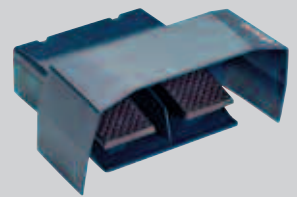
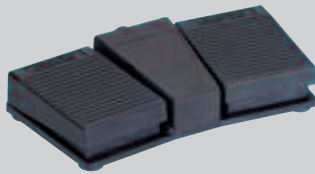


Automation

Foot switches / Safety foot switches



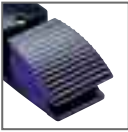
// SYSTEMATIC CONTROL SWITCHGEAR

Catalogue



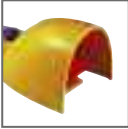
4 The company

PRODUCTS



6 Foot switches Metal enclosure

- 10 Series GF, single-pedal
- 16 Series GFS, single-pedal
- 26 Series GFI, single-pedal
- 32 Series GFSI, single-pedal
- 38 Series GF 2, double-pedal
- 44 Series GFS 2, double-pedal
- 50 Series GF 3, triple-pedal
- 52 Series GFS 3, triple-pedal



54 Safety foot switches Metal enclosure

- 58 Series GFS VD, single-pedal
- 60 Series GFSI VD, single-pedal
- 62 Series GFS 2 VD, double-pedal



64 Foot switches Thermoplastic enclosure

- 68 Series KF
- 72 Series KFS
- 76 Series KF 2
- 80 Series KF 3
- 82 Series KF 4
- 84 Series KF 5

87 Appendix

Legend of symbols



// SAFE SWITCHGEAR FOR DEMANDING AND CRITICAL APPLICATIONS

Wireless



Automation



Extreme



Meditec



»Safe switchgear for demanding and critical applications«. True to this motto, steute has been providing its customers with innovative, practical and durable switchgear solutions – for over 50 years.

When our customers are successful, so are we. Because we always focus on our customers, our company has grown steadily and sustainably over the last decades. Steute is committed to continuing this growth – in close cooperation with our customers.

We are situated in East Westphalia, a key region for machine building and electrical goods manufacturing. It is home to qualified specialists committed to developing and manufacturing innovative products. It is also the location of renowned universities, research and educational institutions to which we maintain healthy contacts.

Markets are no longer restricted by national borders. This is why our products are developed and tested for extreme conditions all over the world. We take care to ensure that our products are always certified according to the latest international standards. In every industrial or emerging nation in the world, steute has access to qualified specialists who can guarantee competent support and a quick service.

As a medium-sized company we are able to react with speed to customer wishes and market trends. We are continually developing innovative products and using new technologies as we consistently open up new fields of application for our switchgear.

steute is currently active in four different business fields, producing switchgear, sensors and control units for use in industry and in medical equipment:

Wireless

Cable free switchgear and sensors for use in machinery and process plants. These industrial-strength wireless switches communicate with higher level control systems via reliable radio transmission. »Energy harvesting« can play a major role in these products.

Automation

Standard and customised switchgear for machinery and process plants. Tried and tested electromechanical and non-contact technologies for classical applications in industrial automation and process control – always with a view to the latest global requirements.

Extreme

Switchgear and sensors for use in extreme environments or under extreme conditions. Certified products for use in hazardous areas worldwide (e. g. ATEX, IECEx, GOST).

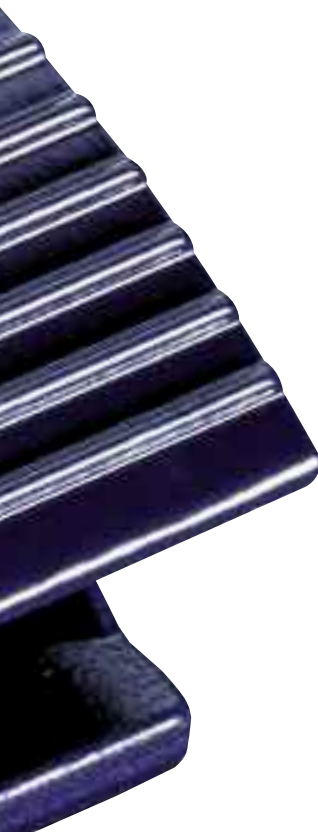
Meditec

A comprehensive range of standard and customised foot and hand controls for medical devices, meeting the highest ergonomic and availability requirements. Produced in accordance with the certified EN ISO 13485 quality management system for medical products.

The following information provides an overview of our standard range of switchgear for complex and demanding applications. We will be happy to provide you with any additional information you require. If you cannot find the solution for your application: just get in touch. We have already helped numerous customers by developing »tailor-made« switchgear for their individual needs.

Marc Stanesby
Managing Director
steute Schaltgeräte GmbH & Co. KG





Foot switches Metal enclosure

Single-pedal types

// [Series GF](#)

from page 10

// [Series GFS](#)

from page 16

// [Series GFI](#)

from page 26

// [Series GFSI](#)

from page 32

Double-pedal types

// [Series GF 2](#)

from page 38

// [Series GFS 2](#)

from page 44

Triple-pedal types

// [Series GF/GFS 3](#)

from page 50



Foot switches

Metal enclosure

Application

Foot switches are mounted on machines and plants in cases where operation using the hands is not possible. They are used to start and stop operations and production processes. Depending on the environmental conditions and mechanical duty, differing versions of foot switches are used.

The robust GF, GFS, GFI and GFSI range switches are generally used in the engineering industry, e.g. on presses, punching and bending machines, as well as in sheet-steel processing.

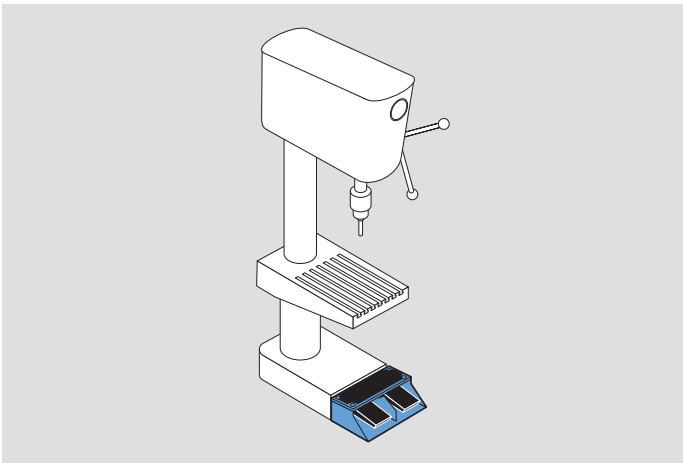
Design and mode of operation

The GF and GFS range foot switches are available in versions with multiple pedals. GFS and GFSI range switches are mounted with a shield to protect against unintentional actuation. All foot switches are equipped with slow or snap action contacts. Different versions are available with pressure point, potentiometer, Hall sensor and latching element. Foot rests, carrying handle and pedal covers are also available.

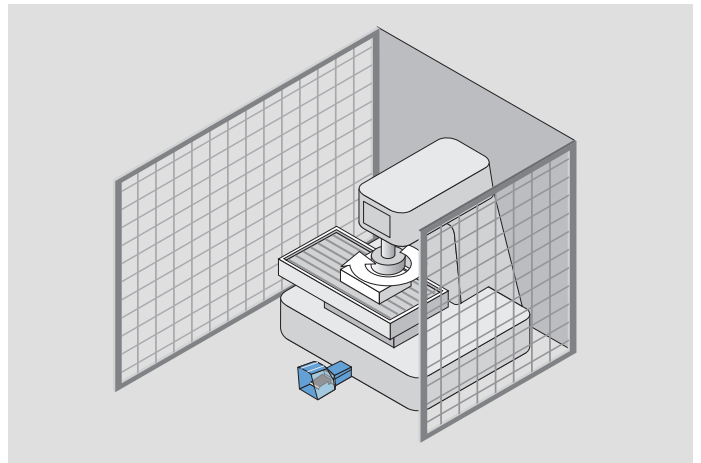
The foot switches bear the CE mark according to the Low Voltage Directive.

Application

Foot switch at a drill machine



Foot switch at a CNC machining center



Foot switches

// Series GF

Features/Options

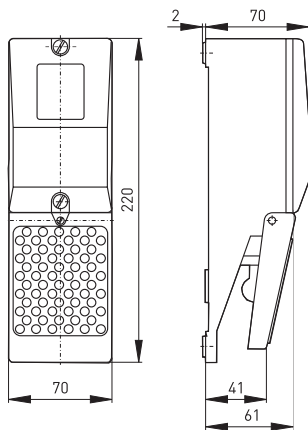
- Without protective shield
- Max. 4 contacts
- Metal enclosure
- High level of stability
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

// GF



Technical data

| | |
|------------------------------------|---|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | glass-fibre reinforced thermoplastic |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232 |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 2 and 4 contacts: 4 A/230 VAC; 2.5 A/400 VAC; 1 A/500 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | GF(M)K: |



10

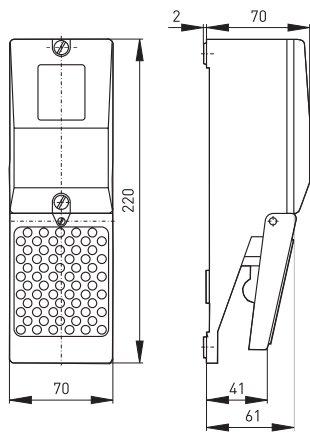
Contact variants: Travel/contacts Ordering details GFM K 10/1S

| | Snap action | Slow action |
|--------------------|----------------------|---------------------|
| 1 NC/1 NO contact | GFM 10/1S | GF 10/1S |
| 2 NC/2 NO contacts | GFM 20/2S | GF 20/2S |

GFM K 10/1S
1NC/1NO contact, (20/2S, 10/3S), other configurations possible
Pedal Cover
M Snap action (without M slow action)
Series

Foot switches
 // Series GF, variants

// Without protective shield GF



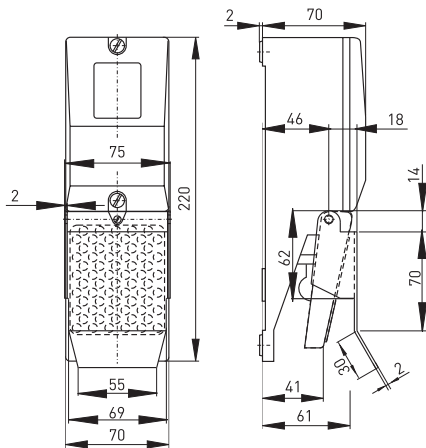
Snap action
 GFM 1Ö/1S
 GFM 2Ö/2S

Material Number
 1048500
 1048523

Slow action
 GF 1Ö/1S
 GF 2Ö/2S

Material Number
 1048458
 1048512

// Pedal cover K



Snap action/Pedal cover
 GFMK 1Ö/1S
 GFMK 2Ö/2S

Material Number
 on request
 1048524

Slow action/Pedal cover
 GFK 1Ö/1S
 GFK 2Ö/2S

Material Number
 1048464
 1048515

Foot switches

// Series GF, variants

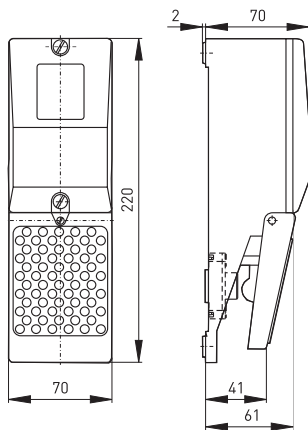
- Features/Options**
- With pressure point: 2-step switching
 - 4 contacts
 - Metal enclosure
 - Without protective shield
 - High level of stability
 - Low pedal height
 - Wiring compartment
 - Available with mechanical interlock
 - Available with special finish in RAL colour tones

// GF D



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | glass-fibre reinforced thermoplastic |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | 2 x ES 40 GF |
| Switching element | 2-step switching: 1 NC/1 NO contact pressure point: 1 NC/1 NO contact |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | 6 A/400 VAC |
| Max. fuse rating | 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | GFK: |



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Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|-------------------------|-----------------|
| 1 NC/1 NO contact | GF 10S D 10S | 1048531 |

Ordering details

GF 10S D 10S
 1NC/1NO contact
 Pressure point
 Contacts 1NC/1NO contact, other configurations possible
 Series



Features/Options

- With latching: ON/OFF principle
- Max. 2 contacts
- Metal enclosure
- Without protective shield
- High level of stability
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

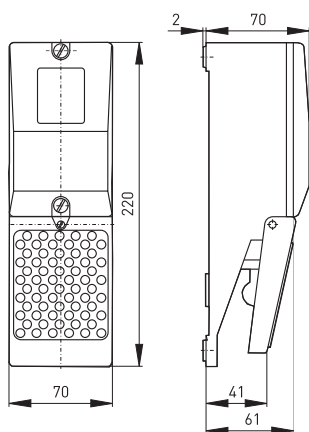
Technical data

| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | glass-fibre reinforced thermoplastic |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | ES 60 GF RE |
| Switching element | 1 NC/1 NO contact with latching |
| Utilisation category | AC-15 |
| I_e/U_e | 16 A/400 VAC |
| Max. fuse rating | 16 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |

Approvals



// GF RE



Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|-----------------|-----------------|
| 1 NC/1 NO contact | GF 10/1S RE | 1048462 |

Ordering details

GF 10/1S RE

Latching element
1NC/1NO contact
Series



Foot switches

// Series GF, variants

Features/Options

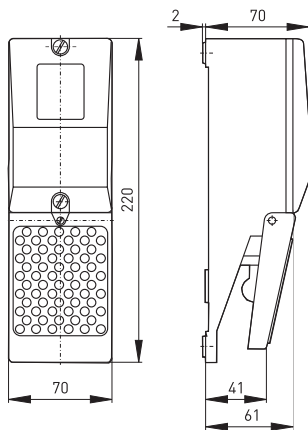
- With Hall sensor: Analogue output
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- Without protective shield
- Available with additional micro switch
- High level of stability
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

// GF HS



Technical data

| | |
|-------------------------------------|--|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | glass-fibre reinforced thermoplastic |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | screw terminals |
| Cable cross-section | max. 1 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | Hall sensor |
| Output values | |
| Output voltage U_a | 0...10 VDC ± 1 % |
| Output current I_a | 0...20 mA ± 1 % or 4...20 mA ± 1 % |
| Utilisation category | - |
| I_e/U_e | at U _a : 25 mA/15 ... 30 VDC at I _a : 45 mA/15 ... 30 VDC |
| Max. fuse rating | - |
| Ambient temperature | - 10 °C ... + 70 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Hall sensor | Material Number |
|----------------|------------------------------------|--------------------|
| U _a | GF HS 0-10 VDC | 1048576 |
| I _a | GF HS 0-20 mA GF HS 4-20 mA | 1048577 1048578 |

Ordering details

GF HS 0-20 mA

Output value I_a 0-20 mA
(I_a 4-20 mA, U_a 0-10 VDC)
Hall sensor
Series



Features/Options

- With potentiometer: Analogue output
- Metal enclosure
- With various potentiometers available: 1 k Ω , 2 k Ω , 5 k Ω or 10 k Ω
- Start value can be set in factory
- Without protective shield
- High level of stability
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

Technical data

| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | glass-fibre reinforced thermoplastic |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | soldering terminals |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver, gold-plated |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | potentiometer |
| Resistance R | 20 Ω ... 1 k Ω \pm 3 %; 20 Ω ... 2 k Ω \pm 3 %; 50 Ω ... 5 k Ω \pm 3 %; 100 Ω ... 10 k Ω \pm 3 % |
| Linearity | \pm 0.5 % |
| Utilisation category | - |
| I_e/U_e | micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC |
| Switching power | potentiometer: max. 1.5 W at 40 °C |
| Max. fuse rating | - |
| Ambient temperature | - 15 °C ... + 80 °C |
| Mechanical life | > 1 million operations |

Approvals

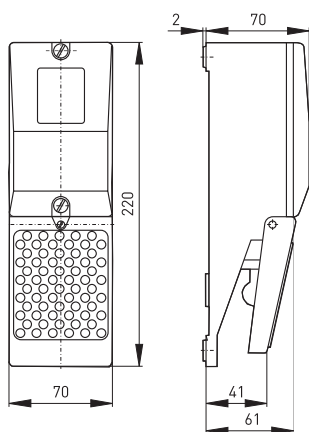


GF Poti 10K 1PW:

Note

The built-in micro switch provides for potential-free switching of the potentiometer.

// GF POTI



Contact variants: Travel/contacts

| | Potentiometer | Material Number |
|---------------|--------------------|-----------------|
| 1 change-over | GF POTI 1K 1PW | 1048555 |
| 2 change-over | GF POTI 1K 2PW | on request |

Ordering details

GF POTI 1K 1PW

Micro switch 1 change-over contact (2PW)
Potentiometer value 1 k Ω
(2 k Ω , 5 k Ω or 10 k Ω)
Potentiometer
Series



Foot switches

// Series GFS

Features/Options

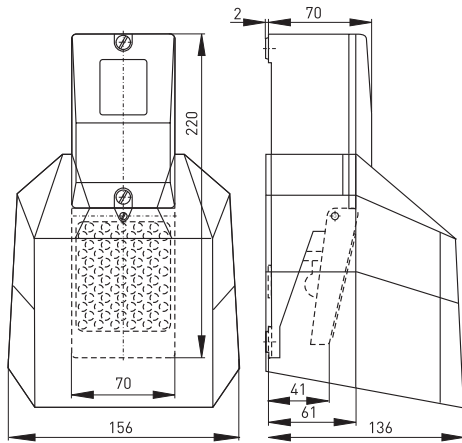
- With protective shield
- Max. 4 contacts
- Metal enclosure
- High level of stability
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

// GFS



Technical data

| | |
|------------------------------------|---|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232 |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 2 contacts: 4 A/230 VAC; 2.5 A/400 VAC; 1 A/500 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | GFS(M)K: |



Contact variants: Travel/contacts

| | Snap action | Slow action |
|--------------------|-----------------------|----------------------|
| 1 NC/1 NO contact | GFSM 10/1S | GFS 10/1S |
| 2 NC/2 NO contacts | GFSM 20/2S | GFS 20/2S |

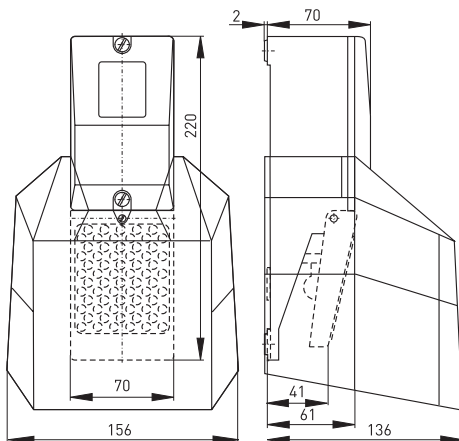
Ordering details

GFSM K 10/1S FST

- Foot rest, TST carrying handle
- 1 NC/1 NO contact (20/2S, 10/3S), other configurations possible
- Pedal Cover
- M Snap action (without M slow action)
- S Protective shield
- Series

Foot switches
 // Series GFS, variants

// With protective shield GFS



Snap action
 GFSM 10/1S
 GFSM 20/2S

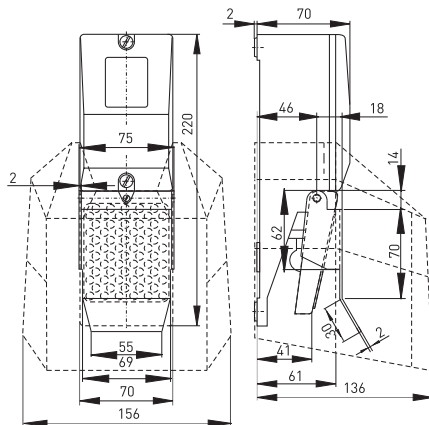
Material Number
 1048638
 1048682

Slow action
 GFS 10/1S
 GFS 20/2S

Material Number
 1048579
 1048655

17

// Pedal cover K



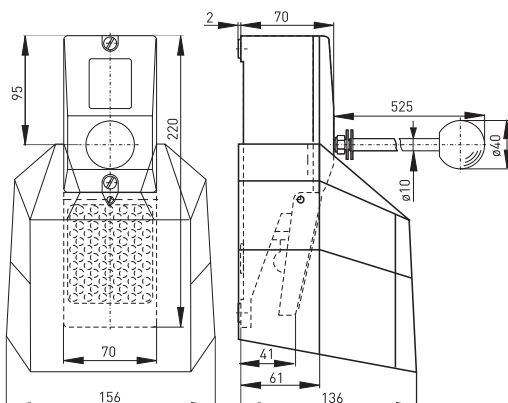
Snap action/Pedal cover
 GFSMK 10/1S
 GFSMK 20/2S

Material Number
 1048641
 1048684

Slow action/Pedal cover
 GFSK 10/1S
 GFSK 20/2S

Material Number
 1048588
 1048658

// Carrying handle TST

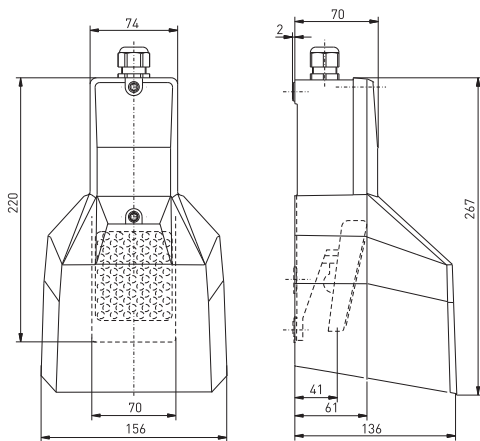


Features/Options

- Carrying handle:
 stainless steel 1.4104 with thermoplastic grip

Foot switches
 // Series GFS, variants

// GFS IP69K



Features/Options

- GFS IP69K, version with IP69K degree of protection: suitable for cleaning with 80 °C hot water at a pressure of 100 bar at a distance of 100 mm from different directions.

Slow action/IP 69K

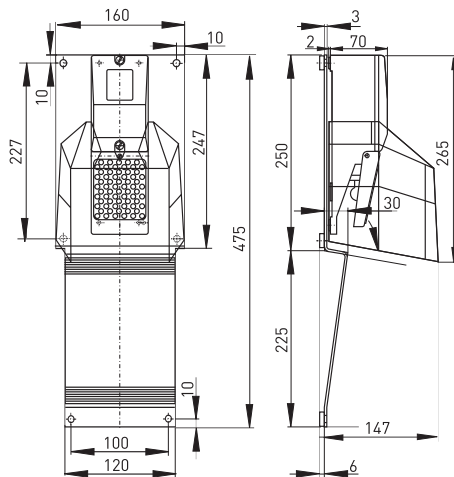
- GFS 10/1S IP69K KST Extreme
- GFS 10S D 10S IP69K KST Extreme

Material Number

- 1184570
- 1184972

18

// Foot rest FST



Features/Options

- Variants with foot rest available on request

PRODUCTION PROCESS ASSEMBLY
ENAMELLED DOUBLE-PEDAL FOOT SWITCH ENCLOSURE



Foot switches

// Series GFS, variants

- Features/Options**
- With pressure point: 2-step switching
 - 4 contacts
 - Metal enclosure
 - With protective shield
 - High level of stability
 - Low pedal height
 - Wiring compartment
 - Available with mechanical interlock
 - Available with special finish in RAL colour tones

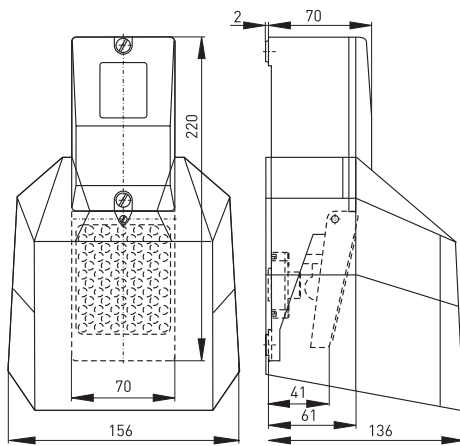
// GFS D



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | ES 40 GF |
| Switching element | 2-step switching: 1 NC/1 NO contact pressure point: 1 NC/1 NO contact |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | 6 A/400 VAC |
| Max. fuse rating | 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

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Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|--------------------------|-----------------|
| 1 NC/1 NO contact | GFS 10S D 10S | 1048686 |

Ordering details

GFS 10S D 10S

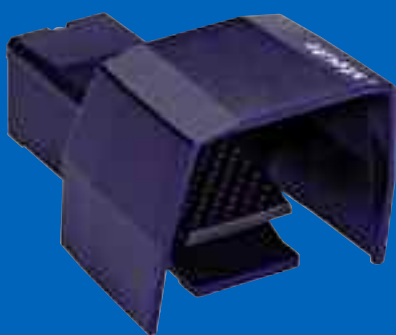
- Contacts 1NC/1NO contact
- Pressure point
- Contacts 1NC/1NO contact, other configurations possible
- S Protective shield
- Series



Features/Options

- With latching: ON/OFF principle
- Max. 2 contacts
- Metal enclosure
- With protective shield
- High level of stability
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

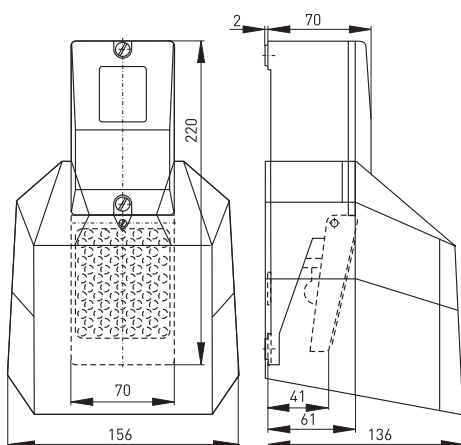
// GFS RE



Technical data

| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | ES 60 GF RE |
| Switching element | 1 NC/1 NO contact with latching |
| Utilisation category | AC-15 |
| I_e/U_e | 16 A/400 VAC |
| Max. fuse rating | 16 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

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Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|-------------------------|-----------------|
| 1 NC/1 NO contact | GFS 10/1S RE | 1048587 |

Ordering details

GFS 10/1S RE



Foot switches

// Series GFS, variants

Features/Options

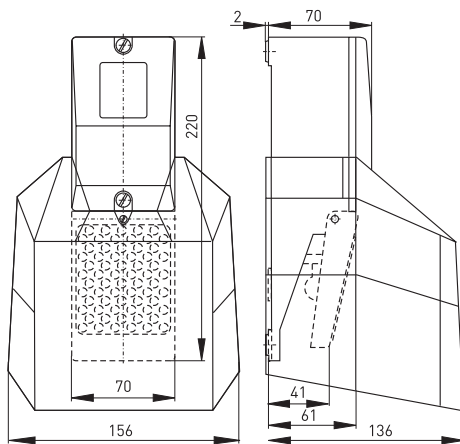
- With Hall sensor: Analogue output
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- With protective shield
- Available with additional micro switch
- High level of stability
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

// GFS HS



Technical data

| | |
|----------------------|--|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 1 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | Hall sensor |
| Output values | |
| Output voltage U_a | 0...10 VDC $\pm 1\%$ |
| Output current I_a | 0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$ |
| I_e/U_e | at U_a : 25 mA/15 ... 30 VDC at I_a : 45 mA/15 ... 30 VDC |
| Ambient temperature | - 10 °C ... + 70 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Hall sensor | Material Number |
|-------|---------------------|-----------------|
| U_a | GFS HS 0-10 VDC | 1048765 |
| I_a | GFS HS 0-20 mA | 1048766 |
| | GFS HS 4-20 mA | 1048767 |

Ordering details

GFS HS 0-20 mA

Output value I_a 0-20 mA
(I_a 4-20 mA, U_a 0-10 VDC)
Hall sensor
S Protective shield
Series



Features/Options

- With potentiometer: Analogue output
- Metal enclosure
- With various potentiometers available: 1 k Ω , 2 k Ω , 5 k Ω or 10 k Ω
- Start value can be set in factory
- With protective shield
- High level of stability
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

// GFS POT1



Technical data

| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | soldering terminals |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver, gold-plated |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | potentiometer |
| Resistance R | 20 Ω ... 1 k Ω \pm 3 %; 20 Ω ... 2 k Ω \pm 3 %; 50 Ω ... 5 k Ω \pm 3 %; 100 Ω ... 10 k Ω \pm 3 % |
| Linearity | \pm 0.5 % |
| I_e/U_e | micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC |
| Switching power | potentiometer: max. 1.5 W at 40 $^{\circ}$ C |
| Ambient temperature | -15 $^{\circ}$ C ... +80 $^{\circ}$ C |
| Mechanical life | > 1 million operations |

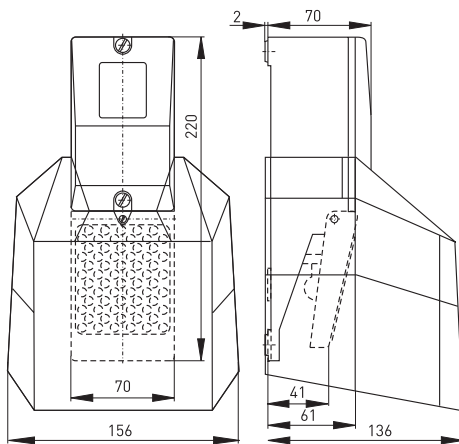
Approvals



GFS Poti 10K 1PW:

Note

The built-in micro switch provides for potential-free switching of the potentiometer.



Contact variants: Travel/contacts

| | Potentiometer | Material Number |
|---------------|---------------------|-----------------|
| 1 change-over | GFS POT1 1K 1PW | 1048737 |
| 2 change-over | GFS POT1 1K 2PW | on request |

Ordering details

GFS POT1 1K 1PW

Micro switch 1 change-over contact (2PW)
Potentiometer value 1 k Ω
(2 k Ω , 5 k Ω or 10 k Ω)
Potentiometer
S Protective shield
Series



Foot switches

// Series GFS, variants

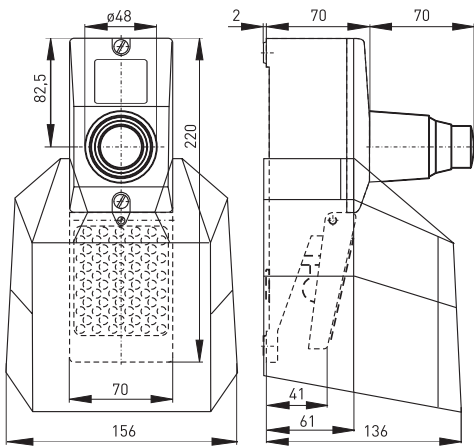
- Features/Options**
- With emergency-stop push button
 - Max. 4 contacts
 - Metal enclosure
 - With protective shield
 - High level of stability
 - Low pedal height
 - Wiring compartment
 - Available with special finish in RAL colour tones

// GFS NA



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) Emergency-stop: flat-plug connectors 2.8 x 0.8 mm per DIN 46247-3 also to be soldered |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232 |
| B_{10d} (10 % load) | 60,000 |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 2 contacts: 4 A/230 VAC; 2.5 A/400 VAC; 1 A/500 VAC emergency-stop push button: 3 A/250 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 30,000 operations |
| Approvals | |



Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|------------------------|-----------------|
| 1 NC/1 NO contact | GFS 10/1S NA 10/1S | 1184930 |
| 1 NC/1 NO contact | GFS 10/1S NA 20 | 1184419 |

Ordering details

GFSM 10/1S NA 10/1S

| | |
|--|--|
| | Emergency-stop push button contacts 1 NC/1 NO contact (20) |
| | Emergency-stop push button 1 NC/1 NO contact (20/2S) |
| | M Snap action (without M slow action) |
| | S Protective shield |
| | Series |

PRODUCTION PROCESS PAINT SHOP
PROTECTIVE SHIELDS ON AN ENAMELLING FIXTURE



Foot switches

// Series GFI

Features/Options

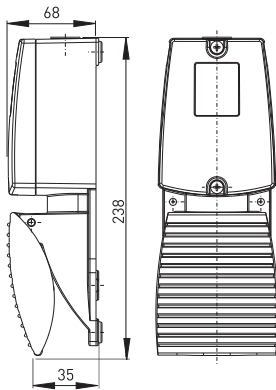
- Metal enclosure
- Max. 4 contacts
- Without protective shield
- High level of stability
- Ergonomic pedal design and low pedal height
- Degree of protection IP 67/IP 68 possible on request
- Ex version available
- Wiring compartment
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

// GFI



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium die-cast, enamel finish, RAL 2004 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts; ZS 232 |
| Switching element | 1 NC/1 NO contact or 2 NC/2 NO contacts |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 4 A/230 VAC 2.5 A/400 VAC 1 A/500 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | GFI 1Ö/1S: |



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Contact variants: Travel/contacts

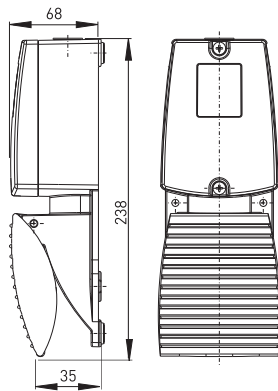
| | Snap action | Slow action |
|--------------------|-----------------------|----------------------|
| 1 NC/1 NO contact | GFIM 1Ö/1S | GFI 1Ö/1S |
| 2 NC/2 NO contacts | GFIM 2Ö/2S | GFI 2Ö/2S |

Ordering details

GFIM 1Ö/1S
Contacts 1Ö/1S, (2Ö/2S), other configurations possible
M Snap action (without M slow action)
Series

Foot switches
// Series GFI, variants

// Without protective shield GFI



Snap action
GFIM 10/1S
GFIM 20/2S

Material Number
1183831
1186822

Slow action
GFI 10/1S
GFI 20/2S

Material Number
1053497
1186735

Foot switches

// Series GFI, variants

Features/Options

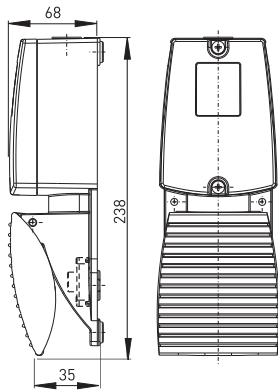
- With pressure point: 2-step switching
- 4 contacts
- Without protective shield
- High level of stability
- Ergonomic pedal design
- Low pedal height
- Wiring compartment
- Degree of protection IP 67/IP 68 possible on request
- Available with mechanical interlock
- Available with special finish in RAL colour tones

// GFI D



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium die-cast, enamel finish, RAL 2004 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | 2 x ES 40 GF |
| Switching element | 2-step switching: 1 NC/1 NO contact pressure point: 1 NC/1 NO contact |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | 6 A/400 VAC |
| Max. fuse rating | 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|--------------------------|-----------------|
| 1 NC/1 NO contact | GFI 1ÖS D 1ÖS | on request |

Ordering details

GFI 1ÖS D 1ÖS


1NC/1NO contact, other configurations possible
 Pressure point
 Contacts 1NC/1NO contact
 Series



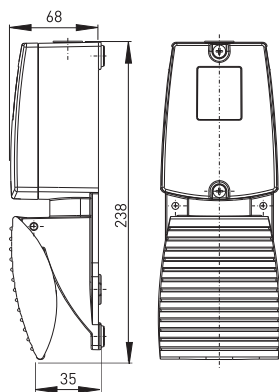
Features/Options

- With latching: ON/OFF principle
- Metal enclosure
- 2 contacts
- Without protective shield
- High level of stability
- Low pedal height
- Ergonomic pedal design
- Degree of protection IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

Technical data

| | |
|--------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium die-cast, enamel finish, RAL 2004 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | ES 60 GF RE |
| Switching element | 1 NC/1 NO contact with latching |
| Utilisation category | AC-15 |
| I _e /U _e | 16 A/400 VAC |
| Max. fuse rating | 16 A gG/gN fuse |
| Ambient temperature | -25 °C ... +80 °C |
| Mechanical life | > 1 million operations |
| Approvals |  |

// GFI RE



Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|--------------|-----------------|
| 1 NC/1 NO contact | GFI 10/15 RE | 1180900 |

Ordering details

GFI 10/15 RE

Latching element
Contacts 1NC/1NO contact
Series



Foot switches

// Series GFI, variants

Features/Options

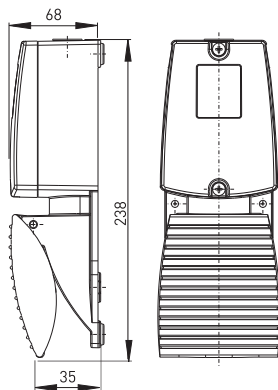
- With Hall sensor: Analogue output
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- Without protective shield
- Available with additional micro switch
- Ergonomic pedal design and low pedal height
- Degree of protection IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

// GFI HS



Technical data

| | |
|--|--|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium die-cast, enamel finish, RAL 2004 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 1 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | Hall sensor |
| Output values | |
| Output voltage U_a | 0...10 VDC $\pm 1\%$ |
| Output current I_a | 0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$ |
| I_e/U_e | at U_a : 25 mA/15 ... 30 VDC at I_a : 45 mA/15 ... 30 VDC |
| Ambient temperature | - 10 °C ... + 70 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Hall sensor | Material Number |
|-------|--------------------------------------|--------------------------|
| U_a | GFI HS 0-10 VDC | on request |
| I_a | GFI HS 0-20 mA GFI HS 4-20 mA | on request on request |

Ordering details

GFI HS 0-20 mA

Output value I_a 0-20 mA
(I_a 4-20 mA, U_a 0-10 VDC)
Hall sensor
Series



Features/Options

- With potentiometer: Analogue output
- Metal enclosure
- With various potentiometers available: 1 k Ω , 2 k Ω , 5 k Ω or 10 k Ω
- Start value can be set in factory
- Without protective shield
- Low pedal height
- Ergonomic pedal design
- Degree of protection IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

// GFI POTI



Technical data

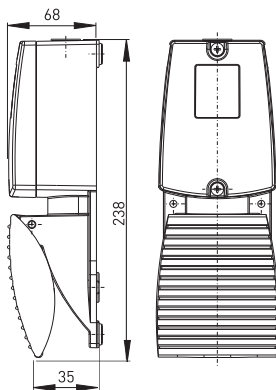
| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium die-cast, enamel finish, RAL 2004 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | soldering terminals |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver, gold-plated |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | potentiometer |
| Resistance R | 20 Ω ... 1 k Ω \pm 3 %; 20 Ω ... 2 k Ω \pm 3 %; 50 Ω ... 5 k Ω \pm 3 %; 100 Ω ... 10 k Ω \pm 3 % |
| Linearity | \pm 0.5 % |
| I_e/U_e | micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC |
| Switching power | potentiometer: max. 1.5 W at 40 °C |
| Ambient temperature | -15 °C ... +80 °C |
| Mechanical life | > 1 million operations |

Approvals



Note

The built-in micro switch provides for potential-free switching of the potentiometer.



Contact variants: Travel/contacts

| | Potentiometer | Material Number |
|---------------|---------------------|-----------------|
| 1 change-over | GFI POTI 1K 1PW | on request |
| 2 change-over | GFI POTI 1K 2PW | on request |

Ordering details

GFI POTI 1K 1PW

Micro switch 1 change-over contact (2PW), other configurations possible

Potentiometer value 1 k Ω (2 k Ω , 5 k Ω or 10 k Ω)

Potentiometer

Series



Foot switches // Series GFSI

Features/Options

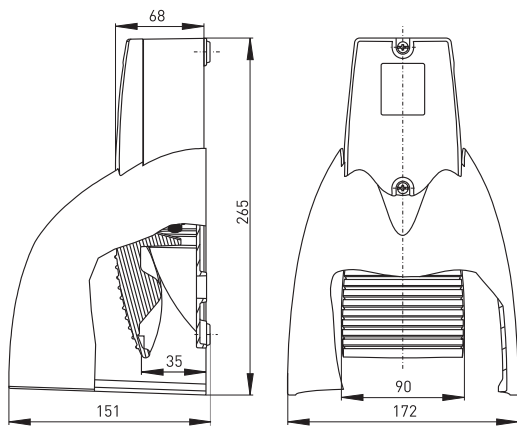
- Metal enclosure
- Max. 4 contacts
- With protective shield
- Wide opening in protective shield
- Ergonomic pedal design
- Degree of protection IP 67/IP 68 possible on request
- Ex version available
- Wiring compartment
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

// GFSI



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Protective shield | aluminium die-cast, enamel finish, RAL 2004 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232 |
| Switching element | 1 NC/1 NO contact or 2 NC/2 NO contacts |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 4 A/230 VAC; 2.5 A/400 VAC; 1 A/500 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 2 and 4 contacts: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | GFSI 10/1S - GFSI 20/2S: |



Contact variants: Travel/contacts

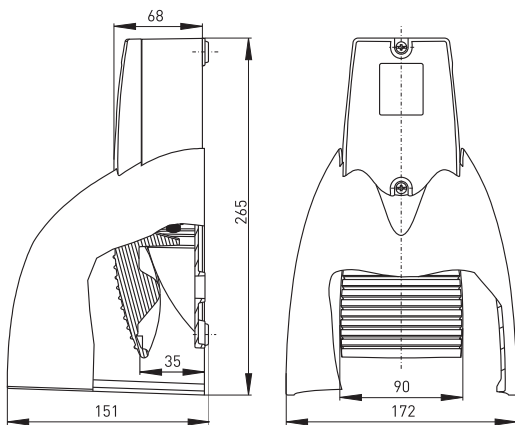
| | Snap action | Slow action |
|--------------------|------------------------|-----------------------|
| 1 NC/1 NO contact | GFSIM 10/1S | GFSI 10/1S |
| 2 NC/2 NO contacts | GFSIM 20/2S | GFSI 20/2S |

Ordering details

GFSIM 10/1S

Contacts 10/1S (20/2S), other configurations possible
M Snap action (without M slow action)
Series, S Protective shield

// With protective shield GFSI



Snap action
GFSIM 10/1S
GFSIM 20/2S

Material Number
1159404
1184185

Slow action
GFSI 10/1S
GFSI 20/2S

Material Number
1053499
1161879

Foot switches

// Series GFI, variants

Features/Options

- With pressure point: 2-step switching
- 4 contacts
- With protective shield
- Wide opening in protective shield
- Ergonomic pedal design
- Low pedal height
- Wiring compartment
- Degree of protection IP 67/IP 68 possible on request
- Available with mechanical interlock
- Available with special finish in RAL colour tones

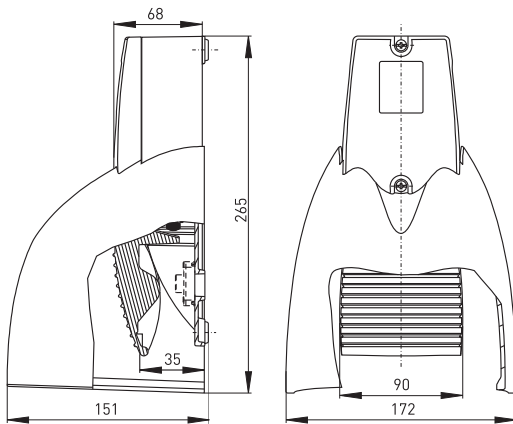
// GFSI D



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Protective shield | aluminium die-cast, enamel finish, RAL 2004 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | 2 x ES 40 GF |
| Switching element | 2-step switching: 1 NC/1 NO contact pressure point: 1 NC/1 NO contact |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | 6 A/400 VAC |
| Max. fuse rating | 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

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Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|---------------------------|-----------------|
| 1 NC/1 NO contact | GFSI 10S D 10S | on request |

Ordering details

GFSI 10S D 10S


1NC/1NO contact
 Pressure point
 1NC/1NO contact, other configurations possible
 Series, S Protective shield



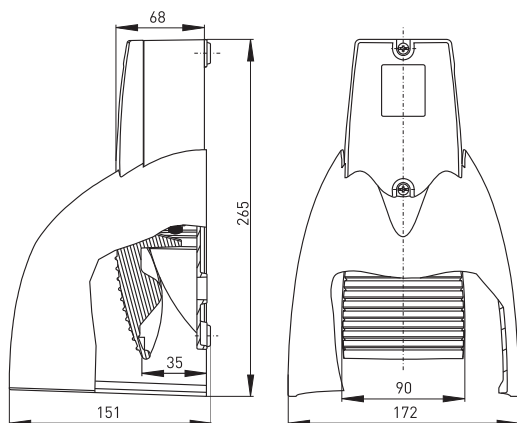
Features/Options

- With latching: ON/OFF principle
- Metal enclosure
- 2 contacts
- With protective shield
- Wide opening in protective shield
- Low pedal height
- Ergonomic pedal design
- Degree of protection IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones


Technical data

| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Protective shield | aluminium die-cast, enamel finish, RAL 2004 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | ES 60 GF RE |
| Switching element | 1 NC/1 NO contact with latching |
| Utilisation category | AC-15 |
| I_e/U_e | 16 A/400 VAC |
| Max. fuse rating | 16 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals |  |

// GFSI RE



Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|--|-----------------|
| 1 NC/1 NO contact | GFSI 1Ö/1S RE  | 1182299 |

Ordering details

GFSI 1Ö/1S RE

Latching element
Contacts 1NC/1NO contact
Series, S Protective shield



Foot switches

// Series GFSI, variants

Features/Options

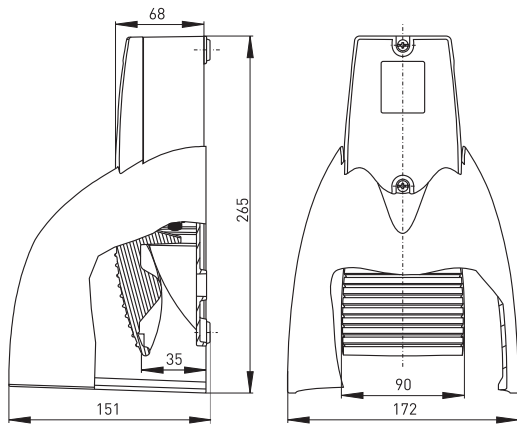
- With Hall sensor: Analogue output
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- With protective shield and wide opening in protective shield
- Available with additional micro switch
- Ergonomic pedal design
- Degree of protection IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

// GFSI HS



Technical data

| | |
|--|--|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Protective shield | aluminium die-cast, enamel finish, RAL 2004 |
| Connection | screw terminals |
| Cable cross-section | max. 1 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | Hall sensor |
| Output values | |
| Output voltage U_a | 0...10 VDC $\pm 1\%$ |
| Output current I_a | 0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$ |
| I_e/U_e | at U_a : 25 mA/15 ... 30 VDC at I_a : 45 mA/15 ... 30 VDC |
| Ambient temperature | - 10 °C ... + 70 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Hall sensor | Material Number |
|-------|--|-----------------------|
| U_a | GFSI HS 0-10 VDC | 1186230 |
| I_a | GFSI HS 0-20 mA GFSI HS 4-20 mA | on request 1169196 |

Ordering details

GFSI HS 0-20 mA

Output value I_a 0-20 mA
(I_a 4-20 mA, U_a 0-10 VDC)
Hall sensor
Series, S Protective shield



Features/Options

- With potentiometer: Analogue output
- Metal enclosure
- With various potentiometers available: 1 k Ω , 2 k Ω , 5 k Ω or 10 k Ω
- Start value can be set in factory
- With protective shield
- Wide opening in protective shield
- Ergonomic pedal design
- Degree of protection IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

// GFSI POTI



Technical data

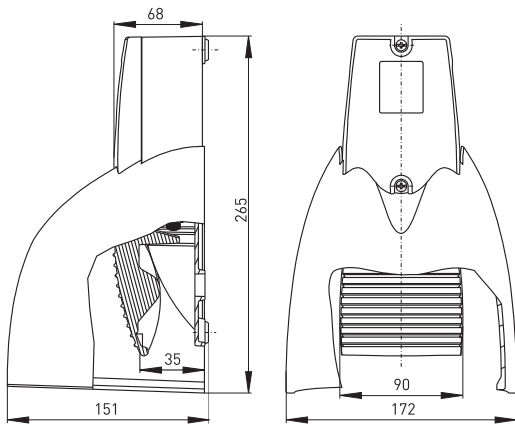
| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Protective shield | aluminium die-cast, enamel finish, RAL 2004 |
| Connection | soldering terminals |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver, gold-plated |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | potentiometer |
| Resistance R | 20 Ω ... 1 k Ω \pm 3 %; 20 Ω ... 2 k Ω \pm 3 %; 50 Ω ... 5 k Ω \pm 3 %; 100 Ω ... 10 k Ω \pm 3 % |
| Linearity | \pm 0.5 % |
| I_e/U_e | micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC |
| Switching power | potentiometer: max. 1.5 W at 40 °C |
| Ambient temperature | - 15 °C ... + 80 °C |
| Mechanical life | > 1 million operations |

Approvals

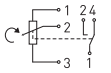
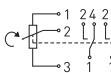


Note

The built-in micro switch provides for potential-free switching of the potentiometer.



Contact variants: Travel/contacts

| | Potentiometer | Material Number |
|---------------|--|-----------------|
| 1 change-over | GFSI POTI ... 1PW  | on request |
| 2 change-over | GFSI POTI ... 2PW  | on request |

Ordering details

GFSI POTI 1K 1PW

Micro switch 1 change-over contact (2PW), other configurations possible

Potentiometer value 1 k Ω (2 k Ω , 5 k Ω or 10 k Ω)

Potentiometer

Series, S Protective shield



Foot switches

// Series GF 2

Features/Options

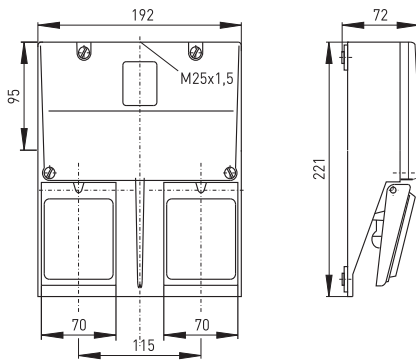
- Double-pedal type
- Without protective shield
- Max. 4 contacts per pedal
- Metal enclosure
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

// GF 2



Technical data

| | |
|------------------------------------|---|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232 |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 2 contacts: 4 A/230 VAC; 2.5 A/400 VAC; 1 A/500 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | GF 2 1ÖS/1ÖS, GF 2 2ÖS/2ÖS: |



Contact variants: Travel/contacts

| | Snap action | Slow action |
|--------------------|--------------------------|-------------------------|
| 1 NC/1 NO contact | GFM 2 1ÖS/1ÖS | GF 2 1ÖS/1ÖS |
| 2 NC/2 NO contacts | GFM 2 2ÖS/2ÖS | GF 2 2ÖS/2ÖS |

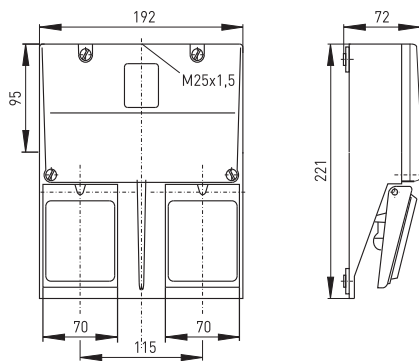
Ordering details

GFMK 2 1ÖS/1ÖS

- 1NC/1NO contact (2Ö/2S) right pedal
 - 1NC/1NO contact (2Ö/2S) left pedal, other configurations possible
 - 2 pedals
 - K Pedal cover
 - M Snap action (without M slow action)
- Series

Foot switches
 // Series GF 2, variants

// Without protective shield GF 2



Snap action
 GFM 2 1ÖS/1ÖS
 GFM 2 1ÖS/2ÖS
 GFM 2 2ÖS/1ÖS
 GFM 2 2ÖS/2ÖS

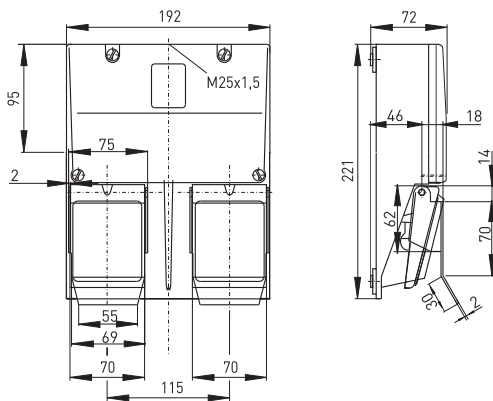
Material Number
 1048793
 1048809
 1048811
 1048805

Slow action
 GF 2 1ÖS/1ÖS
 GF 2 1ÖS/2ÖS
 GF 2 2ÖS/1ÖS
 GF 2 2ÖS/2ÖS

Material Number
 1048770
 1048808
 1048810
 1048798

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// Pedal cover K



Snap action/Pedal cover
 GFMK 2 1ÖS/1ÖS
 GFMK 2 2ÖS/2ÖS

Material Number
 on request
 on request

Slow action/Pedal cover
 GFK 2 1ÖS/1ÖS
 GFK 2 2ÖS/2ÖS

Material Number
 1048774
 1160261

Foot switches

// Series GF 2, variants

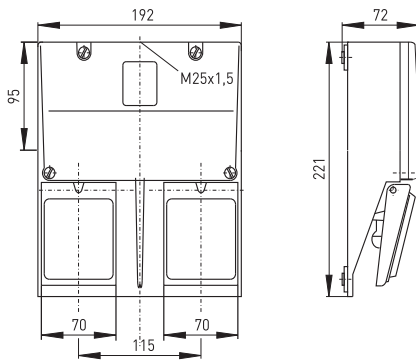
- Features/Options**
- With pressure point: 2-step switching
 - Double-pedal type
 - Max. 4 contacts per pedal
 - Metal enclosure
 - Without protective shield
 - Different pedal functions possible
 - Wiring compartment
 - Available with mechanical interlock
 - Available with special finish in RAL colour tones

// GF 2 D



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | 2 x ES 40 GF per pedal |
| Switching element | 2-step switching: 1 NC/1 NO contact pressure point: 1 NC/1 NO contact |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | 6 A/400 VAC |
| Max. fuse rating | 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|--------------------------|-----------------|
| 1 NC/1 NO contact | GF 2 1ÖSD1ÖS/1ÖSD1ÖS | 1048826 |

Ordering details

GF 2 1ÖS D 1ÖS/1ÖS D 1ÖS

Contacts right pedal
 1NC/1NO contact left pedal
 Pressure point
 1NC/1NO contact left pedal, other configurations possible
 2 pedals
 Series




Features/Options

- With latching: ON/OFF principle
- Double-pedal type
- Max. 2 contacts per pedal
- Metal enclosure
- Without protective shield
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

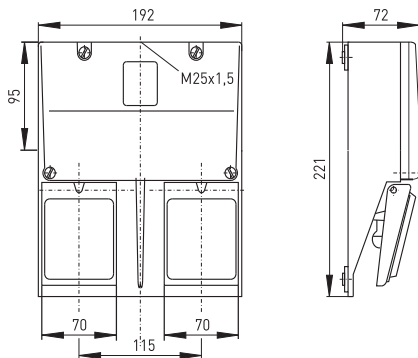
// GF 2 RE




Technical data

| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | 1 x ES 60 GF RE per pedal |
| Switching element | 1 NC/1 NO contact with latching |
| Utilisation category | AC-15 |
| I_e/U_e | 16 A/400 VAC |
| Max. fuse rating | 16 A gG/gN fuse |
| Ambient temperature | -25 °C ... +80 °C |
| Mechanical life | > 1 million operations |
| Approvals |  |

41

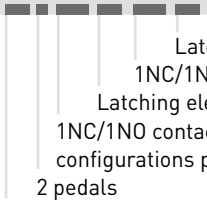


Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|---|-----------------|
| 1 NC/1 NO contact | GF 2 1ÖS RE/1ÖS RE  | 1048772 |

Ordering details

GF 2 1ÖS RE/1ÖS RE



 Latching element right p.
 1NC/1NO contact right pedal
 Latching element left pedal
 1NC/1NO contact left pedal, other
 configurations possible
 2 pedals
 Series



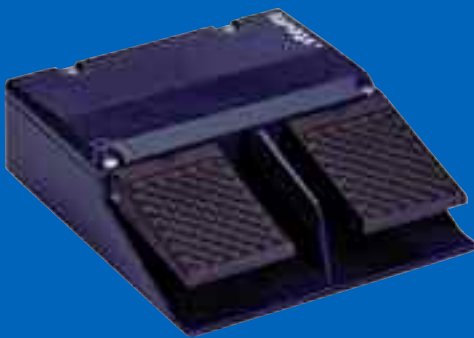
Foot switches

// Series GF 2, variants

Features/Options

- With potentiometer: Analogue output
- Double-pedal type
- Metal enclosure
- With various potentiometers available: 1 kΩ, 2 kΩ, 5 kΩ or 10 kΩ
- Start value can be set in factory
- Without protective shield
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

// GF 2 POT1



Technical data

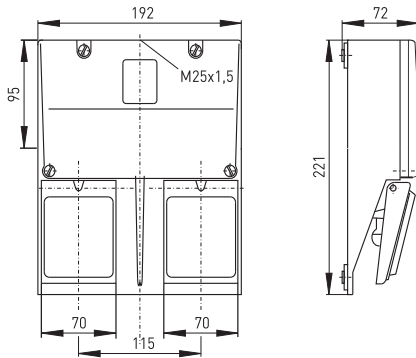
| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Cover | aluminium cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | soldering terminals |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver, gold-plated |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | potentiometer |
| Resistance R | 20 Ω ... 1 kΩ ±3 %; 20 Ω ... 2 kΩ ±3 %; 50 Ω ... 5 kΩ ±3 %; 100 Ω ... 10 kΩ ±3 % |
| Linearity | ±0.5 % |
| I_e/U_e | micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC |
| Switching power | potentiometer: max. 1.5 W at 40 °C |
| Ambient temperature | - 15 °C ... + 80 °C |
| Mechanical life | > 1 million operations |

Approvals



Note

The built-in micro switch provides for potential-free switching of the potentiometer.

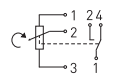


Contact variants: Travel/contacts

Potentiometer

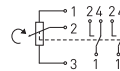
1 change-over

GF 2 POT1 1K 1PW/1K 1PW



2 change-over

GF 2 POT1 1K 2PW/1K 2PW



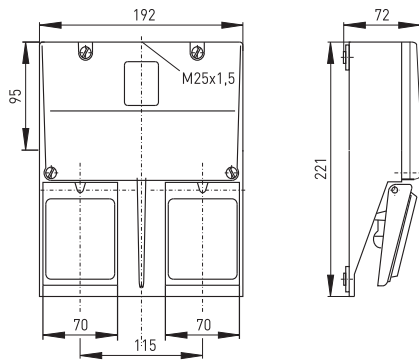
Ordering details

GF 2 POT1 1K 1PW/1K 1PW

Contacts right pedal
Micro sw. 1 change-over (2PW) l.p.
POTI value 1 kΩ (2, 5 or 10 kΩ) left
pedal, other configur. possible
Potentiometer
2 pedals
Series



// Potentiometer



Potentiometer
GF 2 Poti 1K 1PW/1K 1PW
GF 2 Poti 5K 1PW/5K 1PW
GF 2 Poti 10K 1PW/10K 1PW

Material Number
1184063
1048812
1048813

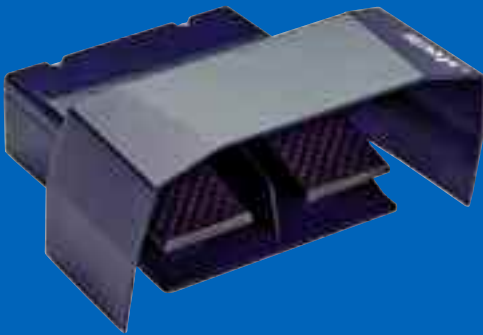
Foot switches

// Series GFS 2

Features/Options

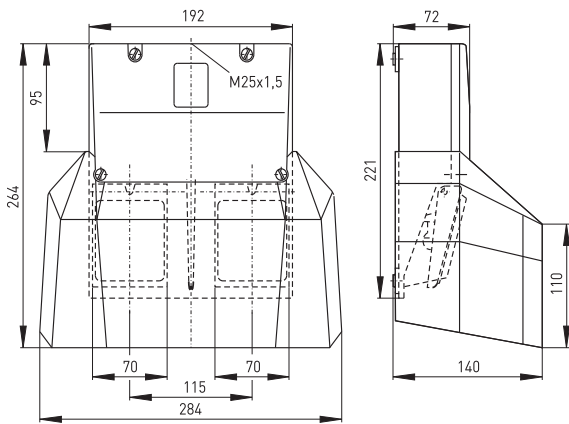
- Double-pedal type
- With protective shield
- Max. 4 contacts per pedal
- Metal enclosure
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

// GFS 2



Technical data

| | |
|------------------------------------|---|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232 |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 2 contacts: 4 A/230 VAC; 2.5 A/400 VAC; 1 A/500 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Snap action | Slow action |
|--------------------|---------------------------|--------------------------|
| 1 NC/1 NO contact | GFSM 2 1ÖS/1ÖS | GFS 2 1ÖS/1ÖS |
| 2 NC/2 NO contacts | GFSM 2 2ÖS/2ÖS | GFS 2 2ÖS/2ÖS |

Ordering details

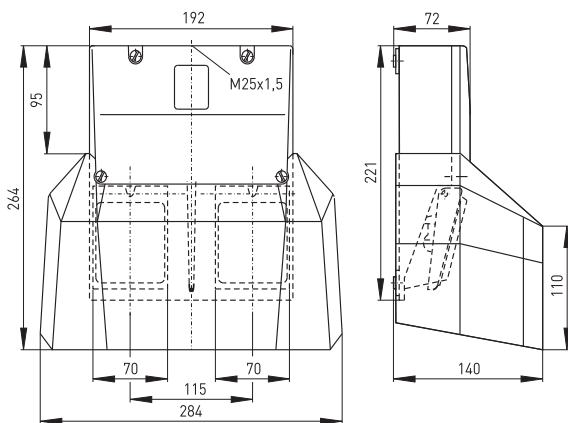
GFSMK 2 1Ö1S/1Ö1S TST

- TST Carrying handle (FST foot rest)
- 1NC/1NO contact (2Ö/2S) right pedal
- 1NC/1NO contact (2Ö/2S) left pedal, other configurations possible
- 2 pedals
- K Pedal cover
- M Snap action (without M slow action)
- S Protective shield
- Series

Foot switches

// Series GFS 2, variants

// Pedal cover K



Snap action
 GFSM 2 1ÖS/1ÖS
 GFSM 2 1ÖS/2ÖS
 GFSM 2 2ÖS/1ÖS
 GFSM 2 2ÖS/2ÖS

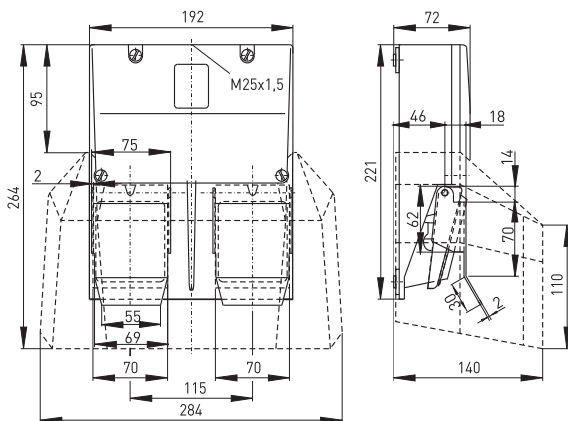
Material Number
 1048877
 1048905
 1048908
 1048893

Slow action
 GFS 2 1ÖS/1ÖS
 GFS 2 1ÖS/2ÖS
 GFS 2 2ÖS/1ÖS
 GFS 2 2ÖS/2ÖS

Material Number
 1048842
 1048903
 1048906
 1048883

45

// Pedal cover K



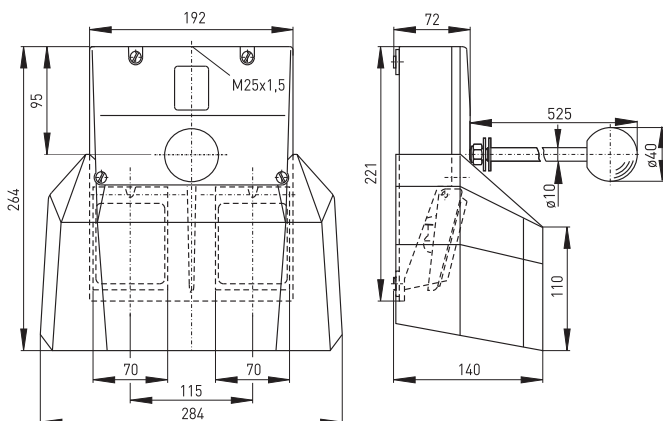
Snap action/Pedal cover
 GFSMK 2 1ÖS/1ÖS
 GFSMK 2 2ÖS/2ÖS

Material Number
 1048878
 1048894

Slow action/Pedal cover
 GFSK 1ÖS/1ÖS
 GFSK 2ÖS/2ÖS

Material Number
 1048848
 on request

// Carrying handle TST



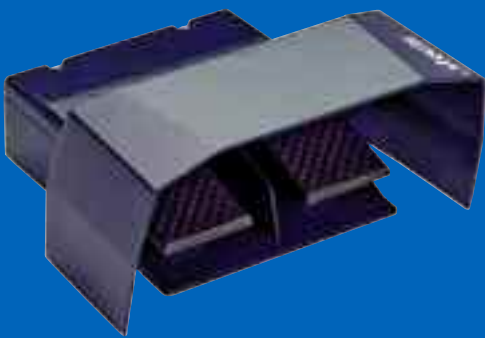
Features/Options
 - Carrying handle:
 stainless steel 1.4104 with thermoplastic grip

Foot switches

// Series GFS 2, variants

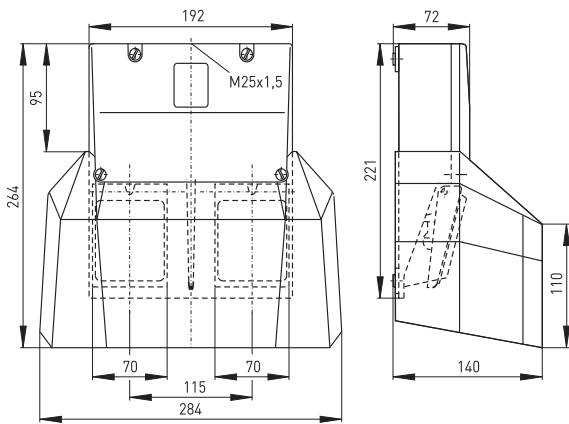
- Features/Options**
- With pressure point: 2-step switching
 - Double-pedal type
 - Max. 4 contacts per pedal
 - Metal enclosure
 - With protective shield
 - Different pedal functions possible
 - Low pedal height
 - Wiring compartment
 - Available with mechanical interlock
 - Available with special finish in RAL colour tones

// GFS 2 D



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | 2 x ES 40 GF per pedal |
| Switching element | 2-step switching: 1 NC/1 NO contact pressure point: 1 NC/1 NO contact |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | 6 A/400 VAC |
| Max. fuse rating | 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|----------------------------------|-----------------|
| 1 NC/1 NO contact | GFS 2 1ÖSD1ÖS/1ÖSD1ÖS | 1048916 |

Ordering details

GFS 2 1ÖS D 1ÖS/1ÖS D 1ÖS

- Contacts right pedal
- 1NC/1NO contact left pedal
- Pressure point
- 1NC/1NO contact left pedal,
- other configurations possible
- 2 pedals
- Series, S Protective shield



Features/Options

- With latching: ON/OFF principle
- Double-pedal type
- Max. 2 contacts per pedal
- Metal enclosure
- With protective shield
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

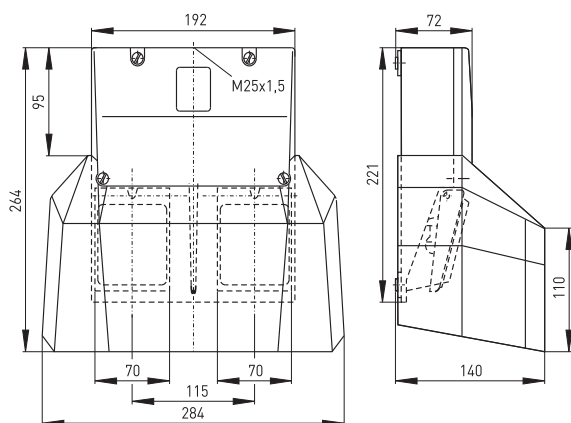
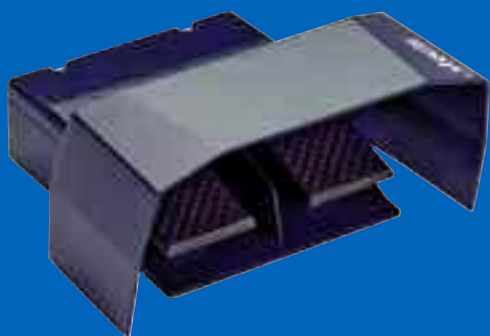
Technical data

| | |
|--------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ |
| Switch insert | 1 x ES 60 GF RE per pedal |
| Switching element | 1 NC/1 NO contact with latching |
| Utilisation category | AC-15 |
| I _e /U _e | 16 A/400 VAC |
| Max. fuse rating | 16 A gG/gN fuse |
| Ambient temperature | -25 °C ... +80 °C |
| Mechanical life | > 1 million operations |


Approvals



// GFS 2 RE



Contact variants: Travel/contacts

| | Slow action | Material Number |
|-------------------|--|-----------------|
| 1 NC/1 NO contact | GFS 2 1ÖS RE/1ÖS RE  | 1048862 |

Ordering details

GFS 2 1ÖS RE/1ÖS RE

- Contacts right pedal
- Latching element left pedal
- 1NC/1NO contact left pedal
- 2 pedals
- S Protective shield
- Series



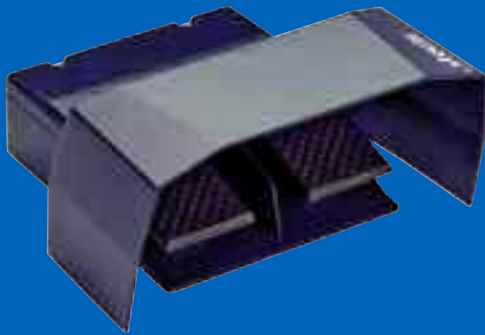
Foot switches

// Series GFS 2, variants

Features/Options

- With potentiometer: Analogue output
- Double-pedal type
- Metal enclosure
- With various potentiometers available: 1 kΩ, 2 kΩ, 5 kΩ or 10 kΩ
- Start value can be set in factory
- With protective shield
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

// GFS 2 POTI



Technical data

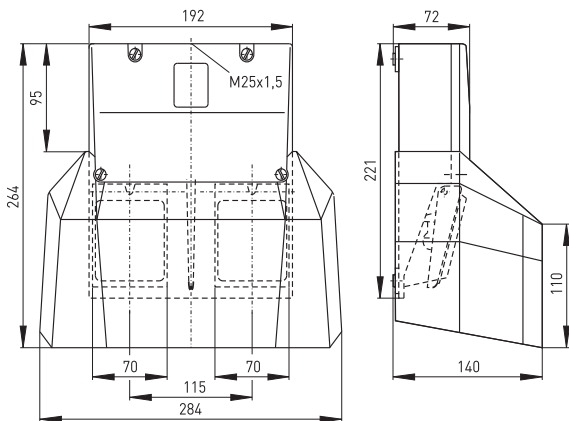
| | |
|------------------------------------|---|
| Standards | EN 60947-5-1 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | soldering terminals |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver, gold-plated |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | potentiometer |
| Resistance R | 20 Ω ... 1 kΩ ±3 %; 20 Ω ... 2 kΩ ±3 %; 50 Ω ... 5 kΩ ±3 %; 100 Ω ... 10 kΩ ±3 % |
| Linearity | ±0.5 % |
| I_e/U_e | micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC |
| Switching power | potentiometer: max. 1.5 W at 40 °C |
| Ambient temperature | - 15 °C ... + 80 °C |
| Mechanical life | > 1 million operations |

Approvals



Note

The built-in micro switch provides for potential-free switching of the potentiometer.



Contact variants: Travel/contacts

| | Potentiometer |
|---------------|--------------------------|
| 1 change-over | GFS 2 POTI 1K 1PW/1K 1PW |
| 2 change-over | GFS 2 POTI 1K 2PW/1K 2PW |

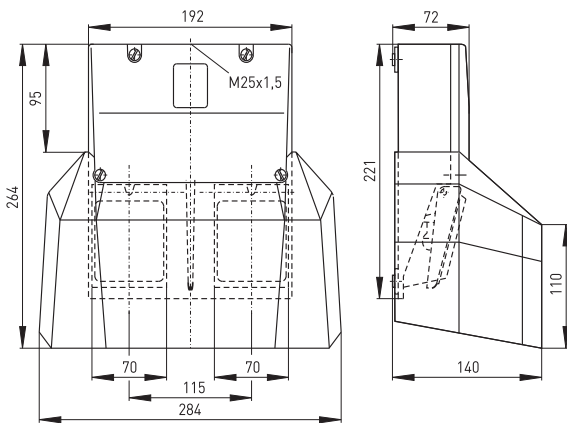
Ordering details

GFS 2 POTI 1K 1PW/1K 1PW

- Contacts right pedal
- Micro switch 1 change-over (2PW) left pedal
- POTI value 1 kΩ (2, 5 or 10 kΩ) l.p.
- Potentiometer
- 2 pedals
- Series, S Protective shield



// Potentiometer



Potentiometer
GFS 2 Poti 1K 1PW/1K 1PW
GFS 2 Poti 2K 1PW/1K 1PW
GFS 2 Poti 5K 1PW/5K 1PW
GFS 2 Poti 10K 1PW/10K 1PW

GFS 2 Poti 1K 2PW/1K 2PW

Material Number
1171137
1165008
1048912
1048910

on request

Foot switches // Series GF 3

// GF 3

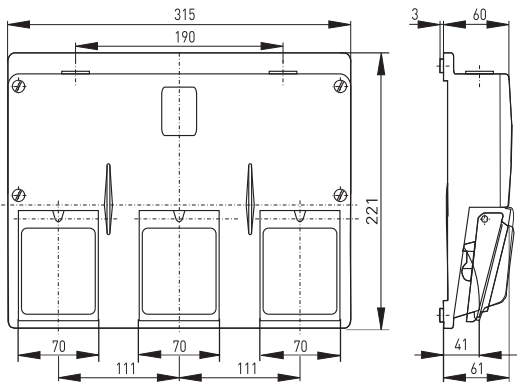


Features/Options

- Triple-pedal type
- Without protective shield
- Max. 4 contacts per pedal
- Metal enclosure
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

Technical data

| | |
|------------------------------------|---|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium cast, enamel finish, RAL 5011 |
| Cover | aluminium cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 2 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232 |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 2 contacts: 4 A/230 VAC; 2.5 A/400 VAC; 1 A/500 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | GF 3 1ÖS/1ÖS/1ÖS, GF 3 2ÖS/2ÖS/2ÖS: |



Contact variants: Travel/contacts

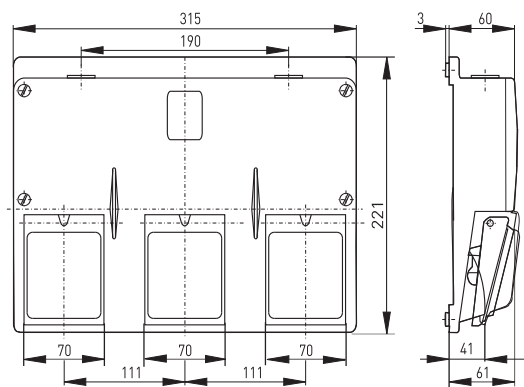
| | Snap action | Slow action |
|--------------------|------------------------------|-----------------------------|
| 1 NC/1 NO contact | GFM 3 1ÖS/1ÖS/1ÖS | GF 3 1ÖS/1ÖS/1ÖS |
| 2 NC/2 NO contacts | GFM 3 2ÖS/2ÖS/2ÖS | GF 3 2ÖS/2ÖS/2ÖS |

Ordering details

GFM 3 1ÖS/1ÖS/1ÖS

- Contacts right pedal
 - Contacts center pedal
 - 1NC/1NO contact (2Ö/2S) left pedal, other configurations possible
 - 3 pedals
 - M Snap action (without M slow action)
- Series

// Without protective shield GF



Snap action
GFM 3 1ÖS/1ÖS/1ÖS
GFM 3 2ÖS/2ÖS/2ÖS

Material Number
1048949
1048952

Slow action
GF 3 1ÖS/1ÖS/1ÖS
GF 3 2ÖS/2ÖS/2ÖS

Material Number
1048945
1048951

Foot switches

// Series GFS 3

// GFS 3



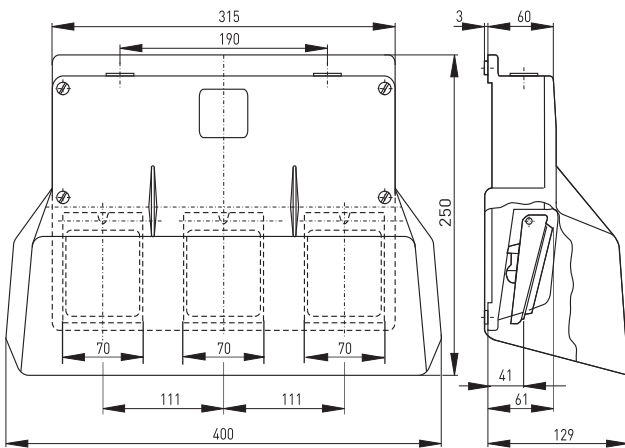
Features/Options

- Triple-pedal type
- With protective shield
- Max. 4 contacts per pedal
- Metal enclosure
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

Technical data

| | |
|------------------------------------|---|
| Standards | EN ISO 13849-1; EN 60947-5-1 |
| Enclosure | aluminium cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 2 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | slow or snap action with double break, positive break NC contact ⊖ |
| Switch insert | slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232 |
| B_{10d} (10 % load) | 2 million |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| I_e/U_e | slow action: 4 contacts: 6 A/400 VAC 2 contacts: 16 A/400 VAC snap action: 2 contacts: 4 A/230 VAC; 2.5 A/400 VAC; 1 A/500 VAC |
| Max. fuse rating | slow action: 4 contacts: 6 A gG/gN fuse 2 contacts: 16 A gG/gN fuse snap action: 4 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

GFS 3 1ÖS/1ÖS/1ÖS, GFS 3 2ÖS/2ÖS/2ÖS:



Contact variants: Travel/contacts

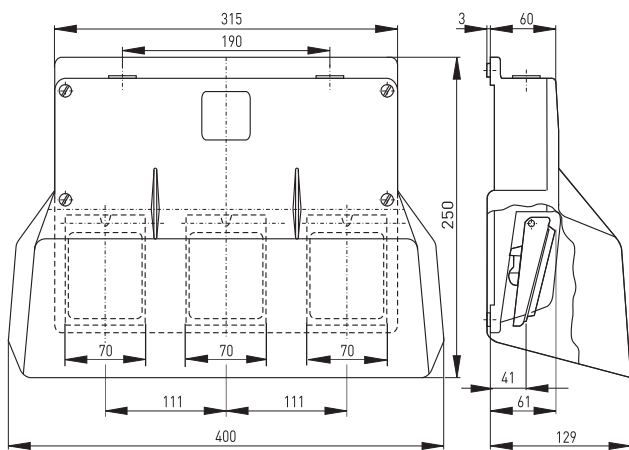
| | Snap action | Slow action |
|--------------------|------------------------|-----------------------|
| 1 NC/1 NO contact | GFSM 3 1ÖS/1ÖS/1ÖS | GFS 3 1ÖS/1ÖS/1ÖS |
| 2 NC/2 NO contacts | GFSM 3 2ÖS/2ÖS/2ÖS | GFS 3 2ÖS/2ÖS/2ÖS |

Ordering details

GFSM 3 1ÖS/1ÖS/1ÖS

- Contacts right pedal
 - Contacts center pedal
 - 1NC/1NO contact (2Ö/2S) left pedal, other configurations possible
 - 3 pedals
 - M Snap action (without M slow action)
 - S Protective shield
- Series

// With protective shield GFS 3

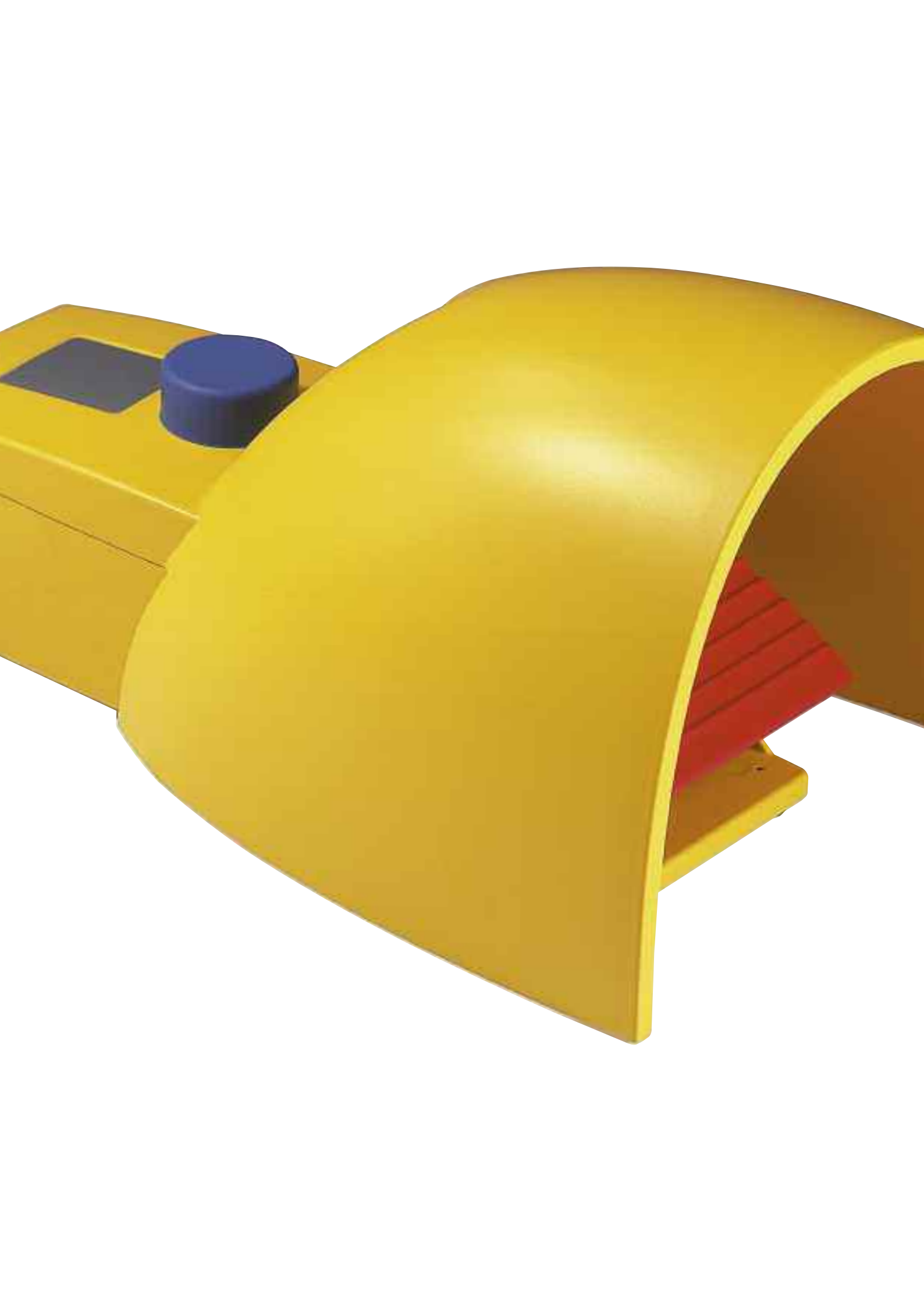


Snap action
GFSM 3 1ÖS/1ÖS/1ÖS
GFSM 3 2ÖS/2ÖS/2ÖS

Material Number
1048959
1048962

Slow action
GFS 3 1ÖS/1ÖS/1ÖS
GFS 3 2ÖS/2ÖS/2ÖS

Material Number
1048956
1048961





Safety foot switches Metal enclosure

Single-pedal types

// [Series GFS VD](#)

from page 58

// [Series GFSI VD](#)

from page 60

Double-pedal types

// [Series GFS 2 VD](#)

from page 62



Safety foot switches

Metal enclosure

Application

Safety foot switches are mounted on machines and plants as enabling switches in cases where operation using the hands is not possible and an emergency-stop function in case of a hazardous situation is required.

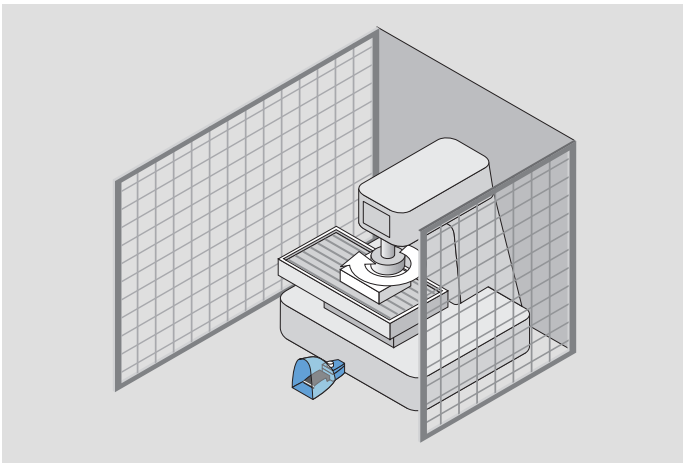
Design and mode of operation

All safety foot switches are mounted with a shield to protect against unintentional operation. When the foot pedal is actuated to as far as the pressure point, the NO contact is closed. If, in case of danger, the pedal is actuated beyond the pressure point, then the positive break NC contact is opened and mechanically latched. Reset operation is carried out by means of a push button. The function principle of all safety foot switches is also shown in the drawing below. The safety foot switches conform to IP 65.

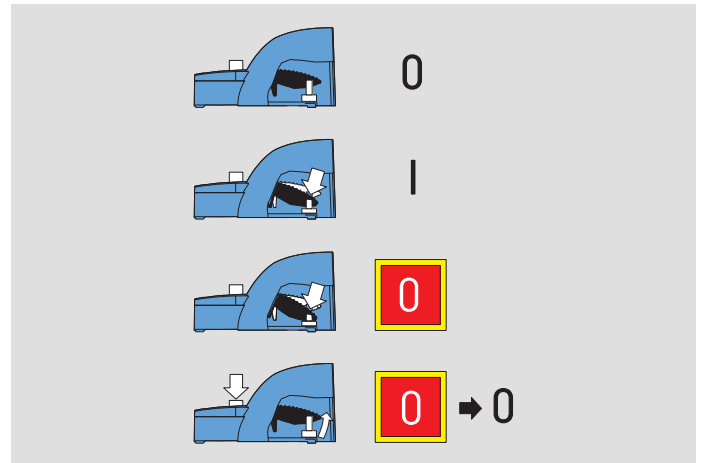
All safety foot switches bear the CE mark according to the Machinery Directive.

Application

Safety foot switch at a machining center



Function principle



Safety foot switches

// Series GFS VD

Features/Options

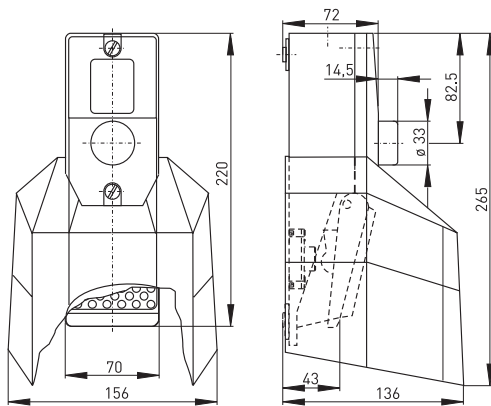
- GFS VD: NC contact 15-16 ⊖ in series with NO contact 23-24 (internal wiring)
- With impulse wiping contacts GFS IK VD: without switching impulse when unlocking foot switch; NO contact 13-14 is converted into positive break NC contact ⊖ by internal baffle after pressure point, Safety contact: 13-14 ⊖, Signalling contact: 21-22
- Max. 4 contacts
- Metal enclosure
- Wiring compartment
- Available with special finish in RAL colour tones

// GFS VD



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1, BG-GS-ET-15 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ per EN 60947-5-1 |
| Switch insert | ES 60 GF VD, ES 60 GF IK VD |
| Contacts | 1 NO/1 NC or 2 NO/2 NC contacts |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 200,000 |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| U_{imp} | 6 kV |
| U_i | 500 V |
| I_{the} | GFS VD: 16 A, GFS IK VD: 6 A |
| I_e/U_e | GFS VD: 16 A/400 VAC, GFS IK VD: 6 A/400 VAC |
| Contact load capacity | max. 400 VAC, GFS VD: max. 16 A (cos φ = 1), GFS IK VD: max. 6 A (cos φ = 1) |
| Max. fuse rating | GFS VD: 16 A gG/gN fuse, GFS IK VD: 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 100,000 operations |
| Approvals | GFS IK VD: |



Contact variants: Travel/contacts

| | Slow action | Impulse wiping contact |
|--------------------|---------------------------|--------------------------------|
| 1 NC/1 NO contact | GFS 1S D 10 VD | GFS IK 10IS D 10 VD |
| 2 NC/2 NO contacts | GFS 2S D 20 VD | GFS IK 20IS D 20 VD |

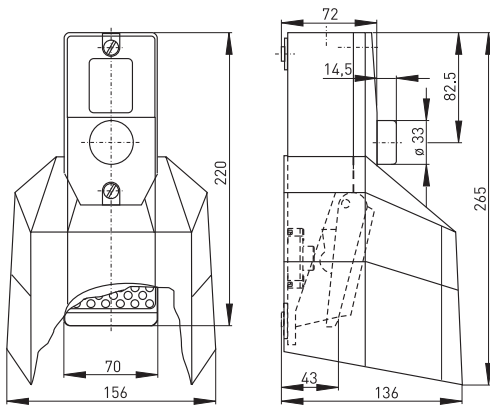
Ordering details

GFS 1S D 10 VD

1 NO contact (2S D 20 VD, IK 10S D 10 VD, IK 20S D 20 VD)
 S Protective shield
 Series

Foot switches
// Series GFS VD, variants

// With protective shield GFS



Slow action
GFS 1S D 1Ö VD
GFS 2S D 2Ö VD

Material Number
1048696
1048719

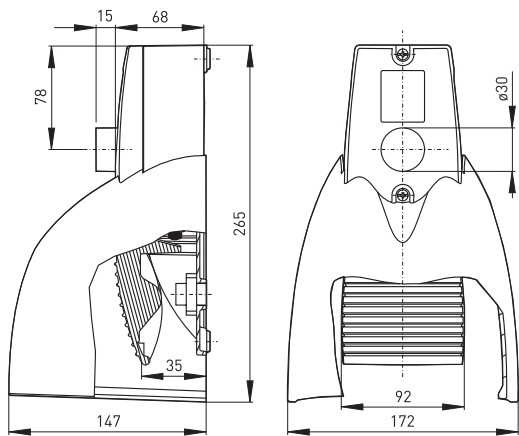
Impulse wiping contact
GFS IK 1Ö1S D 1Ö VD
GFS IK 2Ö2S D 2Ö VD

Material Number
1181480
1179113

Safety foot switches

// Series GFSI VD

// GFSI VD



Features/Options

- GFSI VD: NC contact 15-16 ⊖ in series with NO contact 23-24 (internal wiring)
- With impulse wiping contacts GFSI IK VD: without switching impulse when unlocking foot switch; NO contact 13-14 is converted into positive break NC contact ⊖ by internal baffle after pressure point, Safety contact: 13-14 ⊖, Signalling contact: 21-22
- Max. 4 contacts
- Ergonomic pedal shape and wide opening in protective shield
- Wiring compartment
- Available with special finish in RAL colour tones

Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1, BG-GS-ET-15 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | aluminium die-cast, enamel finish, RAL 5011 |
| Protective shield | aluminium die-cast, enamel finish, RAL 2004 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M20 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ per EN 60947-5-1 |
| Switch insert | ES 60 GF VD, ES 60 GF IK VD |
| Contacts | 1 NO/1 NC or 2 NO/2 NC contacts |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 200,000 |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| U_{imp} | 6 kV |
| U_i | 500 V |
| I_{the} | GFS VD: 16 A, GFS IK VD: 6 A |
| I_e/U_e | GFS VD: 16 A/400 VAC, GFS IK VD: 6 A/400 VAC |
| Contact load capacity | max. 400 VAC, GFS VD: max. 16 A (cos φ = 1), GFSI IK VD: max. 6 A (cos φ = 1) |
| Max. fuse rating | GFS VD: 16 A gG/gN fuse, GFS IK VD: 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 100,000 operations |
| Approvals | |

GFSI IK 2ÖS D 2Ö VD:

Contact variants: Travel/contacts

| | Slow action | Impulse wiping contact |
|--------------------|----------------------------|--------------------------------|
| 1 NC/1 NO contact | GFSI 1S D 1Ö VD | GFSI IK 1Ö1S D 1ÖVD |
| 2 NC/2 NO contacts | GFSI 2S D 2Ö VD | GFSI IK 2Ö2S D 2ÖVD |

Ordering details

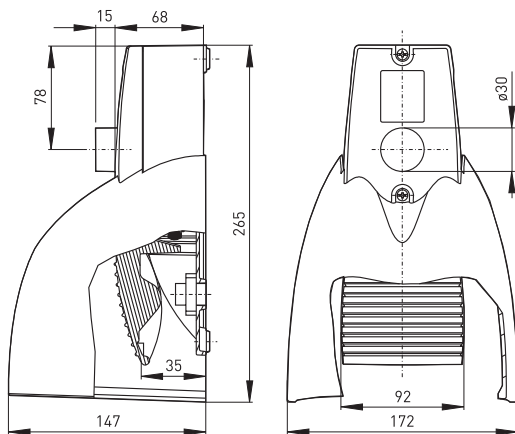
GFSI 1S D 1Ö VD

1 NO contact (2S D 2Ö VD,
IK 1ÖS D 1Ö VD, IK 2ÖS D 2Ö VD)
Series, S Protective shield

Foot switches

// Series GFSI VD, variants

// With protective shield GFS



Slow action

GFSI 1S D 10 VD
GFSI 2S D 20 VD

Material Number

1159564
1177932

Impulse wiping contact

GFS IK 101S D 10 VD
GFS IK 202S D 20 10SVD
GFSI IK 202S D 20 10S
GFSI IK 202S D 20 20

Material Number

1184002
1181942
1181885
1183173

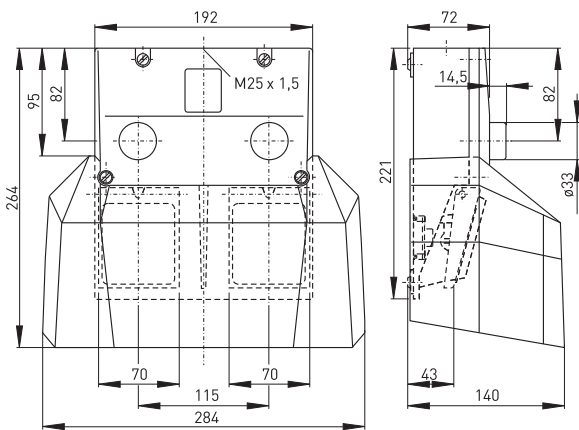
Safety foot switches

// Series GFS 2 VD

Features/Options

- Double-pedal type
- GFS 2 VD: NC contact 15-16 ⊖ in series with NO contact 23-24 (internal wiring)
- With impulse wiping contacts GFS 2 IK VD: without switching impulse when unlocking foot switch; NO contact 13-14 is converted into positive break NC contact ⊖ by internal baffle after pressure point, Safety contact: 13-14 ⊖, Signalling contact: 21-22
- Max. 4 contacts per pedal, max. 3 pedals available
- Wiring compartment
- Available with special finish in RAL colour tones

// GFS 2 VD



Technical data

| | |
|------------------------------------|--|
| Standards | EN ISO 13849-1; EN 60947-5-1, BG-GS-ET-15 |
| Enclosure | aluminium die-cast, enamel finish, RAL 5011 |
| Pedal | glass-fibre reinforced thermoplastic |
| Protective shield | aluminium die-cast, enamel finish, RAL 5011 |
| Connection | screw terminals |
| Cable cross-section | max. 2.5 mm ² (incl. conductor ferrules) |
| Cable entry | 1 x M25 x 1.5 |
| Contact material | silver |
| Degree of protection | IP 65 to EN 60529 |
| Switching system | slow action with double break, positive break NC contact ⊖ per EN 60947-5-1 |
| Switch insert | ES 60 GF VD, ES 60 GF IK VD |
| Contacts | 1 NO/1 NC or 2 NO/2 NC contacts per pedal |
| Actuating force | aprox. 240 N |
| B_{10d} (10 % load) | 200,000 |
| T_M | max. 20 years |
| Utilisation category | AC-15 |
| U_{imp} | 6 kV |
| U_i | 500 V |
| I_e^{the} | GFS 2 VD: 16 A, GFS 2 IK VD: 6 A |
| I_e/U_e | GFS 2 VD: 16 A/400 VAC, GFS 2 IK VD: 6 A/400 VAC |
| Contact load capacity | max. 400 VAC, GFS VD: max. 16 A (cos φ = 1), GFS 2 IK VD: max. 6 A (cos φ = 1) |
| Max. fuse rating | GFS 2 VD: 16 A gG/gN fuse, GFS 2 IK VD: 6 A gG/gN fuse |
| Ambient temperature | - 25 °C ... + 80 °C |
| Mechanical life | > 100,000 operations |
| Approvals | GFS 2 IK VD: |

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Contact variants: Travel/contacts

| | Slow action | Impulse wiping contact |
|--------------------|---------------------------------|----------------------------------|
| 1 NC/1 NO contact | GFS 2 1S D 1Ö VD/... | GFS 2 IK 1ÖS D 1Ö ... |
| 2 NC/2 NO contacts | GFS 2 2S D 2Ö VD/... | GFS 2 IK 2ÖS D 2Ö ... |

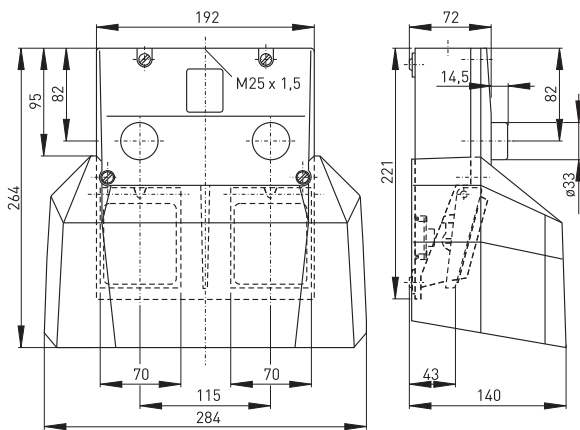
Ordering details

| | |
|--|--|
| GFS 2 IK 1ÖS D 1Ö VD/IK 1ÖS D 1Ö VD | 1 NC/1 NO contact right pedal |
| IK 1ÖS D 1Ö VD | IK Impulse wiping contact right pedal |
| 2S D 2Ö VD | 1 NC/1 NO contact (2S D 2Ö VD, 2ÖS D 2Ö VD: 2 NC/2 NO contacts) left pedal |
| IK 2ÖS D 2Ö VD | IK Impulse wiping contact left pedal |
| 2 pedals (3 pedals) | |
| S Protective shield | |
| Series | |

Foot switches

// Series GFS 2 VD, variants

// With protective shield GFS



Slow action
GFS 2 1S D 1Ö VD/1S D 1Ö VD
GFS 2 2S D 2Ö VD/2S D 2Ö VD

Material Number
1048899
1048930

Impulse wiping contact
GFS 2 1K 1Ö1S D 1Ö VD
GFS 2 1K 2Ö2S D 2Ö VD

Material Number
on request
on request





Foot switches
Thermoplastic enclosure

Single-pedal types

// **Series KF**

from page 68

// **Series KFS**

from page 72

Double-pedal types

// **Series KF 2**

from page 76

Triple-pedal types

// **Series KF 3**

from page 80

Four-pedal types

// **Series KF 4**

from page 82

Five-pedal types

// **Series KF 5**

from page 84



Foot switches

Thermoplastic enclosure

Application

Applications for the plastic KF range switches include use on packaging machines, in the storage and conveyor technology, as well as on textile machinery.

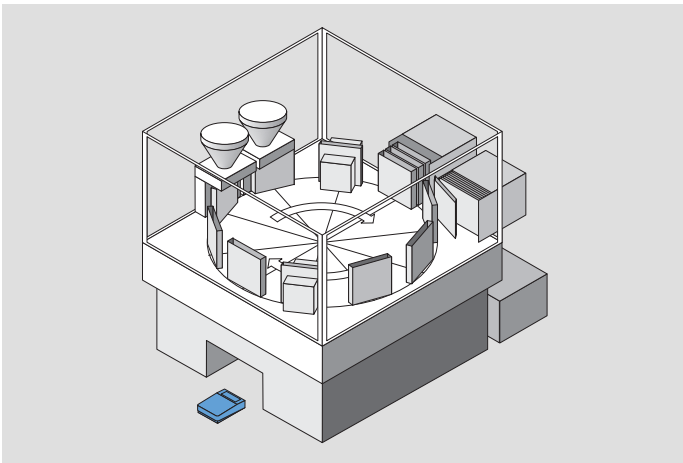
Design and mode of operation

KF range foot switches are available with a choice of reed contacts, micro switches or Hall sensors. They have protection class IP 65/67.

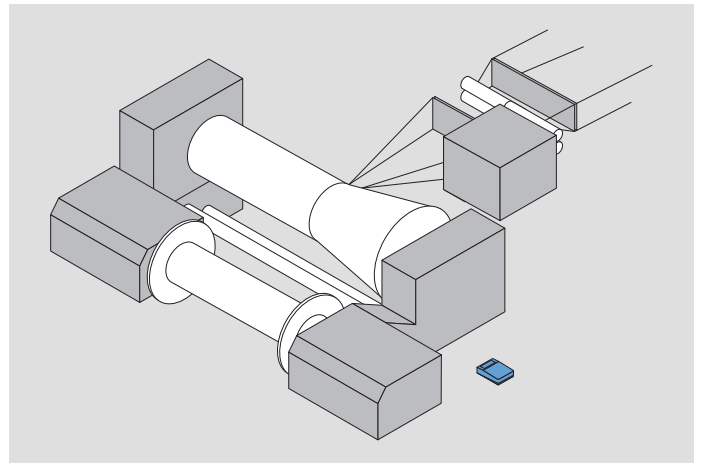
All foot switches bear the CE mark according to the Low Voltage Directive.

Application

Foot switch at a packaging machine



Foot switch at a textile machine



Foot switches

// Series KF

Features/Options

- Thermoplastic enclosure
- Small flat design
- Without protective shield
- Max. 2 contacts
- Reed contacts for low currents from 1 mA to 1 A
- Micro switches for current load up to 5 A
- With prewired cable, length 2 or 5 m
- Available with plug-in connector
- Other cable lengths and types possible

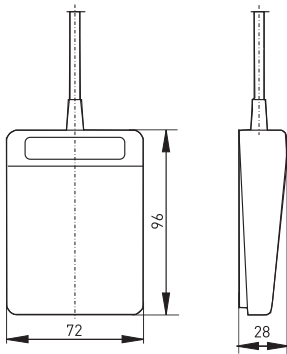
// KF



Technical data

| | |
|-------------------------------|---|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Connection | cable AWG, length 2 or 5 m |
| Cable cross-section | 2-/3-core: AWG 20: 0.52 mm ² 4-core: AWG 24: 0.20 mm ² |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts or snap action: microswitch |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | Reed contacts: 1 A, micro switch: 5 A |
| Max. power | Reed contacts: 30 VA, micro switch: 1250 VA |
| Max. fuse rating | micro switch: 5 A gG/gN fuse |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

68



Contact variants: Travel/contacts

| | Snap action | Reed contacts |
|----------------------------|--|---------------------------------------|
| 1 NO contact | | KF 1S BN — BK |
| 2 NO contacts | | KF 2S BK — BN RD — 0G |
| 1-pole change-over contact | KF 1PW 1 — 2 RD BN — 4 BK | KF 1W 1 — 2 RD BN — 3 BK |

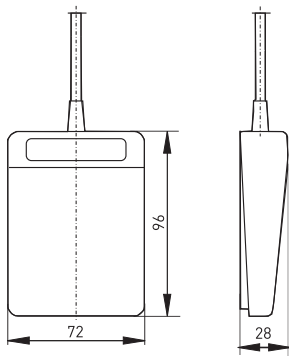
Ordering details

KF 1PW-2m

Cable length 2 m (5 m)
1PW 1-pole change-over contact micro switch, (reed contacts: 1S, 2S, 1W)
Series

Foot switches
// Series KF, variants

// Without protective shield KF



Snap action

KF 1PW-2m

KF 1PW-5m

Material Number

1049149

1049162

Reed contacts

KF 1S-2m

KF 1S-5m

Material Number

1049191

1049198

KF 2S-2m

KF 2S-5m

1049295

1189549

KF 1W-2m

KF 1W-5m

1049279

1049284


Foot switches

// Series KF, variants

Features/Options

- With pressure point: 2-step switching
- 2 contacts
- Thermoplastic enclosure
- Small flat design
- Reed contacts for low currents from 1 mA to 1 A
- With prewired cable, length 2 m
- Available with plug-in connector
- Other cable lengths and types possible

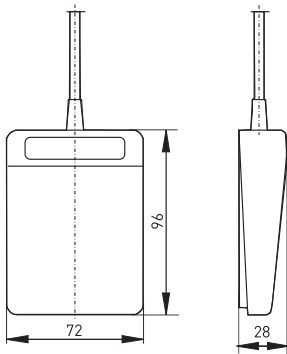
Technical data

| | |
|-------------------------------|---|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Connection | cable AWG, length 2 or 5 m |
| Cable cross-section | 4-core: AWG 24: 0.20 mm ² |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts |
| Actuating force | approx. 20 N |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | 1 A |
| Max. power | 30 VA |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals |  |

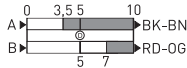
// KF D



70



Contact variants: Travel/contacts

| | Reed contacts | Material number |
|---------------|--|-----------------|
| 2 NO contacts | KF 1S D 1S-2m  | 1049324 |

Ordering details

KF 1S D 1S-2m

- Cable length 2 m
- 1S 1 NO contact
- Pressure point
- 1S 1 NO contact
- Series

Foot switches

// Series KF, variants

Features/Options

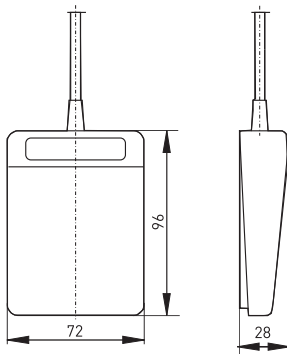
- With Hall sensor: Analogue output
- Thermoplastic enclosure
- Small flat design
- With prewired cable, length 2 m
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- Available with plug-in connector
- Other cable lengths and types possible

// KF HS



Technical data

| | |
|----------------------|--|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Connection | cable AWG, length 2 m |
| Cable cross-section | 3-core: AWG 20: 0.52 mm ² |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | Hall sensor |
| Output values | |
| Output voltage U_a | 0...10 VDC $\pm 1\%$ |
| Output current I_a | 0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$ |
| I_e/U_e | for U_a : 25 mA/15 ... 30 VDC for I_a : 45 mA/15 ... 30 VDC |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Analogue output | Material Number |
|-------|--------------------------------|-----------------|
| U_a | KF HS 0...10 VDC-2m | 1049345 |
| I_a | KF HS 0...20 mA-2m | 1049346 |
| | KF HS 4...20 mA-2m | 1049347 |
| | | |

Ordering details

KF HS 0...10 VDC-2m

Cable length 2 m
 Output value U_a 0...10 VDC
 (I_a 0...20 mA or 4...20 mA)
 Hall sensor
 Series

Foot switches

// Series KFS

Features/Options

- Thermoplastic enclosure
- Small flat design
- With metal protective shield, special RAL colours available
- Max. 2 contacts
- Reed contacts for low currents from 1 mA to 1 A
- micro switches for current load up to 5 A
- With prewired cable, length 2 or 5 m
- Available with plug-in connector
- Other cable lengths and types possible

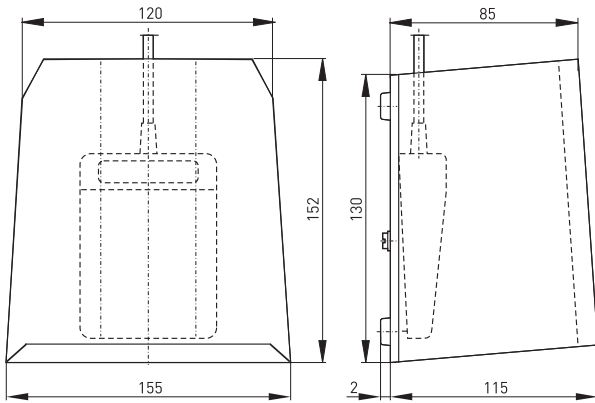
// KFS



Technical data

| | |
|-------------------------------|---|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Protective shield | steel, enamel finish |
| Connection | cable AWG, length 2 or 5 m |
| Cable cross-section | 2-/3-core: AWG 20: 0.52 mm ² 4-core: AWG 24: 0.20 mm ² |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts or snap action: microswitch |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | Reed contacts: 1 A, micro switch: 5 A |
| Max. power | Reed contacts: 30 VA, micro switch: 1250 VA |
| Max. fuse rating | micro switch: 5 A gG/gN fuse |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

72



Contact variants: Travel/contacts

| | Snap action | Reed contacts |
|----------------------------|---|--|
| 1 NO contact | | KFS 1S BN — BK |
| 2 NO contacts | | KFS 2S BK — BN RD — 0G |
| 1-pole change-over contact | KFS 1PW 1 — 2 RD BN — 4 BK | KFS 1W 1 — 2 RD BN — 3 BK |

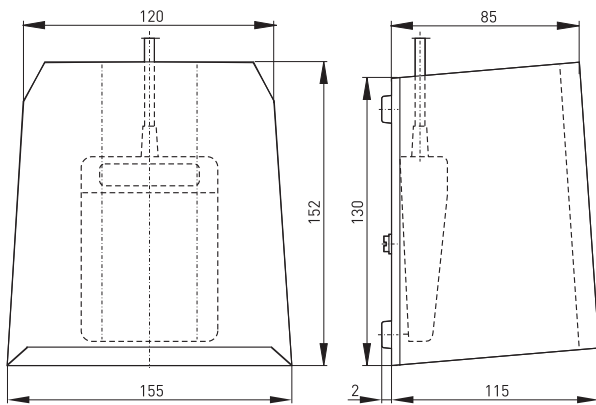
Ordering details

KFS 1PW-2m

Cable length 2 m (5 m)
 1PW 1-pole change-over contact micro switch, (reed contacts: 1S, 2S, 1W)
 S Protective shield
 Series

Foot switches
// Series KFS, variants

// With protective shield KFS



Snap action

KFS 1PW-2m
KFS 1PW-5m

Material Number

1049352
1049355

Reed contacts

KFS 1S-2m
KFS 1S-5m

Material Number

1049370
1049377

KFS 2S-2m
KFS 2S-5m

1049392
1051980

KFS 1W-2m
KFS 1W-5m

1049385
1189550

Foot switches

// Series KFS, variants

Features/Options

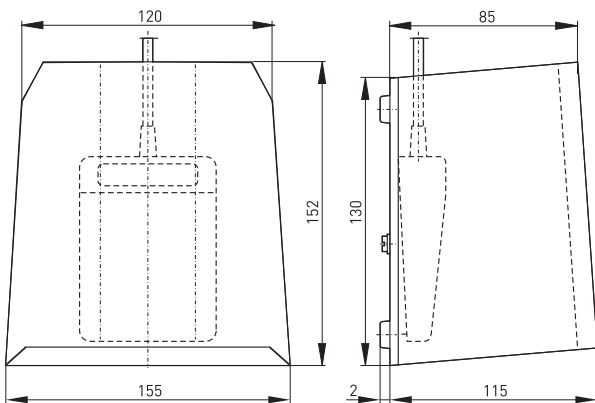
- With pressure point: 2-step switching
- 2 contacts
- Thermoplastic enclosure
- With metal protective shield, special RAL colours available
- Small flat design
- Reed contacts for low currents from 1 mA to 1 A
- With prewired cable, length 2 m
- Available with plug-in connector
- Other cable lengths and types possible

// KFS D



Technical data

| | |
|-------------------------------|---|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Protective shield | steel, enamel finish |
| Connection | cable AWG, length 2 m |
| Cable cross-section | 4-core: AWG 24: 0.20 mm ² |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts |
| Actuating force | approx. 20 N |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | 1 A |
| Max. power | 30 VA |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Reed contacts | Material Number |
|---------------|---------------------------|-----------------|
| 2 NO contacts | KFS 1S D 1S-2m | 1049408 |

Ordering details


KFS 1S D 1S-2m

- ▬ Cable length 2 m
- ▬ 1S 1 NO contact
- ▬ Pressure point
- ▬ 1S 1 NO contact
- ▬ S Protective shield
- ▬ Series

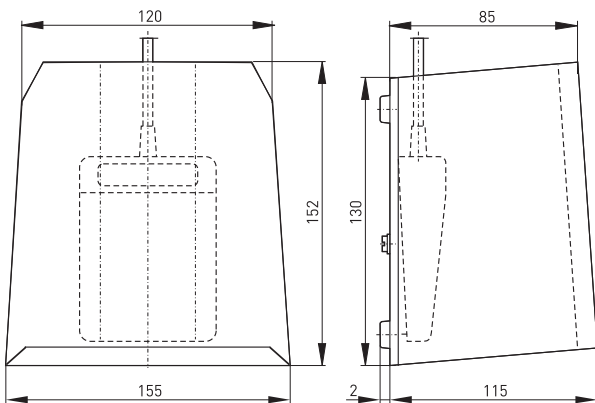
Features/Options

- With Hall sensor: Analogue output
- Thermoplastic enclosure
- Small flat design
- With metal protective shield, special RAL colours available
- With prewired cable, length 2 m
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- Available with plug-in connector
- Other cable lengths and types possible

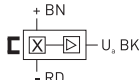
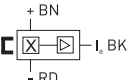
Technical data

| | |
|--|---|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Protective shield | steel, enamel finish |
| Connection | cable AWG, length 2 m |
| Cable cross-section | 3-core: AWG 20: 0.52 mm ² |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | Hall sensor |
| Output values | |
| Output voltage U_a | 0...10 VDC $\pm 1\%$ |
| Output current I_a | 0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$ |
| I_e/U_e | for U_a : 25 mA/15 ... 30 VDC for I_a : 45 mA/15 ... 30 VDC |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals |  |

// KFS HS



Contact variants: Travel/contacts

| | Analogue output | Material Number |
|-------|---|-----------------|
| U_a | KFS HS 0...10 VDC-2m  | 1049414 |
| I_a | KFS HS 0...20 mA-2m | 1049415 |
| | KFS HS 4...20 mA-2m | 1049416 |
| |  | |

Ordering details

KFS HS 0...10 VDC-2m

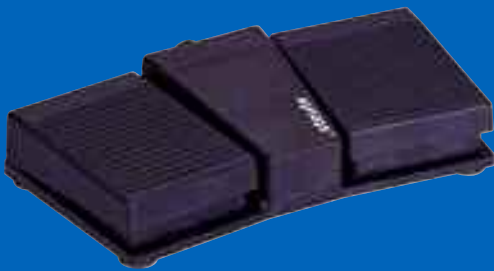
- Cable length 2 m
- Output value U_a 0...10 VDC (I_a 0...20 mA or 4...20 mA)
- Hall sensor
- S Protective shield
- Series

Foot switches // Series KF 2

Features/Options

- Double-pedal type
- Thermoplastic enclosure
- Small flat design
- Max. 2 contacts per pedal
- With wiring compartment
- Without protective shield
- Reed contacts for low currents from 1 mA to 1 A
- Micro switches for current load up to 5 A

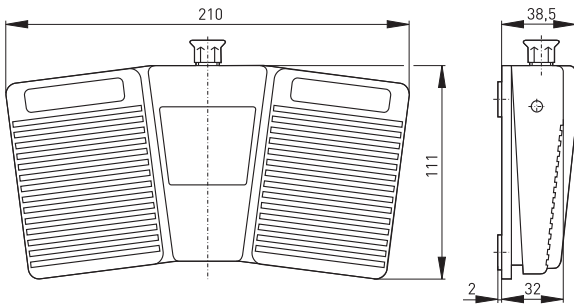
// KF 2



Technical data

| | |
|-------------------------------|--|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Connection | wiring compartment, cable gland M12 x 1.5 with spiral top or cable, length 2 m |
| Cable cross-section | max. AWG 22: 0.33 mm ² , cable: ø max. 6.5 mm |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts or snap action: micro switch |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | Reed contacts: 1 A, micro switch: 5 A |
| Max. power | Reed contacts: 30 VA, micro switch: 1250 VA |
| Max. fuse rating | micro switch: 5 A gG/gN fuse |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

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Contact variants: Travel/contacts

| | Snap action | Reed contacts |
|----------------------------|---|---|
| 1 NO contact | | KF 2 1S/1S 6 0G ^L 5 RD 4 BN ^R 3 BK |
| 2 NO contacts | | KF 2 2S/2S ... |
| 1-pole change-over contact | KF 2 1PW/1PW 7 0G ^L 8 YE 2 BK ^R 3 BN 5 0G 4 RD | KF 2 1W/1W 5 0G ^L 6 YE 4 RD ^R 3 BN 7 0G 2 BK |

Ordering details

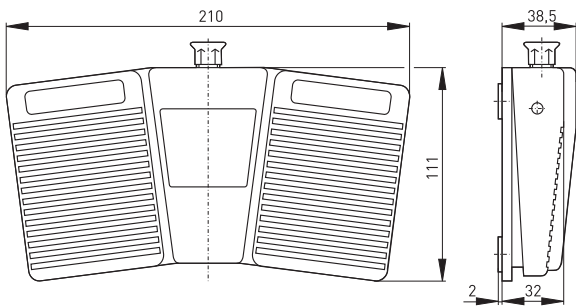
KF 2 1PW/1PW

Contacts right pedal
1PW 1-pole change-over contact micro switch, (reed contacts: 1S, 2S, 1W)
left pedal
2 pedals
Series

Foot switches

// Series KF 2, variants

// Without protective shield KF 2



Snap action
KF 2 1PW/1PW

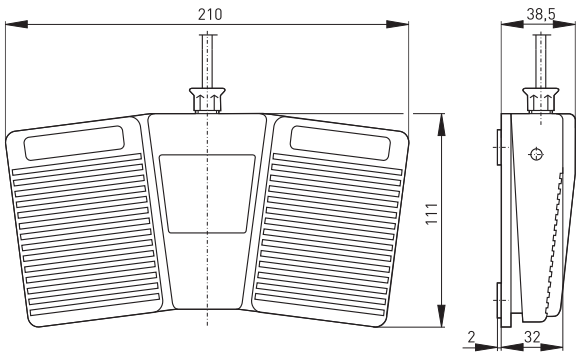
Material Number
1049096

Reed contacts
KF 2 1S/1S
KF 2 2S/2S
KF 2 1W/1W

Material Number
1049006
1049129
1049072

77

// Cable



Features/Options
- With prewired cable, length 2 m
- M12 x 1.5 bellmouth cable gland
- Other cable lengths and types possible

Snap action
KF 2 1PW/1PW-2m

Material Number
1049095

Reed contacts
KF 2 1S/1S-2m
KF 2 2S/2S-2m
KF 2 1W/1W-2m

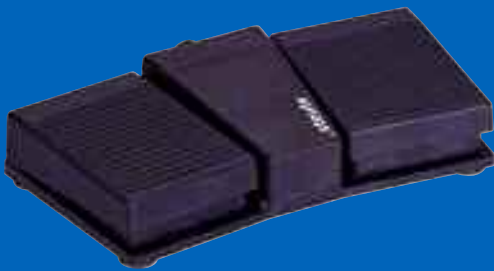
Material Number
1049007
1049128
1049071

Foot switches

// Series KF 2, variants

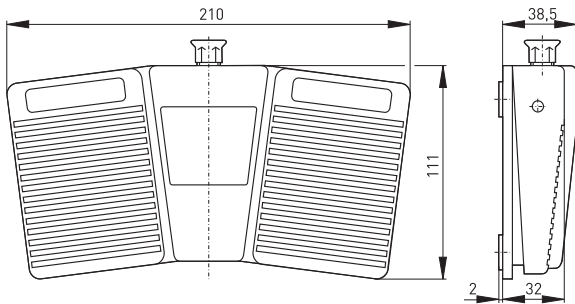
- Features/Options**
- With pressure point: 2-step switch
 - Double-pedal type
 - Thermoplastic enclosure
 - Small flat design
 - Max. 2 contacts per pedal
 - With wiring compartment
 - Without protective shield
 - Reed contacts for low currents from 1 mA to 1 A
 - Available with cable or plug-in connector

// KF 2 D



Technical data

| | |
|-------------------------------|--|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Connection | wiring compartment, cable gland M12 x 1.5 with spiral top or cable, length 2 m |
| Cable cross-section | max. AWG 22: 0.33 mm ² cable: ø max. 6.5 mm |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts |
| Actuating force | approx. 20 N |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | 1 A |
| Max. power | 30 VA |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals | |



Contact variants: Travel/contacts

| | Reed contacts | |
|---------------|---------------------|---------|
| 2 NO contacts | KF 2 1SD1S/1SD1S | 1049126 |
| | KF 2 1SD1S/1SD1S-2m | 1049127 |

Ordering details

| | |
|-----------------------------|--|
| KF 2 1S D 1S/1S D 1S | |
| | Contacts right pedal 1S 1 NO contact left pedal Pressure point left pedal 1S 1 NO contact 2 pedals Series |

PRODUCTION PROCESS ASSEMBLY
THERMOPLASTIC PEDALS BEFORE FIXING THE MAGNETS



Foot switches

// Series KF 3

Features/Options

- Triple-pedal type
- Thermoplastic enclosure with metal base plate
- Small flat design
- Max. 2 contacts per pedal
- With wiring compartment
- Reed contacts for low currents from 1 mA to 1 A
- Micro switches for current load up to 5 A
- Available with Hall sensor: Analogue output signal proportional to pedal travel
- Available with cable or plug-in connector, other contact combinations on request

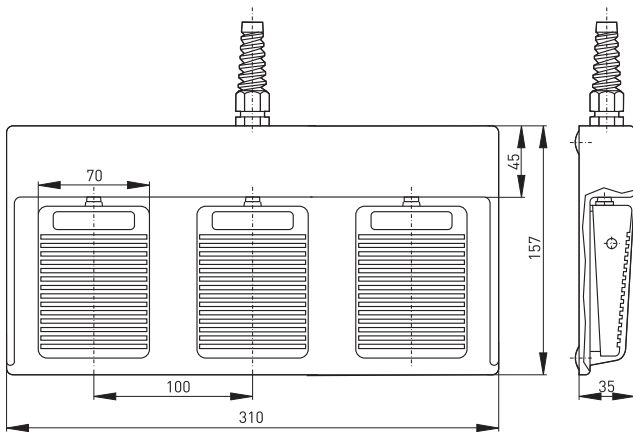
// KF 3



Technical data

| | |
|-------------------------------|--|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Base plate | aluminium, enamel finish |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Connection | wiring compartment, cable gland M12 x 1.5 with spiral top |
| Cable cross-section | max. AWG 20: 0.52 mm ² , cable: ø max. 6.5 mm |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts or snap action: micro switch |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | Reed contacts: 1 A, micro switch: 5 A |
| Max. power | Reed contacts: 30 VA, micro switch: 1250 VA |
| Max. fuse rating | micro switch: 5 A gG/gN fuse |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

80



Contact variants: Travel/contacts

| | Snap action | Reed contacts |
|----------------------------|-----------------------------|--------------------------|
| 1 NO contact | | KF 3 1S/1S/1S |
| 1-pole change-over contact | KF 3 1PW/1PW/1PW | KF 3 1W/1W/1W |

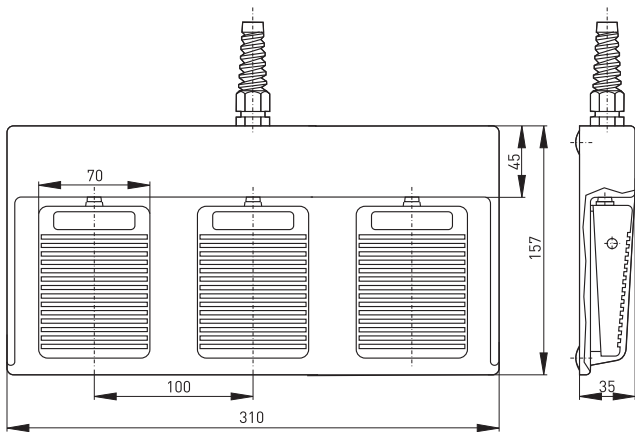
Ordering details

KF 3 1S/1S/1S

Contacts right pedal
 Contact center pedal
 1 NO reed contact, (reed contacts: 1S,
 2S, 1W, micro switch: 1PW) left pedal
 3 pedals
 Series

Foot switches
// Series KF 3, variants

// Without protective shield KF 3



Snap action
KF 3 1PW/1PW/1PW

Material Number
1049004

Reed contacts
KF 3 1S/1S/1S
KF 3 1W/1W/1W

Material Number
1048997
1049003


Foot switches

// Series KF 4

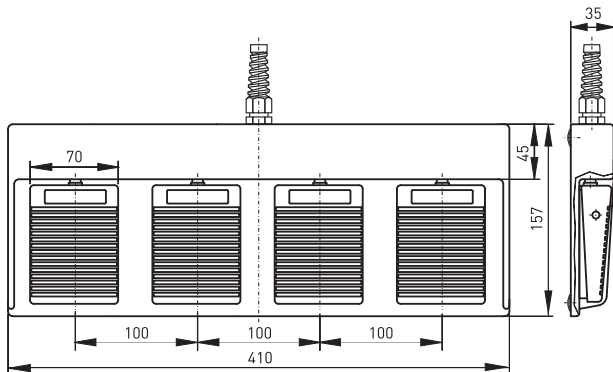
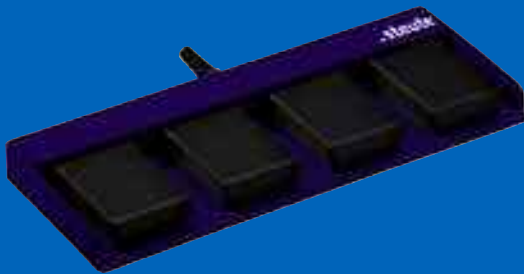
Features/Options

- Four-pedal type
- Thermoplastic enclosure with metal base plate
- Small flat design
- Max. 2 contacts per pedal
- With wiring compartment
- Reed contacts for low currents from 1 mA to 1 A
- Micro switches for current load up to 5 A
- Available with Hall sensor: Analogue output signal proportional to pedal travel
- Available with cable or plug-in connector, other contact combinations on request

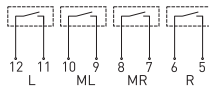

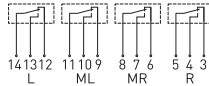
Technical data

| | |
|-------------------------------|---|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Base plate | aluminium, enamel finish |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Connection | wiring compartment, cable gland M12 x 1.5 with spiral top |
| Cable cross-section | max. AWG 20: 0.52 mm ² , cable: ø max. 6.5 mm |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts or snap action: micro switch |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | Reed contacts: 1 A, micro switch: 5 A |
| Max. power | Reed contacts: 30 VA, micro switch: 1250 VA |
| Max. fuse rating | micro switch: 5 A gG/gN fuse |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals |  |

// KF 4

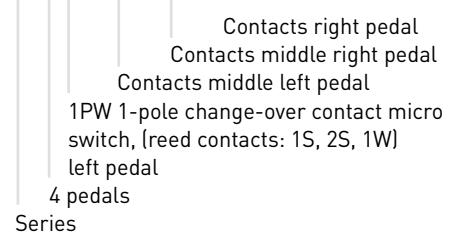


Contact variants: Travel/contacts

| | Snap action | Reed contacts |
|----------------------------|--|---|
| 1 NO contact | | KF 4 1S/1S/1S/1S  |
| 1-pole change-over contact | KF 4 1PW/1PW/...  | KF 4 1W/1W/1W/...  |

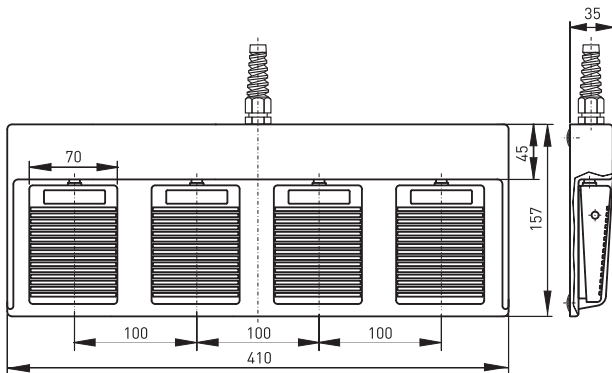
Ordering details

KF 4 1PW/1PW/1PW/1PW



Foot switches
// Series KF 4, variants

// Without protective shield KF 4



Snap action
KF 4 1PW/1PW/1PW/1PW

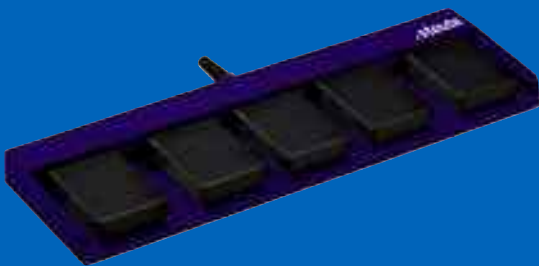
Material Number
1048993

Reed contacts
KF 4 1S/1S/1S/1S
KF 4 1W/1W/1W/1W

Material Number
1048991
1048992

Foot switches // Series KF 5

// KF 5

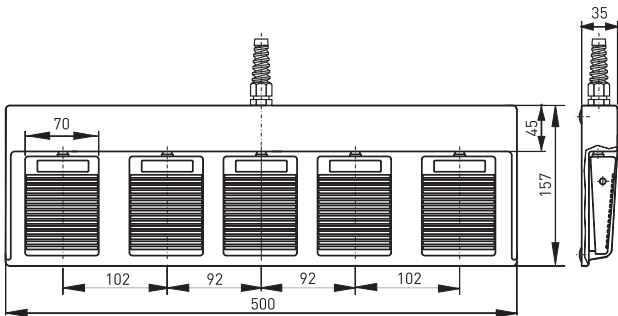


Features/Options

- Five-pedal type
- Thermoplastic enclosure with metal base plate
- Small flat design
- Max. 2 contacts per pedal
- With wiring compartment
- Reed contacts for low currents from 1 mA to 1 A
- Micro switches for current load up to 5 A
- Available with Hall sensor: Analogue output signal proportional to pedal travel
- Available with cable or plug-in connector, other contact combinations on request

Technical data

| | |
|-------------------------------|--|
| Standards | EN 60947-5-1; VDE 0660 part 200 |
| Enclosure | polyamide 66 glass-fibre reinforced, self-extinguishing |
| Base plate | aluminium, enamel finish |
| Pedal | glass-fibre reinforced thermoplastic (PA 66) |
| Connection | wiring compartment, cable gland M12 x 1.5 with spiral top |
| Cable cross-section | max. AWG 20: 0.52 mm ² , cable: ø max. 6.5 mm |
| Degree of protection | IP 65 to IEC/EN 60529 |
| Switching system | reed contacts or snap action: micro switch |
| Switching voltage | 12 ... 250 VAC/DC |
| Max. switch-on current | Reed contacts: 1 A, micro switch: 5 A |
| Max. power | Reed contacts: 30 VA, micro switch: 1250 VA |
| Max. fuse rating | micro switch: 5 A gG/gN fuse |
| Ambient temperature | - 10 °C ... + 60 °C |
| Mechanical life | > 1 million operations |
| Approvals | |

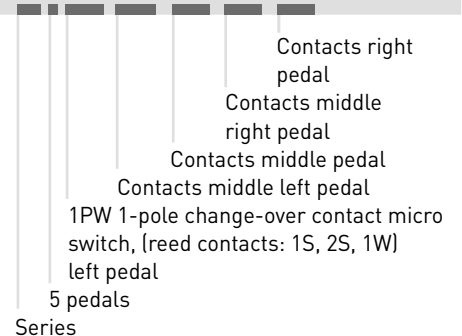


Contact variants: Travel/contacts

| | Snap action | Reed contacts |
|----------------------------|-----------------------------|---------------------------------|
| 1 NO contact | | KF 5 1S/1S/1S/1S/... |
| 1-pole change-over contact | KF 5 1PW/1PW/... | KF 5 1W/1W/1W/... |

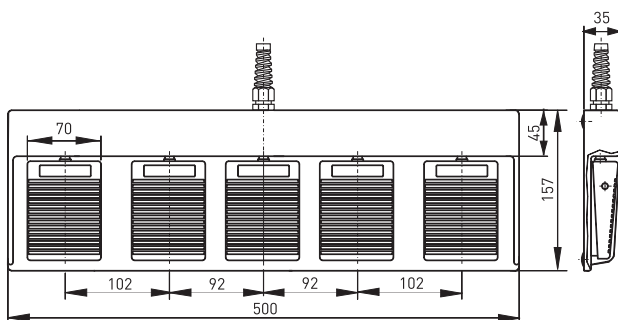
Ordering details

KF 5 1PW/1PW/1PW/1PW/1PW



Foot switches
// Series KF 5, variants

// Without protective shield KF 5



Snap action
KF 5 1PW/1PW/1PW/1PW/1PW









Material Number
1048986

Reed contacts
KF 5 1S/1S/1S/1S/1S
KF 5 1W/1W/1W/1W/1W

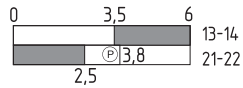
Material Number
1048984
1048985





EXPLANATION OF SYMBOLS

| | |
|--|--|
|  | positive break NC contact |
|  | pressure point |
|  | positive break travel/angle |
|  | latching point |
|  | CSA/UL approval, Canada |
|  | TÜV prototype-tested |
|  | BG prototype-tested |
|  | conformity to standards, see declaration of conformity |
| I_e | rated operating current |
| I_{the} | thermal test current |
| U_e | rated operating voltage |
| U_i | rated insulation voltage |
| U_{imp} | rated impulse withstand voltage |

Explanation of switching travel diagrams



 Contact open
 Contact closed

X1-X2 NC contact
 X3-X4 NO contact
 X5-X6 contact overlapping

Colour symbols per DIN IEC 757

BK black
 BN brown
 BU blue
 GN green
 GY grey
 OG orange
 PK pink
 RD red
 TQ turquoise
 VI violet
 WH white
 YE yellow

Image sources:
 Fotostudio Udo Kowalski, Wuppertal
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steute develops and manufactures safe switchgear for demanding and critical application. Besides a comprehensive standard range of products for »Wireless, Automation, Extreme and Meditec« applications, we also and increasingly develop customised switchgear for extreme conditions in all four business fields. Some examples: emergency pullwire

switches for the mining industry, position switches for industrial automation and control panels for laser surgery. Our head office is in Löhne, Westphalia, Germany; worldwide sales are conducted through steute's subsidiaries and trading partners.

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