminium without frame	732611
WRF06 CO2 Temp_rH 3xV Jung aluminium without frame	726634
WRF06 CO2 Temp_rH 3xV anthracite without frame	732628

Room sensor VOC + temperature – active 2x 0..10 V	AQ1
Item description	Item No.
WRF06 VOC Temp VV pure white matt without frame	732635
WRF06 VOC Temp VV pure white brilliant without frame	731522
WRF06 VOC Temp VV aluminium without frame	727358
WRF06 VOC Temp VV Jung aluminium without frame	732659
WRF06 VOC Temp VV anthracite without frame	732666

WRF06 AQ BUS

Room sensor CO2 + VOC – active BUS	AQ1
Item description	Item No.
WRF06 CO2+VOC RS485 Modbus pure white matt without frame	732680
WRF06 CO2+VOC RS485 Modbus pure white brilliant without frame	732697
WRF06 CO2+VOC RS485 Modbus aluminium without frame	732703
WRF06 CO2+VOC RS485 Modbus Jung aluminium without frame	732710
WRF06 CO2+VOC RS485 Modbus anthracite without frame	732727

Room sensor CO2 + VOC + temperature + relative humidity – active BUS	AQ1
Item description	Item No.
WRF06 CO2+VOC Temp_rH RS485 Modbus pure white matt without frame	732734
WRF06 CO2+VOC Temp_rH RS485 Modbus pure white brilliant without frame	732741
WRF06 CO2+VOC Temp_rH RS485 Modbus aluminium without frame	732758
WRF06 CO2+VOC Temp_rH RS485 Modbus Jung aluminium without frame	732765
WRF06 CO2+VOC Temp_rH RS485 Modbus anthracite without frame	732772

Room sensor CO2 – active BUS	AQ1
Item description	Item No.
WRF06 CO2 RS485 Modbus pure white matt without frame	732796
WRF06 CO2 RS485 Modbus pure white brilliant without frame	732802
WRF06 CO2 RS485 Modbus aluminium without frame	732819
WRF06 CO2 RS485 Modbus Jung aluminium without frame	732826
WRF06 CO2 RS485 Modbus anthracite without frame	732833

Room sensor CO2 + temperature – active BUS	AQ1
Item description	Item No.
WRF06 CO2 Temp RS485 Modbus pure white matt without frame	732840
WRF06 CO2 Temp RS485 Modbus pure white brilliant without frame	732857
WRF06 CO2 Temp RS485 Modbus aluminium without frame	732864
WRF06 CO2 Temp RS485 Modbus Jung aluminium without frame	732871
WRF06 CO2 Temp RS485 Modbus anthracite without frame	732321

Room sensor CO2 + temperature + relative humidity – active BUS	AQ1
Item description	Item No.
WRF06 CO2 Temp_rH RS485 Modbus pure white matt without frame	732888
WRF06 CO2 Temp_rH RS485 Modbus pure white brilliant without frame	732895
WRF06 CO2 Temp_rH RS485 Modbus aluminium without frame	732901
WRF06 CO2 Temp_rH RS485 Modbus Jung aluminium without frame	732918
WRF06 CO2 Temp_rH RS485 Modbus anthracite without frame	728676

Room sensor VOC + temperature – active BUS	AQ1
Item description	Item No.
WRF06 VOC Temp RS485 Modbus pure white matt without frame	732925
WRF06 VOC Temp RS485 Modbus pure white brilliant without frame	732932
WRF06 VOC Temp RS485 Modbus aluminium without frame	732949
WRF06 VOC Temp RS485 Modbus Jung aluminium without frame	732963
WRF06 VOC Temp RS485 Modbus anthracite without frame	732970

WRF06 AQ

Options
Item description
TLF – traffic light function, 3 LEDs indicating air quality

ACCESSORIES

Switch ranges (please order additionally)	AS1
Item description	
Switch ranges plastic: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	
Switch ranges plastic in further colours and/or with intermediate frame (various manufacturers)	
Switch ranges glass, stainless steel, aluminium (various manufacturers)	
Manufacturer and colour variants on the fold-out page at the end of the catalogue	

Accessories			AS1
Item description	Item No.	On stock	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	



LP+

DATA SHEETS

Room pendulum sensor for measuring CO2 in large rooms (open space offices, production halls, ...). For direct connection onto a DDC or a monitoring system, the LP+ provides an analogue 0..10 V output.

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	CO2
Output voltage	0..10 V or 0..5 V (adjustable via jumper), min. load 10 kΩ
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range CO2	0..2000 ppm
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersive, infrared)
Enclosure	enclosure USE-L, PC, pure white
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² sensor wire white 5 m or 10 m
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-L pure white incl. universal mounting set (cover screw, self-drilling screws, dowels, spax screws and screw cover)

Room pendulum sensor CO2 – active 0..10 V		AQ1
Item description	Item No.	
LP+ CO2 V L5000	690331	
LP+ CO2 V L10m	706704	

Options
Item description
Measuring element separable from housing via plug contact

Accessories		AS1
Item description	Item No.	On stock
Mounting base enclosure USE-L pure white	668361	●
Mounting kit universal for enclosure USE	698511	●
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●
For cable entries and sealing inserts please refer to chapter "Accessories"		



LW04

DATA SHEETS

The surface-mounted mixed gas sensor records air quality for demand-dependent ventilation of rooms. The sensor is suitable for the detection of cigarette smoke, exhalations, kitchen odors in living rooms, restaurants, kitchens, meeting rooms and similar. The device can be mounted directly on the wall, on a flush-mounted box or in conjunction with a frame for surface-mounting, available as an accessory.

0..10 V / 4..20 mA LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	VOC
Output voltage	V: 1x 0..10 V, min. load 10 kΩ
Network technology	LON FT (free topology)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	V: typ. 1,2 W (24 V =) | 2,2 VA (24 V ~) LON: typ. 1,5 W (24 V =) | 3,5 VA (24 V ~)
Sensor	VOC sensor (heated metal oxide semiconductor)
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	to be mounted flat onto the surface using adhesive foil or screws, with frame for surface mounting (accessory) or directly on the wall base part can be mounted and wired separately
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

Room sensor VOC – active 0..10 V			AQ2
Item description	Item No.	On stock	
LW04 V	191746	●	

LON LOCAL OPERATING NETWORK

Room sensor VOC – active LON		AQ1
Item description	Item No.	
LW04 LON	191753	

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	●	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●	
Frame for surface mounting NOVOS 3/WRF04	111584	●	
Ball stroke protection BS150, transparent (for series WRF04)	647007	●	

LK+ CO2+VOC

DATA SHEETS

The maintenance-free, multifunctional duct air quality sensor measures CO2 content and mixed gas and additionally temperature and humidity (relative, absolute, enthalpy, dew point). The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD display allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



LK+ CO2+VOC



LK+ CO2+VOC LCD

Function overview on page 395

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	CO2, VOC, temperature + humidity (depending on the device) each output can be set to get a variable mix of CO2 and VOC by configuration
Output voltage	2..4x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV AA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, default setting: 0..+50 °C optionally configurable via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon USEapp
Measuring range CO2	0..2000 ppm, BUS: 0..5000 ppm
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Air speed	min. 0,3 m/s, max. 12 m/s
Calibration	self-calibration, CO2: Dual Channel
Sensor	VOC sensor (heated metal oxide semiconductor) CO2: NDIR (non-dispersive, infrared)
Display	LCD 29x35 mm with RGB backlight, optional indicating air quality by switching display color (traffic light function 'TLF')

Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm 3xV/4xV: M20 for wire max. Ø=10 mm incl. seal insert for double cable entry for wire max Ø=6 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS terminal: removable plug-in terminal, max. 1,5 mm²
Pipe	PA6, black, Ø=19,5 mm, length 180 mm type VV|AA: length 150 mm
Filter	stainless steel wire mesh
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Mounting	installation is also possible using mounting base
Delivery contents	MF20 flange included
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

LK+ CO2+VOC active

Item description: product | measuring values | output

Duct sensor CO2 + VOC or mix – active 2x 0..10 V | 2x 4..20 mA			AQ2
Item description	**USE**app	Item No.	On stock
LK+ CO2+VOC VV	✓	662024	⛃
LK+ CO2+VOC AA	✓	662031	

Duct sensor CO2 + VOC or mix – active 2x 0..10 V | 2x 4..20 mA | relay			AQ1
Item description	**USE**app	Item No.	
LK+ CO2+VOC VV relay	✓	662062	
LK+ CO2+VOC LCD VV	✓	662079	
LK+ CO2+VOC LCD AA	✓	662086	
LK+ CO2+VOC LCD VV relay	✓	662093	

Duct sensor CO2 + VOC or mix + temperature – active 3x 0..10 V			AQ2
Item description	**USE**app	Item No.	
LK+ CO2+VOC Temp 3xV	✓	662130	

Duct sensor CO2 + VOC or mix + temperature – active 3x 0..10 V			AQ1
Item description	**USE**app	Item No.	
LK+ CO2+VOC LCD Temp 3xV	✓	662147	

LK+ CO2+VOC active

Item description: product | measuring values | output

Duct sensor CO2 + VOC or mix + temperature + humidity – active 4x 0..10 V		AQ2
Item description	USEapp	Item No.
LK+ CO2+VOC Temp_rH 4xV	✓	662154

Duct sensor CO2 + VOC or mix + temperature + humidity – active 4x 0..10 V		AQ1
Item description	USEapp	Item No.
LK+ CO2+VOC LCD Temp_rH 4xV	✓	662161

Options
Item description
Additional passive temperature sensor (for AA|VV)

LK+ CO2+VOC BUS

Item description: product | measuring values | output (BUS)

BACnet Modbus

Duct sensor CO2 + VOC or mix – active BUS		AQ1
Item description	USEapp	Item No.
LK+ CO2+VOC RS485 Modbus	✓	662109
LK+ CO2+VOC LCD RS485 Modbus	✓	662116
LK+ CO2+VOC RS485 BACnet (MS/TP)	✓	700368
LK+ CO2+VOC LCD RS485 BACnet (MS/TP)	✓	700382

Duct sensor CO2 + VOC or mix + temperature – active BUS		AQ1
Item description	USEapp	Item No.
LK+ CO2+VOC Temp RS485 Modbus	✓	662178
LK+ CO2+VOC LCD Temp RS485 Modbus	✓	662185
LK+ CO2+VOC Temp RS485 BACnet (MS/TP)	✓	700429
LK+ CO2+VOC LCD Temp RS485 BACnet (MS/TP)	✓	700450

Duct sensor CO2 + VOC or mix + temperature + humidity – active BUS		AQ1
Item description	USEapp	Item No.
LK+ CO2+VOC Temp_rH RS485 Modbus	✓	662192
LK+ CO2+VOC LCD Temp_rH RS485 Modbus	✓	662208
LK+ CO2+VOC Temp_rH RS485 BACnet (MS/TP)	✓	682862
LK+ CO2+VOC LCD Temp_rH RS485 BACnet (MS/TP)	✓	700528

LK+ CO2+VOC BUS

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354	●	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	●	
For cable entries and sealing inserts please refer to chapter "Accessories"			

LK+ CO2

DATA SHEETS

The maintenance-free, multifunctional duct air quality sensor measures CO2 content and additionally temperature and humidity (relative, absolute, enthalpy, dew point, optional). The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD display allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



LK+ CO2 (100)



LK+ CO2 (100) LCD

Function overview on page 395

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	CO2, temperature + humidity (depending on the device)
Output voltage	2x/3x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp) V: 1x 0..10 V min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	BACnet MS/TP, LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, AA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, default setting: 0..+50 °C optionally configurable via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon USEapp
Measuring range CO2	0..2000 ppm BUS: 0..5000 ppm
Accuracy temperature	VV | AA | 3xV: ±0,5 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Air speed	min. 0,3 m/s, max. 12 m/s
Calibration	self-calibration, Dual Channel
Sensor	CO2: NDIR (non-dispersive, infrared)
Display	LCD 29x35 mm with RGB backlight, optional indicating air quality by switching display color (traffic light function 'TLF')

Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm 3xV: M20 for wire max. Ø=10 mm incl. seal insert for double cable entry for wire max Ø=6 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS terminal: removable plug-in terminal, max. 1,5 mm²
Pipe	PA6, black, Ø=19,5 mm, length 180 mm types 100: length 100 mm types without temperature: length 150 mm; types 100: 70 mm
Filter	stainless steel wire mesh type V without filter
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Mounting	installation is also possible using mounting base
Delivery contents	MF20 flange included

LK+ CO2 active

Item description: product | measuring values | output

Duct sensor CO2 – active 0..10 V			AQ2
Item description		Item No.	On stock
LK+ CO2 V		662253	⛁
LK+ CO2 100 V		670418	

Duct sensor CO2 + temperature – active 2x 0..10 V | 2x 4..20 mA			AQ2
Item description	**USE**app	Item No.	On stock
LK+ CO2 Temp VV	✓	662260	⛁
LK+ CO2 100 Temp VV	✓	670432	
LK+ CO2 Temp AA	✓	662277	
LK+ CO2 100 Temp AA	✓	670449	

Duct sensor CO2 + temperature – active 2x 0..10 V | 2x 4..20 mA | relay			AQ1
Item description	**USE**app	Item No.	On stock
LK+ CO2 Temp VV relay	✓	662307	
LK+ CO2 100 Temp VV relay	✓	670456	
LK+ CO2 LCD Temp VV	✓	662284	⛁
LK+ CO2 100 LCD Temp VV	✓	670463	
LK+ CO2 LCD Temp AA	✓	662291	
LK+ CO2 100 LCD Temp AA	✓	670470	
LK+ CO2 LCD Temp VV relay	✓	662314	
LK+ CO2 100 LCD Temp VV relay	✓	670487	

LK+ CO2 active

Item description: product | measuring values | output

Duct sensor CO2 + temperature + humidity – active 3x 0..10 V		AQ2
Item description	USEapp	Item No.
LK+ CO2 Temp_rH 3xV	✓	662321
LK+ CO2 100 Temp_rH 3xV	✓	670494

Duct sensor CO2 + temperature + humidity – active 3x 0..10 V		AQ1
Item description	USEapp	Item No.
LK+ CO2 LCD Temp_rH 3xV	✓	662338
LK+ CO2 100 LCD Temp_rH 3xV	✓	670500

Options
Item description
Additional passive temperature sensor (for AA|VV)

LK+ CO2 BUS

Item description: product | measuring values | output (BUS)

BACnet Modbus

Duct sensor CO2 + temperature – active BUS		AQ1
Item description	USEapp	Item No.
LK+ CO2 Temp RS485 Modbus	✓	662345
LK+ CO2 100 Temp RS485 Modbus	✓	670555
LK+ CO2 LCD Temp RS485 Modbus	✓	662352
LK+ CO2 100 LCD Temp RS485 Modbus	✓	670562
LK+ CO2 Temp RS485 BACnet (MS/TP)	✓	700405
LK+ CO2 100 Temp RS485 BACnet (MS/TP)	✓	704120
LK+ CO2 LCD Temp RS485 BACnet (MS/TP)	✓	700436
LK+ CO2 100 LCD Temp RS485 BACnet (MS/TP)	✓	704137

Duct sensor CO2 + temperature + humidity – active BUS		AQ1
Item description	USEapp	Item No.
LK+ CO2 Temp_rH RS485 Modbus	✓	662376
LK+ CO2 100 Temp_rH RS485 Modbus	✓	670579
LK+ CO2 LCD Temp_rH RS485 Modbus	✓	662383
LK+ CO2 100 LCD Temp_rH RS485 Modbus	✓	670586
LK+ CO2 Temp_rH RS485 BACnet (MS/TP)	✓	700467
LK+ CO2 100 Temp_rH RS485 BACnet (MS/TP)	✓	704144
LK+ CO2 LCD Temp_rH RS485 BACnet (MS/TP)	✓	700504
LK+ CO2 100 LCD Temp_rH RS485 BACnet (MS/TP)	✓	704151

LK+ CO2 BUS

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354		
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262		
For cable entries and sealing inserts please refer to chapter "Accessories"			

LK+ VOC

DATA SHEETS

The maintenance-free, multifunctional duct air quality sensor measures mixed gas and additionally temperature and humidity (relative, absolute, enthalpy, dew point). The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD display allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.



LK+ VOC



LK+ VOC LCD

Function overview on page 395

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	VOC, temperature + humidity (depending on the device)
Output voltage	2x/3x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp) V: 1x 0..10 V min. load 10 kΩ
Output ampere	AA: 2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, AA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, default setting: 0..+50 °C optionally configurable via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon USEapp
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Air speed	min. 0,3 m/s, max. 12 m/s
Calibration	self-calibration
Sensor	VOC sensor (heated metal oxide semiconductor)
Display	LCD 29x35 mm with RGB backlight, optional indicating air quality by switching display color (traffic light function 'TLF')
Enclosure	enclosure USE-M, PC, pure white, LCD: cover PC, transparent
Protection	IP65 according to EN 60529

Cable entry	Flextherm M16 for wire Ø=3..7 mm Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm 3xV: M20 for wire max. Ø=10 mm incl. seal insert for double cable entry for wire max Ø=6 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS terminal: removable plug-in terminal, max. 1,5 mm²
Pipe	PA6, black, Ø=19,5 mm, length 180 mm type V: length 150 mm
Filter	stainless steel wire mesh type V without filter
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Mounting	installation is also possible using mounting base
Delivery contents	MF20 flange included
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

LK+ VOC active

Item description: product | measuring values | output

Duct sensor VOC – active 0..10 V			AQ2
Item description	**USE**app	Item No.	On stock
LK+ VOC V	✓	662413	⛁

Duct sensor VOC + temperature – active 2x 0..10 V | 2x 4..20 mA			AQ2
Item description	**USE**app	Item No.	On stock
LK+ VOC Temp VV	✓	662437	⛁
LK+ VOC Temp AA	✓	662444	

Duct sensor VOC + temperature – active 2x 0..10 V | 2x 4..20 mA | relay			AQ1
Item description	**USE**app	Item No.	
LK+ VOC Temp VV relay	✓	662475	
LK+ VOC LCD Temp VV	✓	662468	
LK+ VOC LCD Temp AA	✓	662482	
LK+ VOC LCD Temp VV relay	✓	662499	

Duct sensor VOC + temperature + humidity – active 3x 0..10 V			AQ1
Item description	**USE**app	Item No.	
LK+ VOC LCD Temp_rH 3xV	✓	662529	

Duct sensor VOC + temperature + humidity – active 3x 0..10 V			AQ2
Item description	**USE**app	Item No.	
LK+ VOC Temp_rH 3xV	✓	662505	

LK+ VOC active

Options
Item description
Additional passive temperature sensor (for AA|VV)

LK+ VOC BUS

Item description: product | measuring values | output (BUS)

BACnet Modbus

Duct sensor VOC + temperature – active BUS			AQ1
Item description	USEapp	Item No.	
LK+ VOC Temp RS485 Modbus	✓	662536	
LK+ VOC LCD Temp RS485 Modbus	✓	662550	
LK+ VOC Temp RS485 BACnet (MS/TP)	✓	700412	
LK+ VOC LCD Temp RS485 BACnet (MS/TP)	✓	700443	

Duct sensor VOC + temperature + humidity – active BUS			AQ1
Item description	USEapp	Item No.	
LK+ VOC Temp_rH RS485 Modbus	✓	662574	
LK+ VOC LCD Temp_rH RS485 Modbus	✓	662581	
LK+ VOC Temp_rH RS485 BACnet (MS/TP)	✓	700481	
LK+ VOC LCD Temp_rH RS485 BACnet (MS/TP)	✓	700511	

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354	⛁	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁	
For cable entries and sealing inserts please refer to chapter "Accessories"			

LA+ CO2+VOC

DATA SHEETS

Air quality sensor for measuring CO2, mixed gas (VOC), temperature and humidity outdoors and in areas requiring high IP protection class (e.g. subway stations, tunnels, exhibition halls, cooling and greenhouses as well as in production halls and warehouses). If required, default values can be adjusted via Thermokon USEapp. For devices with CO2 and VOC, each output can be configured to be a mixed output (selectable signal ratio between CO2 and VOC). Devices with a relay option can be used as 2-point controllers or 2-step controllers.



LA+ CO2+VOC



LA+ CO2+VOC Temp+rH LCD

0..10 V / 4..20 mA USEapp Modbus BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	CO2, VOC, temperature + humidity (depending on the device) each output can be set to get a variable mix of CO2 and VOC by configuration
Output voltage	2x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 10 kΩ
Output ampere	2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, AA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, default setting: 0..+50 °C optionally configurable via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon USEapp
Measuring range CO2	0..2000 ppm, BUS: 0..5000 ppm
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	self-calibration, CO2: Dual Channel
Sensor	VOC sensor (heated metal oxide semiconductor) CO2: NDIR (non-dispersive, infrared)
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Protection	IP65 according to EN 60529

Cable entry	Flextherm M16 for wire Ø=3..7 mm Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS terminal: removable plug-in terminal, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-M pure white incl. universal mounting set (cover screw, self-drilling screws, dowels, spax screws and screw cover)
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

LA+ CO2+VOC aktiv

Item description: product | measuring values | output

Outdoor sensor CO2 + VOC or mix – active 2x 0..10 V | 2x 4..20 mA | relay		AQ1
Item description	USEapp	Item No.
LA+ CO2+VOC VV	✓	698993
LA+ CO2+VOC AA	✓	699006
LA+ CO2+VOC VV relay	✓	700535

Options
Item description
LCD

LA+ CO2+VOC BUS

Item description: product | measuring values | output (BUS)

BACnet Modbus

Outdoor sensor CO2 + VOC – active BUS		AQ1
Item description	USEapp	Item No.
LA+ CO2+VOC RS485 Modbus	✓	700610
LA+ CO2+VOC RS485 BACnet (MS/TP)	✓	700627

Outdoor sensor CO2 + VOC + temperature + humidity – active BUS		AQ1
Item description	USEapp	Item No.
LA+ CO2+VOC Temp_rH RS485 Modbus	✓	700658
LA+ CO2+VOC Temp_rH RS485 BACnet (MS/TP)	✓	700665

LON
LOCAL OPERATING NETWORK

Options
Item description
LCD
Add to price of RS485 Modbus for LON FT

LA+ CO2+VOC

Accessories			AS1
Item description		Item No.	On stock
Mounting base enclosure USE-M pure white		668354	
Mounting kit universal for enclosure USE		698511	
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)		668262	
For cable entries and sealing inserts please refer to chapter "Accessories"			

LA+ CO2

DATA SHEETS

Air quality sensor for measuring CO2, temperature and humidity outdoors and in areas requiring high IP protection class (e.g. subway stations, tunnels, exhibition halls, cooling and greenhouses as well as in production halls and warehouses). If required, default values can be adjusted via Thermokon USEapp. Devices with a relay option can be used as 2-point controllers or 2-step controllers.



LA+ CO2



LA+ CO2 Temp+rH LCD

0..10 V / 4..20 mA USEapp Modbus BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	CO2, temperature + humidity (depending on the device)
Output voltage	1..3x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 10 kΩ
Output ampere	1x/2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, A: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, default setting: 0..+50 °C optionally configurable via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon USEapp
Measuring range CO2	0..2000 ppm BUS: 0..5000 ppm
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of measured value (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	self-calibration, CO2: Dual Channel
Sensor	CO2: NDIR (non-dispersive, infrared)
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Protection	IP65 according to EN 60529

Cable entry	Flextherm M16 for wire Ø=3..7 mm Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm 3xV: M20 for wire max. Ø=10 mm incl. seal insert for double cable entry for wire max Ø=6 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS terminal: removable plug-in terminal, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-M pure white incl. universal mounting set (cover screw, self-drilling screws, dowels, spax screws and screw cover)

LA+ CO2 aktiv

Item description: product | measuring values | output

Outdoor sensor CO2 – active 0..10 V | 4..20 mA		AQ1
Item description	**USE**app	Item No.
LA+ CO2 V		690171
LA+ CO2 A	✓	693424

Outdoor sensor CO2 + temperature – 2x 0..10 V | 2x 4..20 mA | relay		AQ1
Item description	**USE**app	Item No.
LA+ CO2 Temp VV	✓	700542
LA+ CO2 Temp AA	✓	700559
LA+ CO2 Temp VV relay	✓	700566

Outdoor sensor CO2 + temperature + humidity – 3x 0..10 V		AQ1
Item description	**USE**app	Item No.
LA+ CO2 Temp_rH 3xV	✓	700573

Options
Item description
LCD

LA+ CO2 BUS

Item description: product | measuring values | output (BUS)

BACnet Modbus

Outdoor sensor CO2 – active BUS			AQ1
Item description	USEapp	Item No.	
LA+ CO2 RS485 Modbus	✓	698719	
LA+ CO2 RS485 BACnet (MS/TP)	✓	700580	

Outdoor sensor CO2 + temperature – active BUS			AQ1
Item description	USEapp	Item No.	
LA+ CO2 Temp RS485 Modbus	✓	700634	
LA+ CO2 Temp RS485 BACnet (MS/TP)	✓	700641	

LON
LOCAL OPERATING NETWORK

Options
Item description
LCD
Add to price of RS485 Modbus for LON FT

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354		
Mounting kit universal for enclosure USE	698511		
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262		
For cable entries and sealing inserts please refer to chapter "Accessories"			

LA+ VOC

DATA SHEETS

Air quality sensor for measuring mixed gas (VOC), temperature and humidity outdoors and in areas requiring high IP protection class (e.g. subway stations, tunnels, exhibition halls, cooling and greenhouses as well as in production halls and warehouses). If required, default values can be adjusted via Thermokon USEapp. Devices with a relay option can be used as 2-point controllers or 2-step controllers.



LA+ VOC



LA+ VOC Temp+rH LCD

0..10 V / 4..20 mA USEapp Modbus BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	VOC, temperature + humidity (depending on the device) each output can be set to get a variable mix of CO2 and VOC by configuration
Output voltage	1..3x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 10 kΩ
Output ampere	1x/2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV, AA: 15..35 V = SELV
Power consumption	max. 2,5 W (24 V =) | 4,3 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, default setting: 0..+50 °C optionally configurable via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing enthalpy: 0..85 KJ/kg absolute humidity: 0..50 | 0..80 g/m³ dew point: 0..+50 | -20..+80 °C optionally configurable via Thermokon USEapp
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Calibration	self-calibration
Sensor	VOC sensor (heated metal oxide semiconductor)
Enclosure	enclosure USE-M, PC, pure white LCD: cover PC, transparent
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm 3xV: M20 for wire max. Ø=10 mm incl. seal insert for double cable entry for wire max Ø=6 mm removable

Connection electrical	removable plug-in terminal, max. 2,5 mm² BUS terminal: removable plug-in terminal, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Delivery contents	incl. mounting base enclosure USE-M pure white incl. universal mounting set (cover screw, self-drilling screws, dowels, spax screws and screw cover)
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

LA+ VOC aktiv

Item description: product | measuring values | output

Outdoor sensor VOC – active 0..10 V | 4..20 mA		AQ1
Item description	USEapp	Item No.
LA+ VOC V	✓	698405
LA+ VOC A	✓	698412

Outdoor sensor VOC + temperature – 2x 0..10 V | 2x 4..20 mA | relay		AQ1
Item description	USEapp	Item No.
LA+ VOC Temp VV	✓	698399
LA+ VOC Temp AA	✓	698429
LA+ VOC Temp VV relay	✓	703086

Outdoor sensor VOC + temperature + humidity – 3x 0..10 V		AQ1
Item description	USEapp	Item No.
LA+ VOC Temp_rH 3xV	✓	703093

Options
Item description
LCD

LA+ VOC BUS

Item description: product | measuring values | output (BUS)

BACnet Modbus

Outdoor sensor VOC – active BUS			AQ1
Item description	USEapp	Item No.	
LA+ VOC RS485 Modbus	✓	700597	
LA+ VOC RS485 BACnet (MS/TP)	✓	700603	

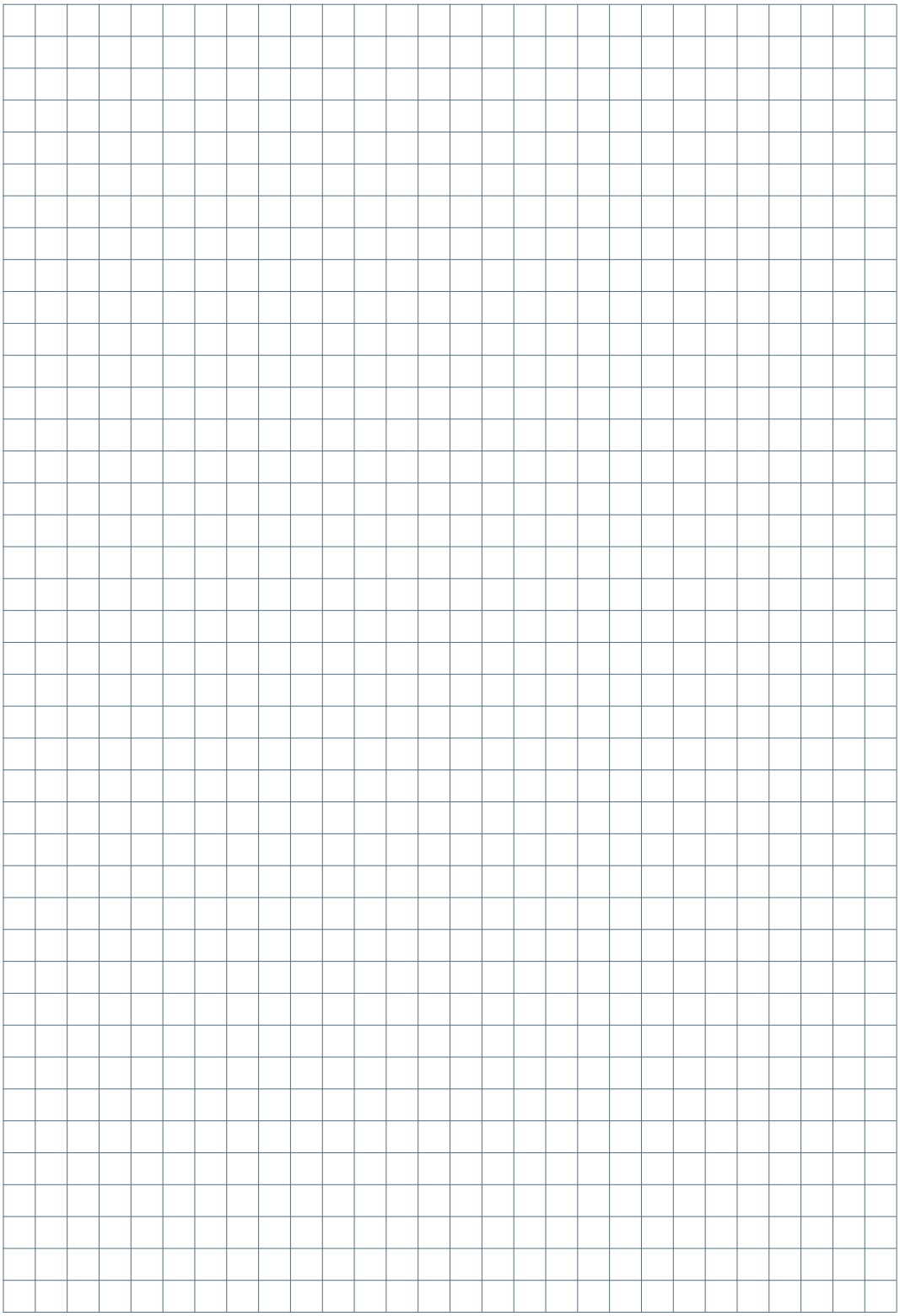
Outdoor sensor VOC + temperature – active BUS			AQ1
Item description	USEapp	Item No.	
LA+ VOC Temp RS485 Modbus	✓	703154	
LA+ VOC Temp RS485 BACnet (MS/TP)	✓	703161	

LON
LOCAL OPERATING NETWORK

Options
Item description
LCD
Add to price of RS485 Modbus for LON FT

ACCESSORIES

Accessories			AS1
Item description	Item No.	On stock	
Mounting base enclosure USE-M pure white	668354		
Mounting kit universal for enclosure USE	698511		
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262		
For cable entries and sealing inserts please refer to chapter "Accessories"			



Light & Motion

Our intelligent sensors provide for a physical and emotional well-being of people in rooms. Motion and brightness are detected reliably: For individual, comfortable and increased energy-saving.





Sample applications 453

Multi sensors

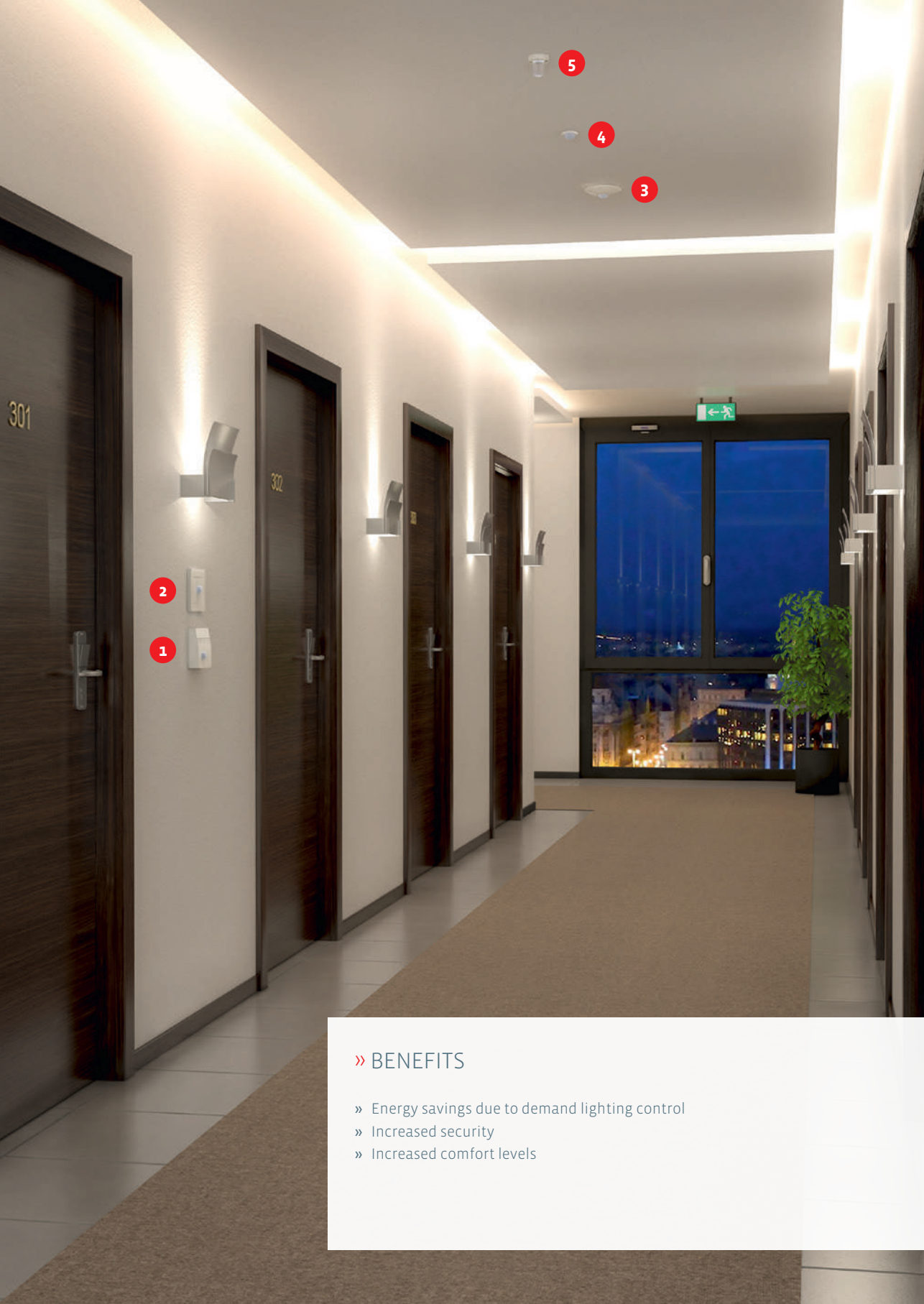
MDS	Ceiling sensor light + motion	454
Li65+	Outdoor sensor light + motion	455

Motion sensors

RDI	Ceiling sensor motion	457
WRF04I	Surface mount motion sensor	458
WRF06I	Flush mount motion sensor	459

Light sensors

LDF+	Ceiling sensor light	461
Li04	Light sensor	464



» BENEFITS

» Energy savings due to demand lighting control
» Increased security
» Increased comfort levels



WRF04I
Surface-mounted motion sensor, available with LON interface



WRF06I
Flush-mounted motion sensor, compatible with switch frames 55x55 mm



MDS
Ceiling-mounted multi sensor light/ motion, available with LON interface



RDI
Ceiling-mounted motion sensor, available with various detection ranges



LDF+
Ceiling-mounted light sensor, available with Modbus and BACnet interface

BACnet KNX LON LOCAL OPERATING NETWORK enocean Modbus

HOTEL SECURITY AND ENERGY-EFFICIENCY

Intelligent light, motion and multi sensors reliably detect light and motion and define the lighting control conditions. The guest feels safe and comfortable, the hotel owner saves energy.



MDS

DATA SHEETS

Ceiling mounted multi sensor designed for measuring light and motion in room and office spaces and typically used in lighting applications to optimize energy efficiency through lighting control and temperature reduction in unused rooms. Low profile design with various output signals compatible to all BMS manufacturers. For mounting on concrete ceilings an enclosure for surface mounting is available.

TECHNICAL DATA	
Measuring values	luminosity, motion
Output voltage	Standard: 1x 0..10 V
Output switch contact	Standard: floating contact NO, selectable at the device, with follow-up time 1 second..30 minutes
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 1,5 W (24 V =) | 4 VA (24 V ~)
Measuring range light	0..1 kLux
Accuracy Light	±50 Lux
Dectection range	Cone-shaped detection range, angle 105°, range > 5 m, 444 detection zones. With an installation height of 2,7 m circular detection range will have a R= 7 m.
Sensor	PIR (passive infrared)
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm², pluggable
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Notes	Enclosure for surface mounting available

Ceiling multi sensor light + motion – active 0..10 V (light), relay (motion)				LM2
Item description	0..10 V	Relay	Item No.	On stock
MDS Standard	1	1	271318	

Accessories		AS1
Item description	Item No.	On stock
Enclosure for surface mounting MDS pure white	448512	

Li65+

DATA SHEETS



Outdoor sensor measuring light, temperature, humidity and atmospheric pressure typically used in lighting applications to optimise energy efficiency through lighting control. The device is designed for outdoor areas, greenhouses, warehouses or industrial halls. The device has an integrated ambient light sensor with precise optical filtering adapted to the human eye. The devices with relay outputs for a 2-point controller or a 2-stage 2-point controller allow for a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.

0..10 V / 4..20 mA USEapp Modbus BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	luminosity, temperature, humidity, atmospheric pressure
Output voltage	1..4x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 10 kΩ
Output ampere	1x/2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =) | 1,5 VA (24 V ~)
Measuring range temp.	-40..+60 °C | 0..+50 °C | -20..+80 °C | -15..+35 °C, adjustable at the transducer, default setting: -20..+80 °C, optional
Measuring range humidity	0..100% rH non-condensing, optional
Measuring range light	0..200 Lux | 0..1000 Lux | 0..2 kLux | 0..10 kLux | 0..20 kLux | 0..50 kLux, selectable at the device
Measuring range atm. pressure	500..1500 hPa, optional
Accuracy temperature	±0,5 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy Light	±5% of measuring range
Sensor	Ambient light sensor with precise optical filtering appropriate to the human eye
Enclosure	enclosure USE-M, PC, pure white cover PC, translucent
Protection	IP65 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm²
Ambient condition	-30..+70 °C, max. 85% rH non-condensing
Delivery contents	incl. mounting base enclosure USE-M pure white

Li65+ active

Item description: product | output (V/A)

Outdoor sensor light – active 0..10 V | 4..20 mA			LM2
Item description	USEapp	Item No.	On stock
Li65+ V	✓	662680	
Li65+ A	✓	662697	

Outdoor sensor light + temperature – active 2x 0..10 V | 2x 4..20 mA | relay			LM1
Item description	USEapp	Item No.	
Li65+ Temp VV	✓	700672	
Li65+ Temp AA	✓	700689	
Li65+ Temp VV relay	✓	707305	

Outdoor sensor light + temperature + humidity + atmospheric pressure (opt.) – active 3x/4x 0..10 V			LM1
Item description	USEapp	Item No.	
Li65+ Temp_rH 3xV	✓	700696	
Li65+ Temp_rH_hPa 4xV	✓	700702	

Li65+ BUS

Item description: product | measuring values | BUS

Modbus BACnet

Outdoor sensor light + temperature – active BUS			LM1
Item description	USEapp	Item No.	
Li65+ Temp RS485 Modbus	✓	700733	
Li65+ Temp RS485 BACnet (MS/TP)	✓	700740	

Outdoor sensor light + temperature + humidity – active BUS			LM1
Item description	USEapp	Item No.	
Li65+ Temp_rH RS485 Modbus	✓	700757	
Li65+ Temp_rH RS485 BACnet (MS/TP)	✓	700764	

Outdoor sensor light + temperature + humidity + atmospheric pressure – active BUS			LM1
Item description	USEapp	Item No.	
Li65+ Temp_rH_hPa RS485 Modbus	✓	700771	
Li65+ Temp_rH_hPa RS485 BACnet (MS/TP)	✓	700788	

LON LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

Accessories			AS1
Item description		Item No.	On stock
Mounting base enclosure USE-M pure white		668354	
For cable entries and sealing inserts please refer to chapter "Accessories"			

RDI

DATA SHEETS

The ceiling motion detector detects the movement of persons indoors and can switch light as required or also provide a temperature reduction in unused rooms. The installation is inconspicuous in false ceilings because of the small design. There are 3 types available with different detection ranges.



RDI Standard



RDI Small Range



RDI Spot

TECHNICAL DATA	
Measuring values	motion
Output switch contact	floating contact NO for 24 V, load max. 1 A (resistive), with follow-up time 8 seconds
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,5 W (24 V =) | 1,1 VA (24 V ~)
Dectection range	**Standard:** max. range 10 m, with an installation height of 2,5 m range detection will be 7,1x5,3 m, Cone-shaped detection range, angle 110°/93° (H/V) **Small Range:** max. range 5 m, with an installation height of 2,5 m range detection will be 6x4,3 m, Cone-shaped detection range, angle 100°/82° (H/V) **Spot:** max. range 5 m, with an installation height of 2,5 m range detection will be 1,7x1 m, Cone-shaped detection range, angle 38°/22° (H/V)
Sensor	PIR (passive infrared)
Enclosure	ABS, pure white
Protection	IP20 according to EN 60529
Connection electrical	plug-in terminal, max. 1,5 mm² connection wire PVC, 2x Ø=0,25 mm², grey, length=15 cm
Ambient condition	-20..+50 °C, max. 85% rH non-condensing

Ceiling sensor motion – active relay		LM2
Item description	Item No.	On stock
RDI Standard	187060	●
RDI Small Range	426503	
RDI Spot	436670	



WRF04I

DATA SHEETS

The surface-mounted motion sensor detects movement of persons and switches a relay contact for lighting control or for lowering the temperature of unused rooms. Fields of application of the sensor are residential and business premises, offices and corridors. The device can be mounted directly on the wall (predetermined breaking point), on a flush-mounted box or in conjunction with a surface-mounted frame available as accessory.

TECHNICAL DATA	
Measuring values	motion
Output switch contact	floating contact NO for 24 V, load max. 1 A (resistive), with follow-up time 8 seconds
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 0,5 W (24 V =) | 1,1 VA (24 V ~),
Dectection range	Cone-shaped detection range, angle 110°/93° (H/V), range 10 m, 80 detection zones. With an installation height of 2,8 m range detection will be 7x5 m.
Sensor	PIR (passive infrared)
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-5..+50 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws, with frame for surface mounting (accessory) or directly on the wall, base part can be mounted and wired separately

Wall sensor motion – active relay | BUS			LM1
Item description	Relay	Item No.	On stock
WRF04I Relay	1	195812	●

Accessories		AS1
Item description	Item No.	On stock
Rawlplugs and screws (2 pcs. each)	102209	●
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	●
Frame for surface mounting NOVOS 3/WRF04	111584	●

WRF06I

DATA SHEETS

The flush-mounted motion sensor detects movement of persons and switches a relay contact for lighting control or for lowering the temperature of unused rooms. Applications of the sensor, available in various switch ranges and colors, are residential and business rooms, offices and corridors. The device is mounted in a flush-mounted box.



WRF06I,
Gira E2 pure white matt



WRF06I,
Jung AS 500 alpine white

TECHNICAL DATA	
Measuring values	motion
Output switch contact	floating contact NO for 24 V, load max. 1 A (resistive), with follow-up time 8 seconds
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 0,5 W (24 V =) | 1,1 VA (24 V ~)
Dectection range	range max. 10 m horizontal 110° vertical 93° 80 zones
Sensor	PIR (passive infrared)
Switch range Berker	S.1, B.3 aluminum, B.7 glass, Q.1, Q.3, K.5 aluminum | stainless steel
Switch range Busch-Jaeger	Busch-balance® SI, Busch-Duro 2000® SI, Reflex SI, solo® *, future® linear *, impuls, Busch-axcent® *, alpha nea®
Switch range Feller	EDIZIOdue
Switch range Gira	E2, E3, Standard 55, Esprit, Event, F100 *
Switch range Jung	LS 990 *, A 500, AS 500, A plus, A creation, CD 500 *
Switch range Merten	M-Smart,M-Plan, 1-M, Atelier-M, M-Pure, Artec *, Artec stainless steel *, Antik *
Switch range Peha	AURA, AURA glass
Protection	IP30 according to EN 60529
Connection electrical	plug-in terminal, max. 1,5 mm²
Ambient condition	-20..+60 °C, max. 85% rH non-condensing
Mounting	flush mounted in standard EU box (Ø=60 mm, min. depth=45 mm)
Notes	* in switch program with intermediate frame

WRF06I

Item description: product | switch range | colour

Wall sensor motion – active relay		LM2
Item description	Item No.	
WRF06I Gira E2 pure white matt	187183	
WRF06I Berker S.1 polar white	223997	
WRF06I Busch-Jaeger Busch-balance® SI alpine white	630405	
WRF06I Busch-Jaeger Reflex SI alpine white	413350	
WRF06I Jung A 500 alpine white	630412	
WRF06I Merten M-Smart polar white brilliant	630429	

Options
Item description
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)
Switch ranges plastic in further colours and/or >55 mm (various manufacturers)
Switch ranges stainless steel | glass | aluminium (different manufacturers)

Accessories			AS1
Item description	Item No.	On stock	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛀	

LDF+

DATA SHEETS

The brightness sensor for ceiling installations detects indoor and outdoor light levels in living rooms, offices or at workplaces depending on the type of prism. The sensor is adapted to the spectral sensitivity of the human eye and serves together with control systems for an on-demand light or sun protection control. The remote sensor is connected to the enclosure via conventional RJ45 cables, making it easy to install in hardly accessible places. If two sensors are used, the individual values, the mean, minimum or maximum value can be provided through both output signals (configurable via Thermokon USEapp).



LDF+ straight prism



LDF+ diagonal prism

0..10 V / 4..20 mA USEapp Modbus BACnet LON LOCAL OPERATING NETWORK

TECHNICAL DATA	
Measuring values	luminosity
Output voltage	1x/2x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 10 kΩ
Output ampere	1x/2x 4..20 mA, max. load 500 Ω
Output switch contact	Relay: 2x floating contact NO for 24 V ~ or 24 V = / 3 A, optional
Network technology	RS485 BACnet (MS/TP), LON FT (free topology), RS485 Modbus
Power supply	15..35 V = or 19..29 V ~ SELV A: 15..35 V = SELV
Power consumption	typ. 0,6 W (24 V =) | 1,5 VA (24 V ~), A: max. 20 mA (24 V =) AA: max. 40 mA (24 V =)
Measuring range light	0..200 Lux | 0..1000 Lux | 0..2 kLux | 0..10 kLux | 0..20 kLux | 0..50 kLux, selectable at the device
Accuracy Light	±5% of measuring range, calibration via Thermokon USEapp
Sensor	Ambient light sensor with precise optical filtering appropriate to the human eye
Prism	acrylic glass clear straight, diagonal
Enclosure	enclosure USE-M, PC, pure white
Protection	IP30 according to EN 60529
Cable entry	Flextherm M16 for wire Ø=3..7 mm, Relay/BUS: M25 with fourfold cable entry for wire with max. Ø=7 mm removable
Connection electrical	removable plug-in terminal, max. 2,5 mm², BUS terminal: removable plug-in terminal, max. 1,5 mm², sensor wire (patch cable) length=1,5 m (default), max. 10 m, plug RJ45
Ambient condition	-25..+65 °C, max. 85% rH non-condensing
Delivery contents	incl. mounting base enclosure USE-M pure white

LDF+ active

Ceiling sensor light – active 0..10 V | 4..20 mA | relay		LM2
Item description	USEapp	Item No.
LDF+ V L1500 straight prism	✓	662604
LDF+ V L1500 diagonal prism	✓	662628
LDF+ A L1500 straight prism	✓	662635
LDF+ A L1500 diagonal prism	✓	662642
LDF+ V L1500 straight prism relay	✓	707336
LDF+ V L1500 diagonal prism relay	✓	707350

Dual ceiling sensor light – active 2x 0..10 V | 2x 4..20 mA | relay		LM1
Item description	USEapp	Item No.
LDF+ Dual VV 2xL1500 straight prism	✓	700849
LDF+ Dual VV 2xL1500 diagonal prism	✓	700856
LDF+ Dual AA 2xL1500 straight prism	✓	700863
LDF+ Dual AA 2xL1500 diagonal prism	✓	700870
LDF+ Dual VV 2xL1500 straight prism relay	✓	707374
LDF+ Dual VV 2xL1500 diagonal prism relay	✓	707381

LDF+ BUS

Ceiling sensor light – active BUS		LM1
Item description	USEapp	Item No.
LDF+ RS485 Modbus L1500 straight prism	✓	700887
LDF+ RS485 Modbus L1500 diagonal prism	✓	700894
LDF+ RS485 BACnet (MS/TP) L1500 straight prism	✓	700900
LDF+ RS485 BACnet (MS/TP) L1500 diagonal prism	✓	700917

Dual ceiling sensor light – active BUS		LM1
Item description	USEapp	Item No.
LDF+ Dual RS485 Modbus 2xL1500 straight prism	✓	700924
LDF+ Dual RS485 Modbus 2xL1500 diagonal prism	✓	700931
LDF+ Dual RS485 BACnet (MS/TP) 2xL1500 straight prism	✓	700948
LDF+ Dual RS485 BACnet (MS/TP) 2xL1500 diagonal prism	✓	700955

LON
LOCAL OPERATING NETWORK

Options
Item description
Add to price of RS485 Modbus for LON FT

LDF+

Accessories		AS1
Item description	Item No.	On stock
Mounting base enclosure USE-M pure white	668354	
Sensor wire 1,5 m with RJ45 connector	628785	
Sensor wire 3 m with RJ45 connector	708852	
Sensor wire 7,5 m with RJ45 connector	708869	
For cable entries and sealing inserts please refer to chapter "Accessories"		



Li04

DATA SHEETS

The room brightness sensor with selectable measuring ranges and color filter to adjust the sensitivity similar to the human eye captures the brightness indoors. Designed for controlling lighting or sun protection systems. The device can be mounted directly on the wall, on a flush-mounted box or in conjunction with a frame for surface-mounting (see accessories).

0..10 V / 4..20 mA

TECHNICAL DATA	
Measuring values	luminosity
Output voltage	V: 1x 0..10 V, min. load 5 kΩ
Output ampere	A: 1x 4..20 mA, max. load 500 Ω
Power supply	V: 15..24 V = (±10%) or 24 V ~ (±10%) SELV A: 15..24 V = (±10%) SELV
Power consumption	V: typ. 0,15 W (24 V =) | 0,5 VA (24 V ~) A: max. 20 mA (24 V =),
Measuring range light	0..2 kLux, 0..20 kLux, 0..100 kLux, selectable at the device
Sensor	photodiode with green filter
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	-20..+70 °C, max. 85% rH non-condensing
Mounting	surface mounted on flush-mounting box (Ø=60 mm) or to be mounted flat onto the surface using screws, with frame for surface mounting (accessory) or directly on the wall, base part can be mounted and wired separately

Wall sensor light – active 0..10 V | 4..20 mA			LM2
Item description	Item No.	On stock	
Li04 V	207904		
Li04 A	207911		

Accessories			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209		
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737		
Frame for surface mounting NOVOS 3/WRF04	111584		

Power Thyristors

Power thyristors can more and more be found where ohmic and inductive loads must be controlled (e.g. in industrial furnaces ...) By means of the modular and compact construction and control with a continuous control signal power thyristors become the perfect actuators for industrial power control.





Power Thyristors

Single-phase

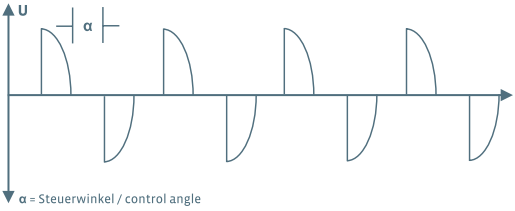
TS1 1-phase	Industrial power thyristor	466
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Three-phase

TS1 3-phase	Industrial power thyristor	468
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Phase angle control

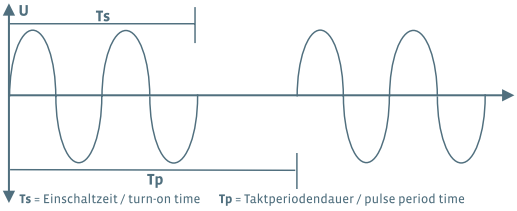
The phase angle control can be used for almost any ohmic and inductive consumers and is the most common way to control the power consumption of a consumer. The consumer is connected to the supply network via the power thyristor. The thyristors are controlled in such a way, that the consumer is not supplied with the complete sinusoidal oscillation but only a part (depending on the steering angle), whereas the voltage average value can be adjusted continuously.



α = Steuerwinkel / control angle

Oscillation control

The oscillation control is used with inert consumers such as heaters. Contrary to the phase angle control, complete sinusoidal waves are switched through to the consumer with the oscillation control. The control of the average voltage value is made by switching through a certain number of oscillations (depending on the switch-on time) within a certain time slot (clock cycle). Thus convertor feedback effects to the power supply network in form of harmonic components are avoided.



Ts = Einschaltzeit / turn-on time Tp = Taktperiodendauer / pulse period time



TS1 1-phase

DATA SHEETS

Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and high efficiency.

TECHNICAL DATA	
Power output	output for ohmic and inductive loads: 2 A: 0,46 kW (230 V ~ / 2 A) 4 A: 0,92 kW (230 V ~ / 4 A) 6 A: 1,38 kW (230 V ~ / 6 A) 8 A: 1,84 kW (230 V ~ / 8 A) 10 A: 2,3 kW (230 V ~ / 10 A) 12 A: 2,76 kW (230 V ~ / 12 A)
Output voltage	reference voltage for potentiometer: 10 V =
Output switch contact	signal contact at 100% Ua, floating contact NO for 250 V ~ / 3 A or 24 V = / 3 A
Power supply	L1, N: 230 V ~ 48..62 Hz self-synchronizing
Inputs	electrical activation via set point signal 0..10 V = or 0..20 mA (selectable via DIP switches), input for potentiometer 2,5..10 kΩ
Functions	phase angel, optional oscillation
Display	LED – power supply OK, LED – modulation amplitude 100%
Enclosure	PA
Protection	IP40 according to EN 60529, screw terminals IP23 according to DIN EN 60529
Connection electrical	terminal block, max. 2,5 mm²
Ambient condition	0..+45 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Notes	versions up to 4 A with heat sink, version 6 A with heat sink, versions 8 A and higher with heat sink and fan

Power thyristor – phase angel	TR1
Item description	Item No.
TS1 1-phase 1-ph 2A 0,46 kW	229678
TS1 1-phase 1-ph 4A 0,92 kW	226639
TS1 1-phase 1-ph 6A 1,38 kW	224000
TS1 1-phase 1-ph 8A 1,84 kW	236980
TS1 1-phase 1-ph 10A 2,3 kW	223874
TS1 1-phase 1-ph 12 A 2,76 kW	230605

Power thyristor – oscillation	TR1
Item description	Item No.
TS1 1-phase SP 1-ph 2A 0,46 kW	283137
TS1 1-phase SP 1-ph 4 A 0,92 kW	226622
TS1 1-phase SP 1-ph 6 A 1,38 kW	238885
TS1 1-phase SP 1-ph 8 A 1,84 kW	255189
TS1 1-phase SP 1-ph 10 A 2,3 kW	266109
TS1 1-phase SP 1-ph 12 A 2,76 kW	233712

TS3 1-phase

DATA SHEETS



Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

TECHNICAL DATA	
Power output	output for ohmic and inductive loads: 15 A: 3,5 kW (230 V ~ / 15 A) 25 A: 5,75 kW (230 V ~ / 25 A) 35 A: 8,05 kW (230 V ~ / 35 A) 50 A: 11,5 kW (230 V ~ / 50 A)
Output voltage	reference voltage for potentiometer: 10 V =
Output switch contact	signal contact in case of fault state, floating contact NO for 230 V ~ / 2 A
Power supply	L1, N: 230 V ~ 45..65 Hz self-synchronizing
Inputs	electrical activation via set point signal 0..10 V =, 0..20 mA or 4..20 mA (selectable via DIP switches), input for potentiometer 2,5..10 kΩ
Functions	phase angel, optional oscillation
Display	4 LEDs for showing state of device
Enclosure	aluminium
Protection	IP40 according to EN 60529
Connection electrical	terminal block, max. 1,5..10 mm² (depending on type)
Ambient condition	0..+50 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

Power thyristor – phase angel	TR1
Item description	Item No.
TS3 1-phase 1-ph 15A 3,45 kW	237161
TS3 1-phase 1-ph 25A 5,75 kW	241649
TS3 1-phase 1-ph 35A 8,05 kW	238489
TS3 1-phase 1-ph 50A 11,5 kW	361200

Power thyristor – oscillation	TR1
Item description	Item No.
TS3 1-phase SP 1-ph 15A 3,45 kW	245500
TS3 1-phase SP 1-ph 25A 5,75 kW	231091
TS3 1-phase SP 1-ph 35A 8,05 kW	270977
TS3 1-phase SP 1-ph 50A 11,5 kW	344333



TS1 3-phase

DATA SHEETS

Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

TECHNICAL DATA	
Power output	output for ohmic and inductive loads: 2 A: 1,2 kW (400 V ~ / 2 A) 4 A: 2,5 kW (400 V ~ / 4 A) 6 A: 4,0 kW (400 V ~ / 6 A) 8 A: 5,0 kW (400 V ~ / 8 A) 10 A: 6,5 kW (400 V ~ / 10 A)
Output voltage	reference voltage for potentiometer: 10 V =
Output switch contact	signal contact at 100% Ua, floating contact NO for 250 V ~ / 3 A or 24 V = / 3 A
Power supply	L1, L2, L3, N: 400 V ~ 48..62 Hz self-synchronizing
Inputs	electrical activation via set point signal 0..10 V = or 0..20 mA (selectable via DIP switches), input for potentiometer 2,5..10 kΩ
Functions	phase angel, optional oscillation
Display	LED – power supply OK, LED – modulation amplitude 100%
Enclosure	PA
Protection	IP40 according to EN 60529, screw terminals IP23 according to DIN EN 60529
Connection electrical	terminal block, max. 2,5 mm²
Ambient condition	0..+45 °C
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Notes	versions up to 4 A with heat sink, version 6 A with heat sink, versions 8 A and higher with heat sink and fan

Power thyristor – phase angel	TR1
Item description	Item No.
TS1 3-phase 3-ph 2A 1,2 kW	230148
TS1 3-phase 3-ph 4A 2,5 kW	246514
TS1 3-phase 3-ph 6A 4,0 kW	224260
TS1 3-phase 3-ph 8A 5,0 kW	233736
TS1 3-phase 3-ph 10A 6,5 kW	224314

Power thyristor – oscillation	TR1
Item description	Item No.
TS1 3-phase SP 3-ph 2A 1,2 kW	273558
TS1 3-phase SP 3-ph 4A 2,5 kW	268226
TS1 3-phase SP 3-ph 6A 4,0 kW	275910
TS1 3-phase SP 3-ph 8A 5,0 kW	275927
TS1 3-phase SP 3-ph 10A 6,5 kW	241182

TS3 3-phase

DATA SHEETS



Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

TECHNICAL DATA	
Power output	output for ohmic and inductive loads: 15 A: 10 kW (400 V ~ / 15 A) 25 A: 16 kW (400 V ~ / 25 A) 35 A: 23 kW (400 V ~ / 35 A) 50 A: 33 kW (400 V ~ / 50 A)
Output voltage	reference voltage for potentiometer: 10 V =
Output switch contact	signal contact in case of fault state, changeover contact floating for 230 V ~ / 2 A, signal contact at 100% Ua, changeover contact floating for 230 V ~ / 2 A, operation signal, changeover contact floating for 230 V ~ / 2 A
Power supply	L1, L2, L3: 400 V ~ 45..65 Hz self-synchronizing
Inputs	electrical activation via set point signal 0..10 V = or 0..20 mA (selectable via DIP switches), input for potentiometer 2,5..10 kΩ, PWM input 5 V / 5..10 kHz, input for PTC according to DIN 44081, input for reset
Functions	phase angel, optional oscillation, start-up period adjustable (0..10 sec.)
Display	4 LEDs for showing state of device
Enclosure	aluminium
Protection	IP40 according to EN 60529
Connection electrical	terminal block, max. 1,5..10 mm² (depending on type)
Ambient condition	0..+50 °C
Mounting	4 mounting holes Ø=8 mm for mounting on galvanized mounting plates (control cabinet)

Power thyristor – phase angel	TR1
Item description	Item No.
TS3 3-phase 3-ph 15A 10 kW	224796
TS3 3-phase 3-ph 25A 16 kW	225649
TS3 3-phase 3-ph 35A 23 kW	225656
TS3 3-phase 3-ph 50A 33 kW	256353

Power thyristor – oscillation	TR1
Item description	Item No.
TS3 3-phase SP 3-ph 15A 10 kW	225236
TS3 3-phase SP 3-ph 25A 16 kW	240970
TS3 3-phase SP 3-ph 35A 23 kW	241014
TS3 3-phase SP 3-ph 50A 33 kW	223836

TS2 3-phase

DATA SHEETS



Power thyristors are used as actuators for industrial power controls (e.g. fans, pumps, lamps, heating registers, industrial furnaces). Their solid and compact construction ensures reliable control and and high efficiency.

TECHNICAL DATA	
Power output	output for ohmic and inductive loads: 75 A: 50 kW (400 V ~ / 75 A) 90 A: 60 kW (400 V ~ / 90 A) 120 A: 78 kW (400 V ~ / 120 A)
Output voltage	reference voltage for potentiometer: 10 V =
Output switch contact	signal contact in case of fault state, changeover contact floating for 230 V ~ / 2 A, signal contact at 100% Ua, changeover contact floating for 230 V ~ / 2 A, operation signal, changeover contact floating for 230 V ~ / 2 A
Power supply	L1, L2, L3: 400 V ~ (± 15%) 48..62 Hz self-synchronizing
Inputs	electrical activation via set point signal 0..10 V =, 0..20 mA or 4..20 mA (selectable via DIP switches), input for potentiometer 2,5..10 kΩ, input for PTC according to DIN 44081
Functions	phase angel, optional oscillation
Display	9 LEDs for showing state of device
Enclosure	aluminium with plexiglas cover
Protection	IP23 according to DIN EN 60529
Connection electrical	Power connections, M8 connection screw for cable lug, connection control electronics, max. 1.5 mm²
Ambient condition	0..+55 °C
Mounting	4 mounting holes Ø=8 mm for mounting on galvanized mounting plates (control cabinet)

Power thyristor – phase angel	TR1
Item description	Item No.
TS2 3-phase 3-ph 75A 50 kW	236522
TS2 3-phase 3-ph 90A 60 kW	260190
TS2 3-phase 3-ph 120A 78 kW	304719

Power thyristor – oscillation	TR1
Item description	Item No.
TS2 3-phase SP 3-ph 75 A 50 kW	339094
TS2 3-phase SP 3-ph 90 A 60 kW	326926
TS2 3-phase SP 3-ph 120 A 78 kW	336482

Accessories Information





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Special labelling/painting

Labeling according to your requirements – individualize your device with our special printings, special engravings or special lasering.

With a special painting, your device can be integrated technically and optically perfect into your project.

Special printing (minimum order amount 20 pcs.)
Item description
Special printing – order quantity 20..49 pcs. (each per colour)
Special printing – order quantity 50..99 pcs. (each per colour)
Special printing – order quantity from 100 pcs. (each per colour)
Special printing setup and tool costs (once for one-colour print – net price)

Special painting
Item description
Special painting – order quantity from 50 pcs. (each)
Special painting setup costs (once per colour – net price)

Special engraving / special lasering
Item description
Engraving/lasering – prices on request



Communication interfaces

Bluetooth dongle to configure sensors via Thermokon USEapp:

All Thermokon devices with the USEapp logo can be comfortably set via Bluetooth (measuring ranges, measured values, limit values, BUS settings, ...) using mobile end devices such as smartphones or tablets based on Android® and Apple® OS.

Converter RS485 Modbus – USB:

Used to transmit Modbus signals to a computer.

USEapp

Communication interface		
Item description	Item No.	On stock
BLE dongle with micro-USB – communication between USEapp | NOVOSapp and devices USE-M / USE-L / NOVOS (net price)	668262	⛁
Converter RS485 Modbus – USB incl. driver CD for connection to a computer (net price)	668293	⛁



Inspection certificate 3.1 according to EN 10204

The inspection certificate documents traceability to national standards, measuring devices and methods for representing the physical units in accordance with the international unit system and includes two tested measured values according to customer specifications.

Material test reports are assigned to one sensor and can be created for measured values in:

- temperature at range -30..+150 °C

- humidity at range 5..95% rH.

Inspection certificate (please specify 2 measuring points)		
Item description	Item No.	On stock
Inspection certificate 3.1 (EN 10204) temperature – 2 values within range -30..+150 °C (net price)	119030	
Inspection certificate 3.1 (EN 10204) humidity – 2 values within range 15..90% (net price)	665407	

Mounting accessories enclosure USE

For easy and quick mounting of our sensors in the USE enclosures, we offer a variety of application-specific exchangeable sealing inserts, cable entries and mounting solutions. A quick screw connection is used to connect a protective hose. Required standard accessories are already included in the scope of delivery of the sensor in most cases.



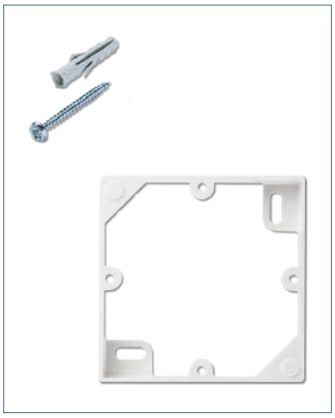




Replacement articles – mounting accessories USE			AS1
Item description	Item No.	On stock	
Mounting clip enclosure USE-S pure white	667739	●	
Mounting base enclosure USE-S pure white	667722	●	
Mounting base enclosure USE-M pure white	668354	●	
Mounting base enclosure USE-L pure white	668361	●	
Mounting kit AKF10+ for enclosure USE-S	637978	●	
Mounting kit universal for enclosure USE	698511	●	
Sensor wire 1,5 m with RJ45 connector	628785	●	
Sensor wire 3 m with RJ45 connector	708852	●	
Sensor wire 7,5 m with RJ45 connector	708869	●	

Accessories – cable entry and sealing inserts M16			AS1
Item description	Item No.	On stock	
Cable entry M16 USE white, sealing insert Ø=8 mm (4 pcs)	641340	●	
Flextherm M16 – sealing insert USE white, Ø=3..7 mm (10 pcs)	690683	●	
Quick-type connector plastic conduit M16x1,5 black, for cable entry M16 (5 pcs)	669634	●	

Accessories – cable entry and sealing inserts M20 | M25			AS1
Item description	Item No.	On stock	
Cable entry M20 USE white, sealing insert Ø=10 mm (4 pcs)	641357	●	
Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)	641364	●	
Sealing insert M20 USE white, Ø=8 mm (10 pcs)	641081	●	
Sealing insert M20 USE white, Ø=6 mm (10 pcs)	641074	●	
Sealing insert M20 USE white, 2x Ø=7 mm (10 pcs)	641333	●	
Sealing insert M20 USE white, 2x Ø=6 mm (10 pcs)	641319	●	



Mounting accessories general

With the appropriate rawlplugs and screws, you will be able to install your device quickly at the desired installation location.

With the surface frame for our enclosure series 04, you will have additional storage space for the connection wire.

Rawlplugs and screws			AS1
Item description	Item No.	On stock	
Rawlplugs and screws (2 pcs. each)	102209	⛃	

Frame for surface mounting			AS1
Item description	Item No.	On stock	
Frame for surface mounting NOVOS 3/WRF04	111584	⛃	
Decorative frame pure white for JOY	681452	⛃	



Power supply

If only 230 V is available on site, all 24 V devices can be supplied with the flush-mounted power supply unit.

Power supply			AS1
Item description	Item No.	On stock	
PSU-UP24 – flush mount power supply 24 V (80..240 V ~ -> 24 V =, 0,5 A)	645737	⛃	

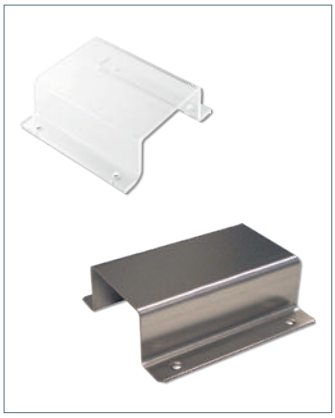
Enclosure protection/enclosures

For protection against damage to the enclosure due to external influences and/or weather conditions, we offer the proper protection:

- Ball stroke protection BS150 – for enclosure series 04
- Sun/rain protection RS150

For alternative mounting we offer the following accessories:

- Enclosure for surface mounting MDS – for MDS





Enclosure Protection			AS1
Item description	Item No.	On stock	
Ball stroke protection BS150, transparent (for series WRF04)	647007	≡	
Sun/rain protection RS150	103329	≡	

Enclosures			AS1
Item description	Item No.	On stock	
Enclosure for surface mounting MDS pure white	448512	≡	



airScan

airConfig

Thermokon airScan consists of an USB transmitter/receiver with software to use your PC or Mac as a field strength measuring tool. Measuring frequency ranges the tool is used to define best mouting places for EnOcean transmitter and receiver. airScan gives a quick overview of EnOcean telegrams, reading status, ID, field strength and manufacturer for EnOcean products.

An optional USB extension for optimal positioning of the transmitter/receiver, even at the ceiling is available.

Accessories airScan		
Item description	Item No.	On stock
EnOcean USB transceiver for airConfig/airScan (incl. license – net price)	566704	●
USB extension 3 m (net price)	574044	●



Accessories for antennas

Antenna extensions (10 m or 20 m) for convenient positioning of the antenna away from the receiver.

Magnetic antenna holder for easy positioning at an ideal position.

Accessories for antennas		AS1
Item description	Item No.	On stock
Antenna extension 10 m	257206	●
Antenna extension 20 m	257213	●
Antenna holder AHA180, galvanized, form L, 180x180x90 mm (net price)	255097	●



Power supply

If the energy from solar cells is not sufficient, many EasySens® transmitter are equipped with an additional battery/coin cell holder.

Battery			AS1
Item description	Item No.	On stock	
Battery LS14250	315098		
Coin cell CR1225	727310		
Coin cell CR1632	597814		
Coin cell CR2032	347013		



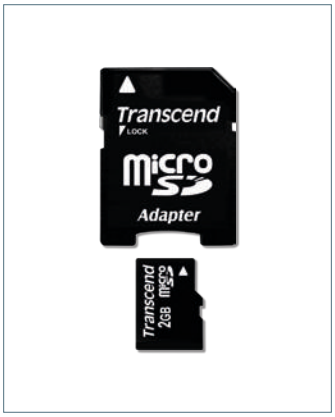
Software/Configuration

For the radio room operating unit SR06 LCD a programming interface is available to configure the device and to charge the energy storage.

All Thermokon devices with the airConfig logo can be configured comfortably via the software airConfig (free of charge, by download). This requires only an EnOcean USB transceiver to transmit the data from a computer to the device (bidirectional communication).

The configuration software for all Thermokon devices is free of charge and can be downloaded from the website in the newest version.

Software/Configuration			AS1
Item description	Item No.	On stock	
Programming interface for configuration and charging (SR06 LCD)	597838		
airConfig (freeware via www.thermokon.com)			
Software/Plug-In for configuration (free via www. thermokon.com)			



Storage media

Our wireless room thermostat thanos SR has various setting options and can display graphics in the display. The required data is stored on a suitable SD card, which is already included in the delivery. Our room controller Joy also transmits various parameters via an SD card.

Storage media			AS1
Item description	Item No.	On stock	
SD card (2 GB)	500098	≡	



Mounting

Mounting accessories for radio multi-sensor sensor SR-MDS for hollow ceiling installation.

Connector for the radio receiver STC-DO8 for extension STC-PLUS 4DO.

Mounting			AS1
Item description	Item No.	On stock	
Enclosure for surface mounting SR-MDS pure white	514439	≡	
Mounting ring for hollow ceiling with retaining clips to be used with SR-MDS	627825	≡	
Connector STC-DO8 to STC-PLUS 4DO	517577	≡	

Valve adapters/enclosure protection SAB

Various valve adapters are available for adapting SAB+ and SAB05 to valves from different manufacturers. Additional types on request. To protect the SAB wireless valve actuator from dismounting, we offer SAB Lock and a safety lock . For SAB05 an additional battery protection is available.







Valve adapters		
Item description	Item No.	On stock
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	
Valve adapter SAB for Danfoss RA2000 Z802	589093	
Valve adapter SAB for Danfoss RAV Z803	589109	
Valve adapter SAB for Danfoss RAV-L Z804	589116	
Valve adapter SAB for Danfoss Z800	589079	
Valve adapter SAB for Danfoss Z801	589086	
Valve adapter SAB for Danfoss Z805	615181	
Further valve adapters on request		

Enclosure protection		AS1
Item description	Item No.	On stock
SAB Lock – dismounting protection SAB	688611	●
Safety lock dismounting protection SAB	706148	●
Battery protection SAB05	595612	●

Mounting

An extensive range of mounting accessories simplifies installation of our sensors. It includes mounting flanges for the various pocket diameters for use at different temperature ranges, compression fittings for cable sensors, installation set for averaging temperature sensors and frost protection thermostats and tightening straps with contact fluid.







Mounting flanges			AS1
Item description	Item No.	On stock	
Mounting flange MF2 (for frost protection thermostats)	435642		
Mounting flange MF6DS flexible (suitable for Ø=6 mm; AS2)	669016		
Mounting flange MF6 flexible (suitable for Ø=4 | 6 | 7 mm)	399098		
Mounting flange MF4 (brass)	102438		
Mounting flange MF6 (brass)	3407		
Mounting flange MF7 (brass)	102360		
Mounting flange MF8 (VA)	103305		

Compression fittings			AS1
Item description	Item No.	On stock	
KL4VA – Compression fittings G 1/4" for Ø=4 mm with cutting ring VA, stainless steel	103206		
KL6VA – Compression fittings G 1/4" for Ø=6 mm with cutting ring VA, stainless steel	103213		

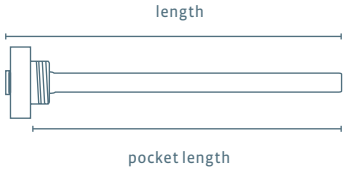
Installation sets			AS1
Item description	Item No.	On stock	
Installation set TFR/MWF	458399		
Mounting bracket with cable gland for duct sensors Ø=6 mm	670593		

Tightening strap with contact fluid			AS1
Item description	Item No.	On stock	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911		
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103		
Tightening strap PA for pipes Ø up to 100 mm with contact fluid	668071		
Syringe thermal contact fluid	102308		



Thermowell pockets

For using our sensors in liquid media thermowell pockets are available for the standard mounting lengths made of brass and stainless steel, also without silicone if necessary.



Accessories – thermowell pockets brass for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
MS-thermowell pocket 50 mm type THMSDS50	50 mm	36 mm	610995	
MS-thermowell pocket 100 mm type THMSDS100	100 mm	86 mm	611008	
MS-thermowell pocket 150 mm type THMSDS150	150 mm	136 mm	611015	
MS-thermowell pocket 200 mm type THMSDS200	200 mm	186 mm	611022	
MS-thermowell pocket 250 mm type THMSDS250	250 mm	236 mm	611985	
MS-thermowell pocket 300 mm type THMSDS300	300 mm	286 mm	611039	
MS-thermowell pocket 450 mm type THMSDS450	450 mm	436 mm	611046	

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=6 mm				AS2
Item description	Length	Pocket length	Item No.	On stock
VA-thermowell pocket 50 mm type THVADS50	50 mm	36 mm	611152	
VA-thermowell pocket 100 mm type THVADS100	100 mm	86 mm	611817	
VA-thermowell pocket 150 mm type THVADS150	150 mm	136 mm	611824	
VA-thermowell pocket 200 mm type THVADS200	200 mm	186 mm	611848	
VA-thermowell pocket 250 mm type THVADS250	250 mm	236 mm	611862	
VA-thermowell pocket 300 mm type THVADS300	300 mm	286 mm	611879	
VA-thermowell pocket 450 mm type THVADS450	450 mm	436 mm	611893	
VA-thermowell pocket 600 mm type THVADS600	600 mm	586 mm	611923	
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS (10 pcs)			666473	

Accessories – thermowell pockets stainless steel for sensors with pocket Ø=8 mm			AS2
Item description	Length	Item No.	On stock
VA thermowell pocket 100 mm type THVA100 (KFK03)	100 mm	584180	
VA thermowell pocket 150 mm type THVA150 (KFK03)	150 mm	584197	
VA thermowell pocket 200 mm type THVA200 (KFK03)	200 mm	584203	
VA thermowell pocket 250 mm type THVA250 (KFK03)	250 mm	594738	



Bonded pockets

For the use of our immersion temperature sensors in systems with high pressure bonded pockets are available.

Accessories – bonded pockets				AS1
Item description	Length	Pocket length	Item No.	On stock
Bonded pocket St52-3 type ESH110	110 mm	100 mm	103459	≡
Bonded pocket St52-3 type ESH160	160 mm	150 mm	103466	≡
Bonded pocket St52-3 type ESH210	210 mm	200 mm	103473	≡
Bonded pocket St52-3 type ESH260	260 mm	250 mm	173247	≡



Mounting

Our installation accessories simplify mounting our sensors. Suitable mounting flanges are available for our humidity sensors. For the duct hygrostat the wall holder provides a secure attachment.

Mounting flanges			AS1
Item description	Item No.	On stock	
Mounting flange MF20	612562		

Enclosure Protection			AS1
Item description	Item No.	On stock	
Sun/rain protection PA6 white for outdoor humidity sensors	587709		

Wall mounting			AS1
Item description	Item No.	On stock	
Wall mounting for duct hygrostat	429030		



Protection filters

The following replacement filters are available:

- Stainless steel, wire mesh – suitable for FTK +, FTA54 +
- PTFE – suitable for FSK01

Filter elements			AS1
Item description	Item No.	On stock	
Filter stainless steel, wire mesh (spare part)	231169	≡	
PTFE filter	429054	≡	

Gases

We offer accessories for our air pressure and display units:

- Metal duct connectors – suitable for connection to air ducts
- Adapter 90° angle – suitable for all pressure hoses Ø=4 mm
- T-hose connector – suitable for the connection of several devices (pressure hoses Ø = 4 mm)
- Mounting bracket differential pressure switch – suitable for PS





Duct connectors				AS1
Item description	Length	Item No.	On stock	
Adapter 90° angle for pressure hoses Ø=4 mm		668330	⛁	
Metal duct connector MKS40	40 mm	265138	⛁	
Metal duct connector MKS100	100 mm	302531	⛁	

Pressure hoses			AS1
Item description		Item No.	On stock
T-hose connector for pressure hoses Ø=4 mm (10 pcs)		668323	⛁

Mounting bracket			AS1
Item description		Item No.	On stock
Mounting bracket differential pressure switch 110x80x20 mm		669009	⛁

Fluids

We offer accessories for our water pressure sensors:

- Connection cable 5 m with plug – suitable for DLF/DPL
- UD-A - Universal Display for 4..20 mA – suitable for DLF/DPL
- Stainless steel and brass fitting sets – suitable for DPL
- Connection adapter G1/4" to G1/2" – suitable for DLF
- Mounting bracket differential pressure transmitter – suitable for DPL







Screw Connection Kit		AS1
Item description	Item No.	On stock
Screw connection set Ø=6 mm stainless steel (2 pcs.)	373388	
Screw connection set Ø=6 mm brass (2 pcs.)	373401	
Screw connection set Ø=8 mm stainless steel (2 pcs.)	373395	
Screw connection set Ø=8 mm brass (2 pcs.)	373418	

Connections		AS1
Item description	Item No.	On stock
Connection adapter G 1/4" to G 1/2"	277068	
Connection wire DLF/DPL – connection plug and wire 5 m	668309	
UD-A – universal display for 4..20 mA	718189	

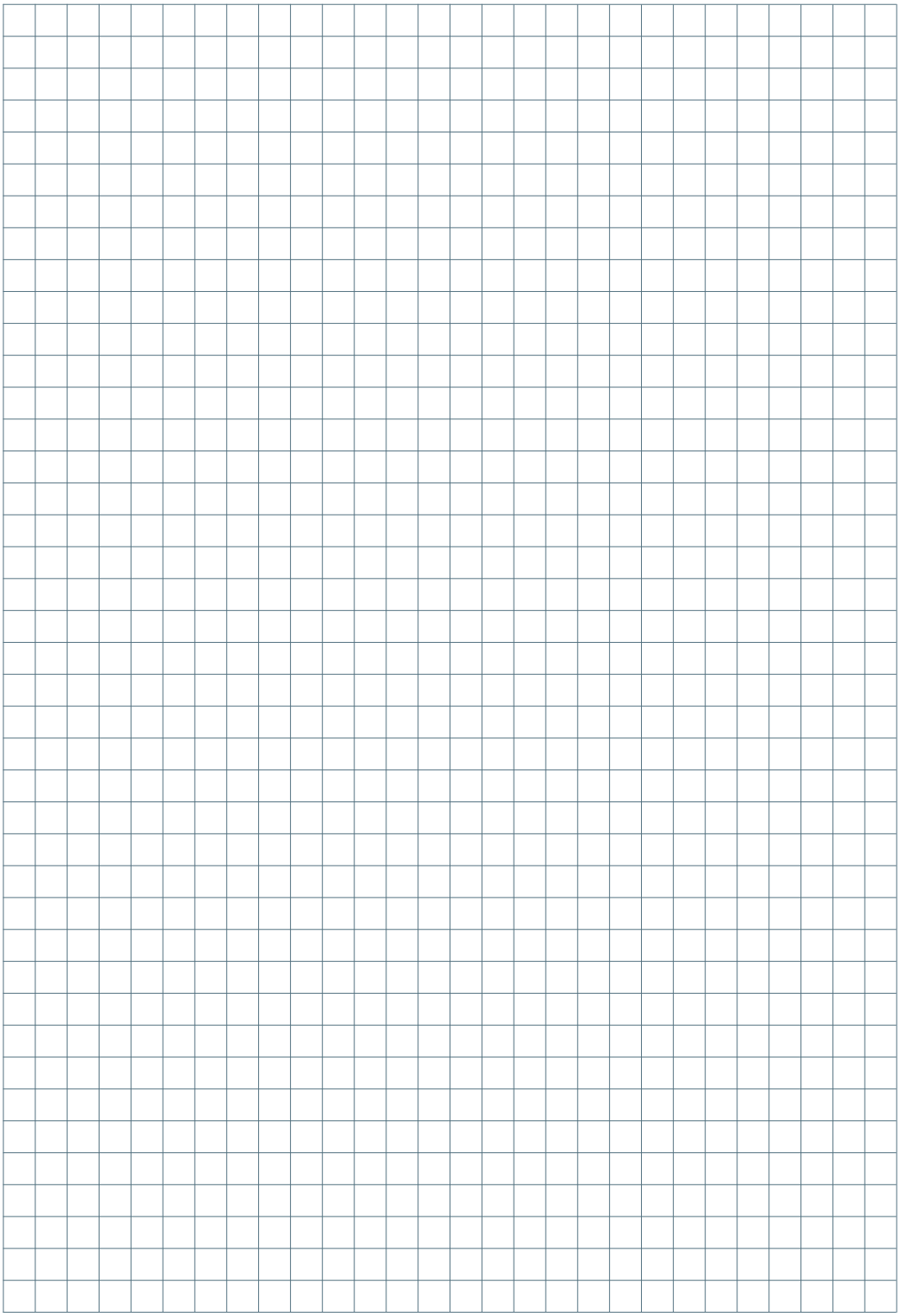
Mounting bracket		AS1
Item description	Item No.	On stock
Mounting bracket differential pressure transmitter 40x40x60 mm	663892	

Temp. °C	PT100 Ohm	PT1000 Ohm	Ni1000 Ohm	Ni1000 TK5000 Ohm	KTY81-110 Ohm	KTY81-121 Ohm	KTY81-122 Ohm
-50	80,31	803,10	743,00	790,88	515	505	525
-40	84,27	842,70	791,00	830,83	567	557	577
-30	88,22	882,20	842,00	871,69	624	614	634
-20	92,16	921,60	893,00	913,48	684	674	694
-10	96,09	960,90	946,00	956,24	747	737	757
0	100,00	1.000,00	1.000,00	1.000,00	815	805	825
10	103,90	1.039,00	1.056,00	1.044,79	886	876	896
20	107,79	1.077,90	1.112,00	1.090,65	961	951	971
25	109,74	1.097,40	1.141,00	1.113,99	1.000	990	1.010
30	111,67	1.116,70	1.171,00	1.137,61	1.040	1.030	1.050
40	115,54	1.155,40	1.230,00	1.185,71	1.122	1.112	1.132
50	119,40	1.194,00	1.291,00	1.234,97	1.209	1.199	1.219
60	123,24	1.232,40	1.353,00	1.285,44	1.299	1.289	1.309
70	127,07	1.270,00	1.417,00	1.337,14	1.392	1.382	1.402
80	130,89	1.308,90	1.483,00	1.390,12	1.490	1.480	1.500
90	134,70	1.347,00	1.549,00	1.444,39	1.591	1.581	1.601
100	138,50	1.385,00	1.618,00	1.500,00	1.696	1.686	1.706
110	142,29	1.422,00	1.688,00	1.556,98	1.805	1.795	1.815
120	146,06	1.460,60	1.760,00	1.615,36	1.915	1.905	1.925
130	149,82	1.498,20	1.853,00	1.675,18	2.023	2.013	2.033
140	153,58	1.535,80	1.909,00	1.736,47	2.124	2.114	2.134
150	157,31	1.573,10	1.987,00	1.799,26	2.211	2.201	2.221

Temp. °C	KTY81-210 Ohm	FeT Ohm	LM235Z mVolt	BALCO 500 OHM	NTC 1,6K OHM	NTC1,8k Ohm	NTC2,2K OHM
-50	1.030	–		382,1	–	–	–
-40	1.135	–	2.332	399,8	53.370	40.375	73.060
-30	1.247	1.934,70	2.432	418,0	28.173	22.906	38.550
-20	1.367	2.030,41	2.532	435,6	15.489	13.477	21.200
-10	1.495	2.127,68	2.632	453,3	8.840	8.198	12.110
0	1.630	2.226,53	2.732	471,0	5.222	5.141	7.162
10	1.772	2.327,01	2.832	488,7	3.184	3.315	4.372
20	1.922	2.429,15	2.932	497,3	1.999	2.193	2.747
25	2.000	2.480,86	2.982	506,3	1.600	1.800	2.200
30	2.080	2.533,00	3.032	523,6	1.289	1.486	1.773
40	2.245	2.638,60	3.132	541,3	851,9	1.028	1.173
50	2.417	2.745,99	3.232	558,5	576,1	726	793
60	2.597	2.855,23	3.332	576,2	397,9	522	548
70	2.785	2.966,36	3.432	593,4	280,2	382	386
80	2.980	3.079,42	3.532	610,6	200,9	284	276
90	3.182	3.194,47	3.632	627,8	146,5	214	201
100	3.392	3.311,56	3.732	645,1	108,5	164	149
110	3.607	3.430,75	3.832	662,3	81,5	127	112
120	3.817	3.552,09	3.932	679,1	62,1	99	85
130	4.008	3.675,65	–	696,3	47,9	–	66
140	4.166	3.801,48	–	713,1	37,4	–	51
150	4.280	3.929,65	–	–	29,5	–	40

Temp. °C	NTC3K OHM	NTC 3,3K OHM	NTC 5K OHM	NTC 5,369 OHM	NTC-SAT OHM	NTC 10K kOHM	NTC 10K PRE kOHM
-50	–	–	333.914,00	–	–	667,83	–
-40	102.690	109.600	167.835,50	116.300	9.709	335,67	239,80
-30	53.730	57.820	88.341,50	66.190	9.462	176,68	135,20
-20	29.346	31.800	48.487,00	39.100	9.063	96,97	78,91
-10	16.674	18.160	27.649,00	23.890	8.468	55,30	47,54
0	9.822	10.740	16.325,40	15.060	7.658	32,65	29,49
10	5.976	6.558	9.951,75	9.778	6.665	19,90	18,79
20	3.750	4.121	6.246,85	6.517	5.573	12,49	12,26
25	3.000	3.300	5.000,00	5.369	5.025	10,00	10,00
30	2.417	2.660	4.028,00	4.449	4.493	8,06	8,19
40	1.598	1.759	2.662,45	3.104	3.519	5,32	5,59
50	1.081	1.190	1.800,50	2.209	2.704	3,60	3,89
60	747,3	822	1.243,55	1.600	2.059	2,49	2,76
70	526,8	579	875,80	1.178	1.566	1,75	1,99
80	378,3	415	628,09	880,5	1.198	1,26	1,46
90	276,3	302	458,06	666,6	925	0,92	1,08
100	204,9	224	339,32	510,3	725	0,68	0,82
110	154,2	168	255,03	393,6	577	0,51	0,62
120	117,7	128	194,30	305,2	468	0,39	0,48
130	90,9	98	149,91	238,9	386	0,30	0,38
140	71,1	77	117,04	188,4	325	0,23	0,30
150	56,2	60	92,40	150,2	278	0,18	0,24

Temp. °C	NTC10-CAREL OHM	NTC12K OHM	NTC20k kOhm	NTC30K OHM	NTC50K OHM	NTC100K OHM
-50	–	–	1.490,40	–	4.168.934	–
-40	186.796	396.422,72	803,20	1.219.114	2.033.606	3.216.000
-30	110.881	204.948,28	412,80	622.924	1.038.697	1.721.000
-20	67.683	111.626,16	220,60	331.871	553.243	955.400
-10	42.431	63.671,20	122,40	183.696	306.183	548.800
0	27.280	37.841,88	70,20	105.305	175.508	325.500
10	17.961	23.332,63	41,60	62.343	103.903	198.900
20	12.092	14.869,02	25,34	38.019	63.364	125.000
25	10.000	12.000	20,00	30.000	50.000	100.000
30	8.312	9.761,37	15,88	23.828	39.714	80.530
40	5.826	6.582,83	10,21	15.317	25.529	53.140
50	4.159	4.548,87	6,71	10.079	16.799	35.860
60	3.020	3.213,88	4,51	6.778	11.297	24.690
70	2.228	2.317,13	3,10	4.651	7.750,9	17.330
80	1.668	1.701,83	1,82	3.251	5.418,7	12.830
90	1.266	1.271,35	1,54	2.313	3.854,8	8.996
100	974	964,72	1,11	1.673	2.787,2	6.636
110	758	742,67	0,81	1.228	2.046,1	4.966
120	597	579,39	0,60	915	1.523,4	3.766
130	475	457,60	0,45	–	1.149,5	2.892
140	382	365,57	0,34	–	878,2	2.247
150	310	–	0,27	–	678,8	1.766



USE
Product Overview





Temperature

RPF40+	Pendulum temp. sensor large rooms	492
RPF100+	Pendulum temp. sensor large rooms	492
RDF-IR	Ceiling temperature sensor	492
AKF10+	Duct temperature sensor	492
MWF+	Averaging temperature sensor	492
MWF400+	Averaging temperature sensor	492
SFK(H)02+	Temperature sensor liquid temp.	494
SFK02+ FR	Temperature sensor liquid temp.	494
AGS54+	Outdoor temperature sensor	496
AGS55+	Outdoor temperature sensor	496
VFG54+	Temperature sensor pipe	496
AF25+	Temperature sensor pipe	496
PR25+	Temperature sensor pipe	498
OF14+	Temperature sensor glass surface	498
TF14+	Cable temperature sensor	498
TF25+	Cable temperature sensor	498

Humidity

FTP+	Pendulum sensor Temp. + rH	500
FT-RDF18+	Ceiling sensor Temp. + rH	500
FTB+	Wall sensor Temp. + rH	500
FTK+	Duct sensor Temp. + rH	500
WSA	Outdoor sensor Temp. + rH	500
FTA54+	Outdoor sensor Temp. + rH	500
LS02+	Leakage sensor	500
WK01+	Condensation sensor	500
WK02+	Condensation sensor	500

Pressure and Velocity

DPA+	Differential pressure transducer / Volume flow transducer	502

Air Quality

LP+	Pendulum air quality sensor CO2/VOC	504
LK+	Duct air quality sensor CO2/VOC	504
LK+ CO2 100	Duct air quality sensor CO2	506
LA+	Outdoor air quality sensor VOC	508

Light & Motion

Li65+	Outdoor light sensor Temp./rH/Pa	510
LDF+	Ceiling light sensor	510

TEMPERATURE

			 USE-S	 USE-M	 USE-M (LCD)	 USEapp
Room sensors	RPF40+	RPF40+ active	✓			
	RPF100+	RPF100+ active	✓			
	RDF-IR	V/VV		✓		✓
Duct sensors	AKF10+	passive	✓			
		TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
	MWF+	passive	✓			
		TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
	MWF400+	passive	✓			
		TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
■	□	□	M16	SET 1
■	□	□	M16	SET 1
–	□	■	M16	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	–	■	M16	SET 2
–	–	■	M16	SET 2
–	□	■	M16	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
■	□	□	M16	SET 1
■	□	□	M16	SET 1
–	□	■	M16	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

TEMPERATURE

			 USE-S	 USE-M	 USE-M (LCD)	 USEapp
Immersion sensors	SFK02+/ SFKH02+	passive	✓			
		TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
	SFK02+ FR	passive	✓			
		TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	–	–	M16	SET 2
–	–	–	M16	SET 2
–	–	–	M16	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2
–	–	–	M16	SET 2
–	–	–	M16	SET 2
–	–	–	M16	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

TEMPERATURE

			 USE-S	 USE-M	 USE-M (LCD)	 USEapp
Outdoor sensors	AGS54+	passive	✓			
	AGS55+	passive	✓			
		TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
Contact sensors	VFG54+	passive	✓			
		TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
	AF25+	TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓

Explanation: ■ included in delivery ☐ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
□	■	–	M16	SET 2
□	■	–	M16	SET 2
□	■	–	M16	SET 2
□	■	–	M16	SET 2
□	■	–	M25	SET 2
□	■	–	M25	SET 2
□	■	–	M25	SET 2
□	■	–	M25	SET 2
–	–	–	M16	SET 2
–	–	–	M16	SET 2
–	–	–	M16	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2
–	–	–	M25	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

TEMPERATURE

			 USE-S	 USE-M	 USE-M (LCD)	 USEapp
Contact sensors	PR25+	TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
	OF14+	TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
Cable sensors	TF14+	TRV/TRA	✓			
	TF25+	TRV/TRA	✓			
		LCD TRV/TRA			✓	✓
		TRV relay		✓		✓
		LCD TRV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	□	M16	SET 2
–	■	□	M16	SET 2
–	■	□	M16	SET 2
–	■	□	M25	SET 2
–	■	□	M25	SET 2
–	■	□	M25	SET 2
–	■	□	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

HUMIDITY

			 USE-S	 USE-M	 USE-M (LCD)	 USEapp
Room sensors	FTP+	VV/AA		✓		
	FT-RDF18+	VV/AA	✓			
	FTB+	VV/AA		✓		
Duct sensors	FTK+	VV/AA	✓			
		LCD VV/AA			✓	✓
		VV relay		✓		✓
		LCD VV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
Outdoor sensors	WSA	VV/AA	✓			
		BUS		✓		✓
	FTA54+	VV		✓		
		AA		✓		
		LCD VV/AA			✓	✓
		VV relay		✓		✓
		LCD VV relay			✓	✓
		BUS		✓		✓
		LCD BUS			✓	✓
Condensation/ Leakage	LS02+	LS02+	✓			
	WK01+	24 V	✓			
		ext. 24 V	✓			
		ext. 230 V	USE-L			✓
	WK02+	ext. 24 V	USE-L			✓
		ext. 230 V	USE-L			✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	□	■	M16	SET 2
–	□	■	M16	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	□	■	M25	SET 2
–	–	–	M16	SET 2
–	–	–	M25	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	–	–	M16	SET 2
–	–	–	M20	SET 2
–	■	–	M20	SET 2
–	■	–	M20	SET 2
–	■	–	M20	SET 2
–	■	–	M20	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

PRESSURE & VELOCITY

			 USE-L	 USE-L (LCD)	USEapp USEapp
Differential pressure transducer	DPA+	VV	✓		
		AA Dual VV/AA	✓		✓
		LCD VV/AA LCD Dual VV/AA		✓	✓
		VV relay	✓		✓
		LCD VV relay LCD Dual 4xV		✓	✓
		BUS Dual BUS	✓		✓
		LCD BUS LCD Dual BUS		✓	✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M25	SET 2
–	■	–	M25 M20	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

AIR QUALITY

			 USE-M	 USE-M (LCD)	 USE-L	 USEapp
Room sensors	LP+	V			✓	
Duct sensors	LK+	V/VV	✓			
		AA	✓			✓
		LCD VV/AA		✓		✓
		3xV/4xV	✓			✓
		LCD 3xV/4xV		✓		✓
		VV relay	✓			✓
		LCD VV relay		✓		✓
		BUS	✓			✓
		LCD BUS		✓		✓
		Temp BUS	✓			✓
		LCD Temp BUS		✓		✓
		Temp_rH BUS	✓			✓
		LCD Temp_rH BUS		✓		✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	■	–	M16	SET 2
–	–	■	M16	SET 2
–	–	■	M16	SET 2
–	–	■	M16	SET 2
–	–	■	M20	SET 2
–	–	■	M20	SET 2
–	–	■	M25	SET 2
–	–	■	M25	SET 2
–	–	■	M25	SET 2
–	–	■	M25	SET 2
–	–	■	M25	SET 2
–	–	■	M25	SET 2
–	–	■	M25	SET 2
–	–	■	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

AIR QUALITY

			 USE-M	 USE-M (LCD)	USEapp USEapp
Duct sensors	LK+ CO2 100	V/VV	✓		
		AA	✓		✓
		LCD VV/AA		✓	✓
		3xV	✓		✓
		LCD 3xV		✓	✓
		VV relay	✓		✓
		LCD VV relay		✓	✓
		Temp BUS	✓		✓
		LCD Temp BUS		✓	✓
		Temp_rH BUS	✓		✓
		LCD Temp_rH BUS		✓	✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	☐	■	M16	SET 2
–	☐	■	M16	SET 2
–	☐	■	M16	SET 2
–	☐	■	M20	SET 2
–	☐	■	M20	SET 2
–	☐	■	M25	SET 2
–	☐	■	M25	SET 2
–	☐	■	M25	SET 2
–	☐	■	M25	SET 2
–	☐	■	M25	SET 2
–	☐	■	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

AIR QUALITY			 USE-M	 USE-M (LCD)	USEapp USEapp
Outdoor sensors	LA+	V	✓		
		VV/A/AA	✓		✓
		LCD VV/AA		✓	✓
		3xV	✓		✓
		LCD 3xV		✓	✓
		VV relay	✓		✓
		LCD VV relay		✓	✓
		BUS	✓		✓
		LCD BUS		✓	✓
		Temp BUS	✓		✓
		LCD Temp BUS		✓	✓
		Temp_rH BUS	✓		✓
		LCD Temp_rH BUS		✓	✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M20	SET 2
–	■	–	M20	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

LIGHT & MOTION

			 USE-M	USEapp USEapp
Multi sensors	Li65+	V/VV	✓	
		A/AA	✓	✓
		3xV/4xV	✓	✓
		Temp BUS	✓	✓
		Temp_rH BUS	✓	✓
		Temp_rH_hPa BUS	✓	✓
Light sensors	LDF+	V/Dual VV	✓	
		A/Dual AA	✓	✓
		BUS	✓	✓
		Dual BUS	✓	✓

Explanation: ■ included in delivery □ optional – not compatible

Mounting clip	Mounting base	Mounting flange	Cable entry	Accessories
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M20	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2
–	■	–	M16	SET 2
–	■	–	M16	SET 2
–	■	–	M25	SET 2
–	■	–	M25	SET 2

ACCESSORIES (included in delivery)		
SET 1	Cable entry M16	1x
	Cover screw	1x
	Mounting clip	1x
	Sealing insert (rubber based)	1x
	Screws (countersunk head)	2x
	Screw cover	1x
SET 2	Cover screw	1x
	Screws (rounded head)	2x
	Rawlplugs	2x
	Screws (countersunk head)	2x
	Screw cover	1x

Glossary

OUTPUTS

A, AA, 2A	1 resp. 2 outputs 4..20 mA; output values depending on product
V, VV, 3xV, 4xV or 2V, 3V, 4V	1, 2, 3, 4 outputs 0..10 V; output values depending on product
AS, AAS, VS, VVS	1 resp. 2 active outputs + 1 passivee output temperature (S)
TRA	output 4..20 mA, digit for measuring range temperature following
TRV	output 0..10 V, digit for measuring range temperature following
TRA1/TRV1	range -50..+50 °C
TRA2/TRV2	range -10..+120 °C
TRA3/TRV3	range 0..+50 °C
TRA4/TRV4	range 0..+160 °C
TRA5/TRV5	range 0..+250 °C
TRA6/TRV6	range 0..+400 °C
TRA7/TRV7	range 0..+600 °C
TRA8/TRV8	range -15..+35 °C
MultiRange	range adjustable at the device

SI-PROTECTION

Changes in temperature are causing formation of humidity. Thus, there is a risk that the humidity can permeate in the contact point of the sensor. As a result, the sensor would corrode and oxygenate. Thus, the contact point would become unreliable.

The SI-Protection procedure provides the contact point with epoxy gum and a fluidized bed coating which unites with the insulation material of the wire. Thus, a complete unit is built protecting the sensor against vibrations and humidity.

PROTECTION AGAINST VIBRATION AND HUMIDITY
SI-Protection

DUAL CHANNEL – SELF CALIBRATION

Dual Channel self calibration utilizes an independent 2nd optical beam to compare and reference the measuring beam. Because the 2nd beam is used only once a day it will wear off much less resulting in a negligible error. Contrary to products using the commonly used ABC-Logic™, dual channel sensors can be used for all applications including hospitals, casinos, horticulture and livestock etc, which are in use 24/7.

COMMUNICATION

EasySens®	Thermokon radio based on EnOcean IEC 14543-3-10
BACnet	RS485 BACnet (MS/TP), communication protocol specifically designed for building automation; BACnet IP, if mentioned in catalogue
KNX	EIB-KNX interface
LON	LON FTX, communication protocol specifically designed for building automation; other standards, if mentioned in catalogue
Modbus	RS485 Modbus RTU
dS	digitalSTROM

ROOM OPERATING UNITS OPERATING ELEMENTS

P	potentiometer (setpoint adjustment)
MS	slide switch
S	switch (e.g. for fan stages)
T	button (e.g. for occupancy status)
D	LED
LCD	inclusive display
TLF	traffic light function indicating air quality via LED(s)
AZ	Automatic zero-point calibration

PRICE OVERVIEW OF ONE-FOLD SWITCH FRAMES

Note: Prices for frames only valid in connection with basic device, discount group: depending on device

Manufact.	Switch range	Dimensions (WxH)	Colour	WRF07 WRF06 x WRF06 WRF06I
Berker	Berker S.1	55x55	polar white (g/m), white (g)	■
	Berker B.3	55x55	Aluminium, Aluminium black anodized	■
	Berker B.7	55x55	polar white (m), anthracite, alu (m)	■
Busch-Jaeger	Busch-balance® SI	55x55	alpine white	■
	solo®	63x63	studio white (m), chrome (g/m)	■
	future® linear	63x63	studio white (g/m), anthracite, alu silver, ivory white	■
	Busch-axcent®	63x63	studio white (g)	■
Gira	E2	55x55	pure white (g/m), alu, anthracite	■
	E3	55x55	pure white (g)	■
	Standard 55	55x55	pure white (g/m), creme white (g)	■
	Esprit	55x55	different colours and materials	■
	Event	55x55	pure white (g/m), alu, anthracite	■
	Flächenschalter	71x71	pure white (g)	■
Jung	LS 990 plastic	70x70	white, alpine white (g)	■
	A 500	55x55	alpine white, aluminium	■
	AS 500/AS 500 antibac.	55x55	white, alpine white	■
	A plus	55x55	alpine white, aluminium, anthracite	■
	A creation plastic	55x55	alpine white, aluminium, anthracite (m)	■
	CD 500	67x67	white, alpine white	■
Merten	M-Smart	55x55	white (g/m), polar white (g/m), active white (g)	■
	M-Plan	55x55	white (g/m), polar white (g/m), active white (g), aluminium, anthracite	■
	1-M	55x55	white (g), polar white (g), active white (g)	■
	Atelier-M	55x55	white (g), polar white (g), active white (g)	■
	M-Pure	55x55	polar white (m), active white (m), aluminium, anthracite	■
	Antik	66x66	white (m), polar white (m)	■

Explanation: ■ without intermediate frame ▣ with intermediate frame – not available g = glossy m = matt

OTHER SWITCH RANGES, COLOURS AND MATERIALS ON REQUEST

PRICE OVERVIEW OF ONE-FOLD SWITCH FRAMES

Note: Prices for frames only valid in connection with basic device, discount group: AS1

Manufact.	Switch range	Dim. (WxH)	Colour	SR06 LCD SR07 x SR07 / SR07 rH	WRF06 LCD FTW06 LCD dS FTW06 FTW06 dS WRF06 AQ	Radio switches
Berker	Berker S.1	55x55	polar white (g/m), white (g)	■	■	▣
	Berker B.3	55x55	Aluminium, Aluminium black anodized	–	■	–
	Berker B.7	55x55	polar white (m), anthracite, alu (m)	■	■	▣
Busch-Jaeger	Busch-balance® SI	55x55	alpine white	■	■	▣
	solo®	63x63	studio white (m)	▣	▣	–
				–	–	■
	future® linear	63x63	studio white (g/m), anthracite, alu silver, ivory white	▣	▣	–
				–	–	■
	Busch-axcent®	63x63	studio white (g)	▣	▣	–
				–	–	■
Gira	E2	55x55	pure white (g/m), alu, anthracite	■	■	▣
	E3	55x55	pure white (g)	■	■	▣
	Standard 55	55x55	pure white (g/m), creme white (g)	■	■	▣
	Esprit	55x55	different colours and materials	■	■	▣
	Event	55x55	pure white (g/m), alu, anthracite	■	■	▣
	Flächenschalter	71x71	pure white (g)	▣	▣	▣
Jung	LS 990 plastic	70x70	white, alpine white (g)	▣	▣	■
	A 500	55x55	alpine white, aluminium	■	■	▣
	AS 500/AS 500 antib.	55x55	white, alpine white	■	■	▣
	A plus	55x55	alpine white, aluminium, anthracite	■	■	▣
	A creation plastic	55x55	alpine white, aluminium, anthracite (m)	■	■	▣
	CD 500	67x67	white, alpine white	–	▣	–
Merten	M-Smart	55x55	white (g/m), polar white (g/m), active white (g)	■	■	▣
	M-Plan	55x55	white (g/m), polar white (g/m), active white (g), aluminium, anthracite	■	■	▣
	1-M	55x55	white (g), polar white (g), active white (g)	▣	■	▣
	Atelier-M	55x55	white (g), polar white (g), active white (g)	–	■	▣
	M-Pure	55x55	polar white (m), active white (m), aluminium, anthracite	■	■	▣
	Antik	66x66	white (m), polar white (m)	–	▣	▣

Explanation: ■ without intermediate frame ▣ with intermediate frame – not available g = glossy m = matt

OTHER SWITCH RANGES, COLOURS AND MATERIALS ON REQUEST