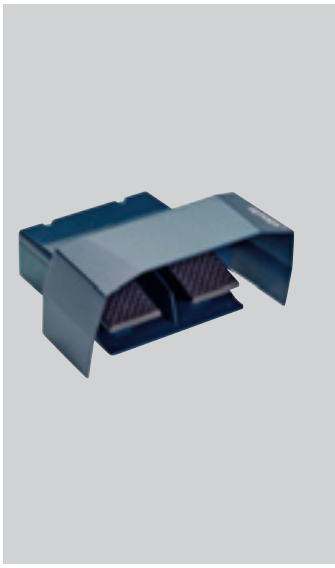
.steute

Automation

Foot switches / Safety foot switches

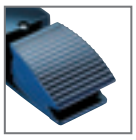


// SYSTEMATIC CONTROL SWITCHGEAR

Catalogue

4 The company

PRODUCTS

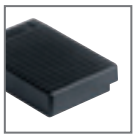


6 Foot switches
Metal enclosure

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

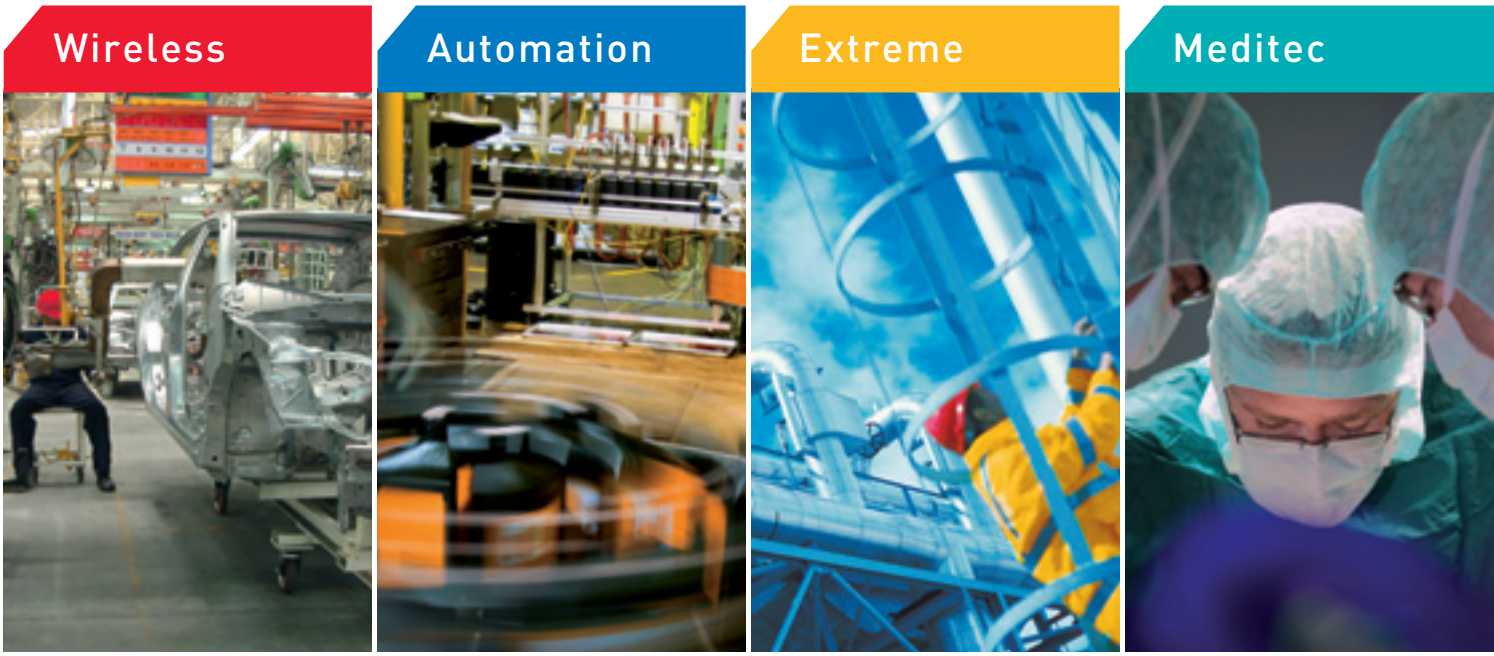
68 Series KF
72 Series KFS
76 Series KF 2
80 Series KF 3
82 Series KF 4
84 Series KF 5

87 Appendix

Legend of symbols

.steute

// SAFE SWITCHGEAR FOR DEMANDING AND CRITICAL APPLICATIONS



»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.

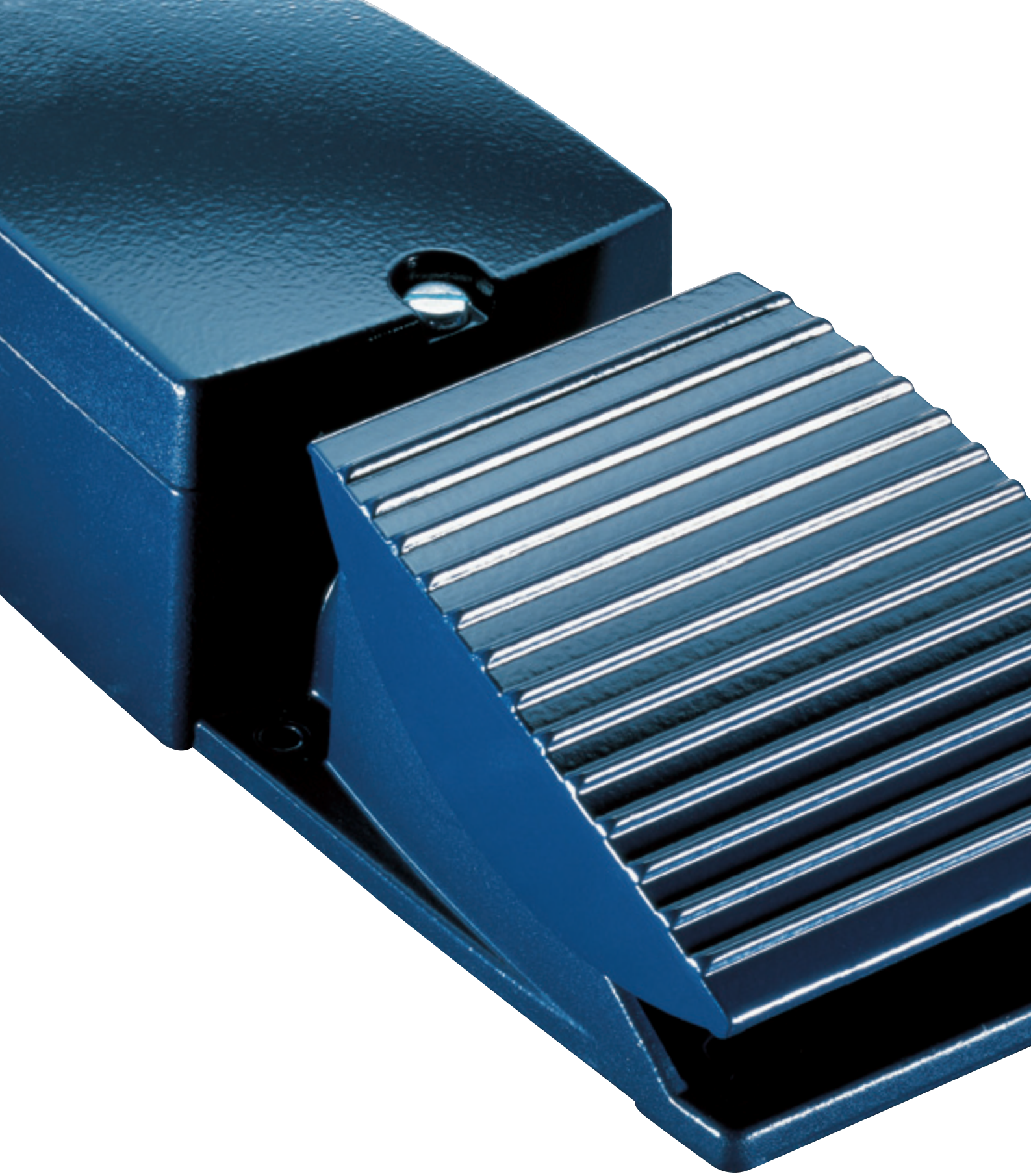
Automation
Standard and customised switchgear for machinery and process plants. Tried and tested electromechanical and non-contact technologies for classical applications in industrial automation and process control – always with a view to the latest global requirements.

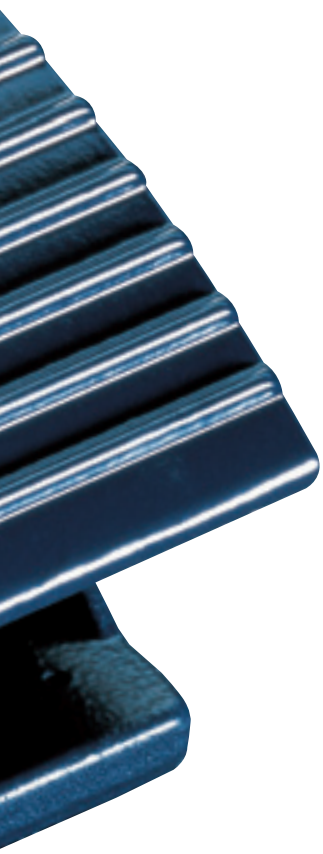
Extreme
Switchgear and sensors for use in extreme environments or under extreme conditions. Certified products for use in hazardous areas worldwide (e. g. ATEX, IECEx, GOST).

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.

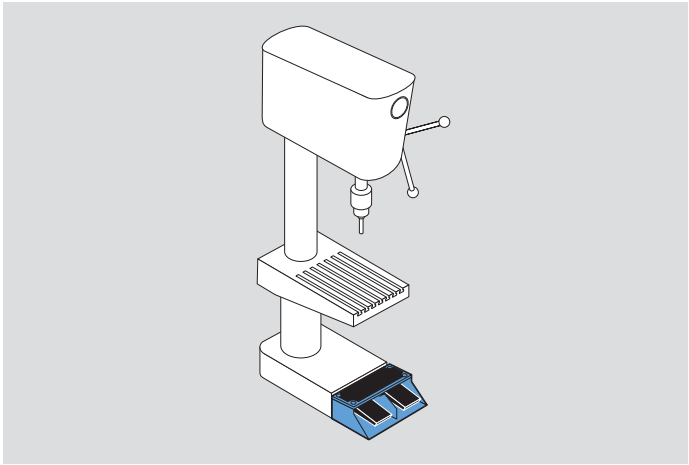
Design and mode of operation

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.

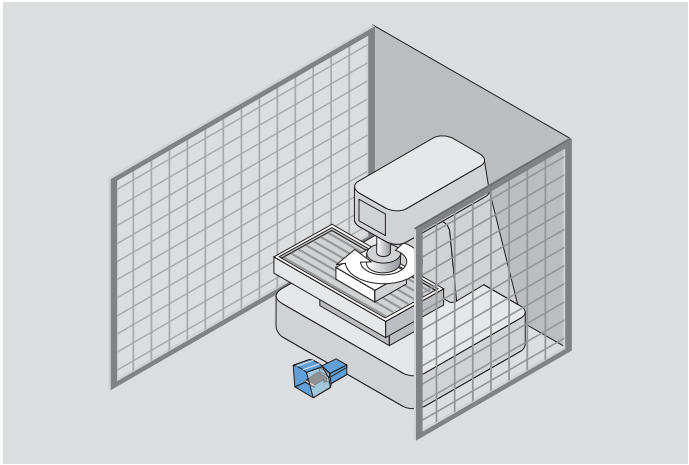
The foot switches bear the CE mark according to the Low Voltage Directive.

Application

Foot switch at a drill machine

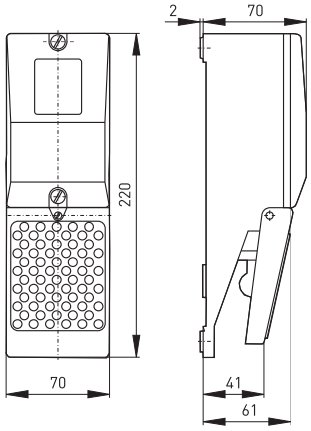


Foot switch at a CNC machining center



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

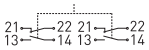
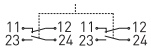
// GF



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:

Contact variants: Travel/contacts

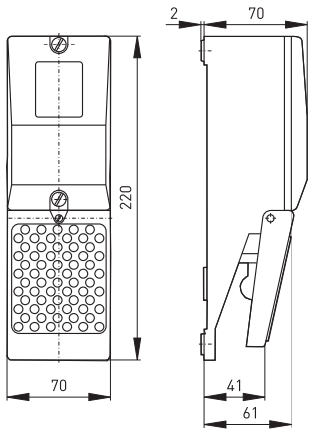
	Snap action	Slow action
1 NC/1 NO contact	GFM 1Ö/1S	GF 1Ö/1S
2 NC/2 NO contacts	GFM 2Ö/2S 	GF 2Ö/2S 

Ordering details

GFM K 1Ö/1S

- 1NC/1NO contact, (2Ö/2S, 1Ö/3S), other configurations possible
- Pedal Cover
- M Snap action (without M slow action)
- Series

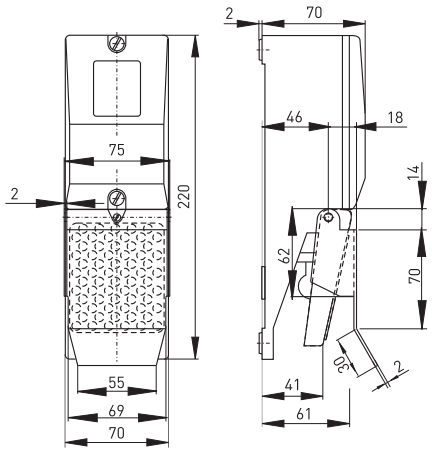
// Without protective shield GF



Snap action	Material Number
GFM 1Ö/1S	1048500
GFM 2Ö/2S	1048523

Slow action	Material Number
GF 1Ö/1S	1048458
GF 2Ö/2S	1048512

// Pedal cover K



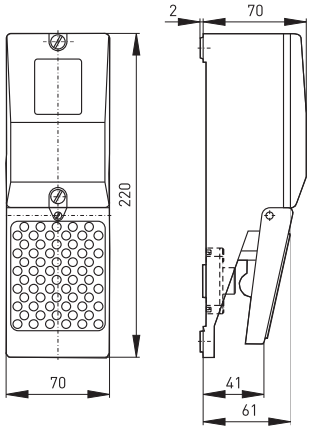
Snap action/Pedal cover	Material Number
GFMK 1Ö/1S	on request
GFMK 2Ö/2S	1048524

Slow action/Pedal cover	Material Number
GFK 1Ö/1S	1048464
GFK 2Ö/2S	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

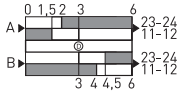
// GF D



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 mm² (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:	

Contact variants: Travel/contacts

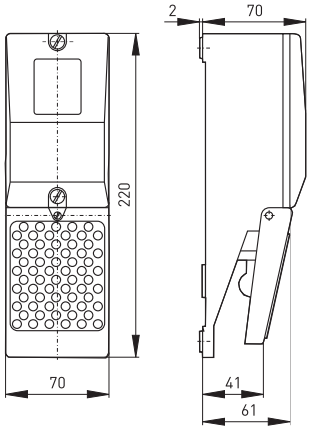
	Slow action	Material Number
1 NC/1 NO contact	GF 1ÖS D 1ÖS 	1048531

Ordering details GF 1ÖS D 1ÖS

- 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

// GF RE



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 mm² (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	

Contact variants: Travel/contacts

	Slow action	Material Number
1 NC/1 NO contact	**GF 1Ö/1S RE**	**1048462**

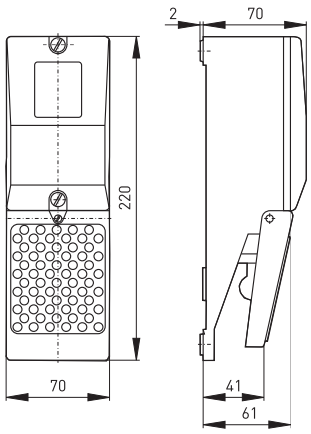
Ordering details GF 1Ö/1S RE

- 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

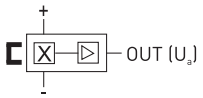
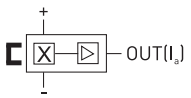
// GF HS



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 mm² (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	1048577
	GF HS 4-20 mA	1048578
		

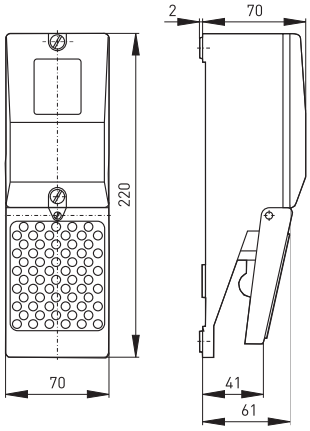
Ordering details

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 kΩ, 2 kΩ, 5 kΩ or 10 kΩ
- 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

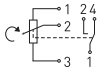
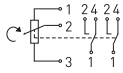
// GF POTI



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 kΩ ±3 %; 20 Ω ... 2 kΩ ±3 %; 50 Ω ... 5 kΩ ±3 %; 100 Ω ... 10 kΩ ±3 %
Linearity	±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.

Contact variants: Travel/contacts

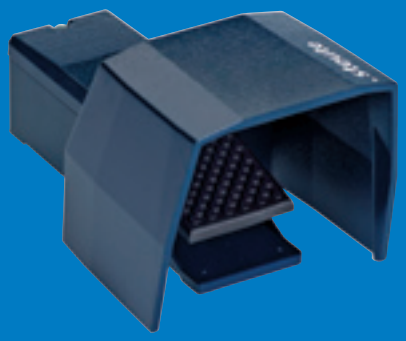
	Potentiometer	Material Number
1 change-over	GF POTI 1K 1PW 	1048555
2 change-over	GF POTI 1K 2PW 	on request

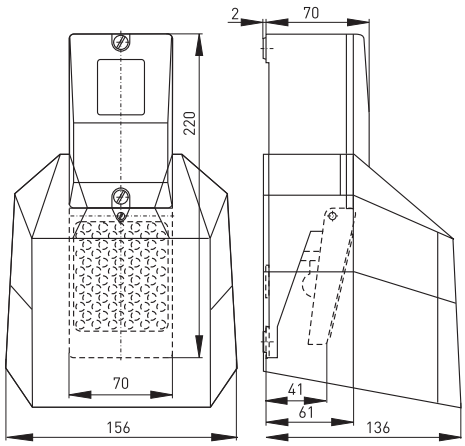
Ordering details GF POTI 1K 1PW

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

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

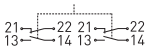
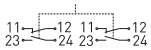




Technical data

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

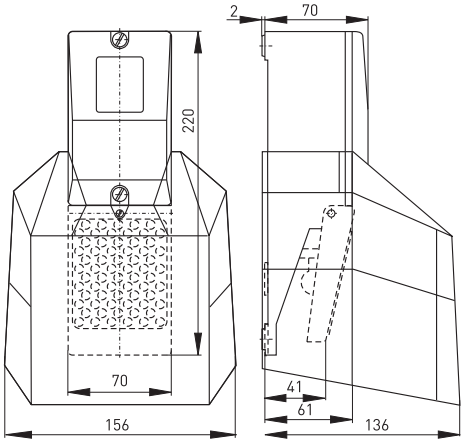
	Snap action	Slow action
1 NC/1 NO contact	GFSM 1Ö/1S	GFS 1Ö/1S
2 NC/2 NO contacts	GFSM 2Ö/2S 	GFS 2Ö/2S 

Ordering details

GFSM K 1Ö/1S FST

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

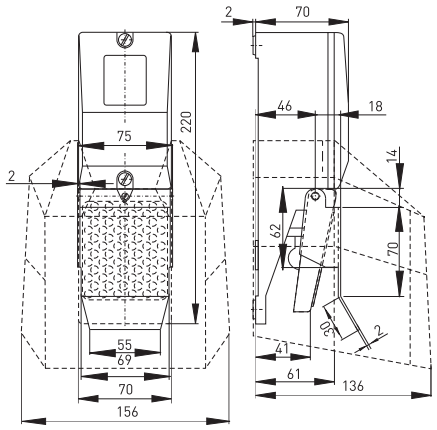
// With protective shield GFS



Snap action	Material Number
GFSM 1Ö/1S	1048638
GFSM 2Ö/2S	1048682

Slow action	Material Number
GFS 1Ö/1S	1048579
GFS 2Ö/2S	1048655

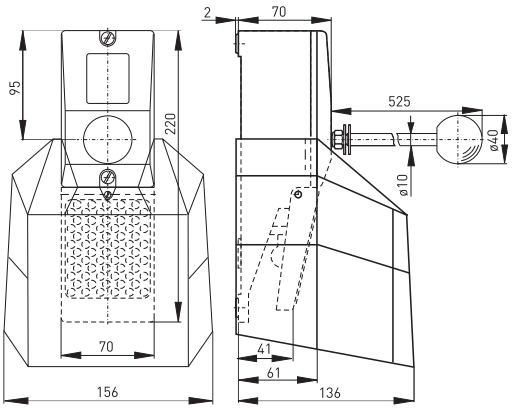
// Pedal cover K



Snap action/Pedal cover	Material Number
GFSMK 1Ö/1S	1048641
GFSMK 2Ö/2S	1048684

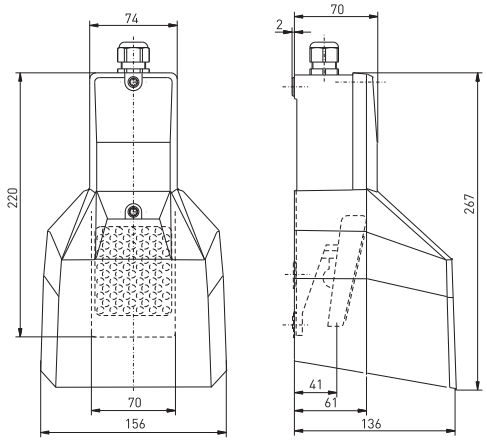
Slow action/Pedal cover	Material Number
GFSK 1Ö/1S	1048588
GFSK 2Ö/2S	1048658

// Carrying handle TST



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

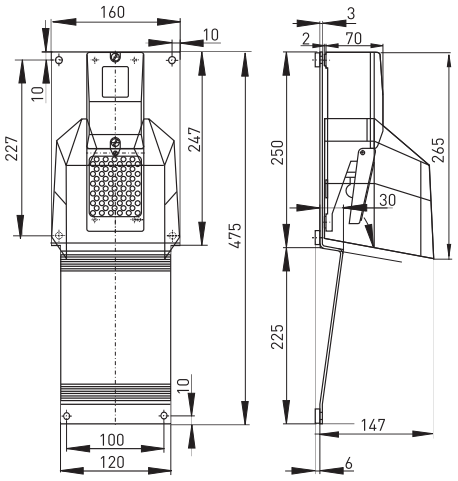
// GFS IP69K



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	Material Number
GFS 1Ö/1S IP69K KST Extreme	1184570
GFS 1ÖS D 1ÖS IP69K KST Extreme	1184972

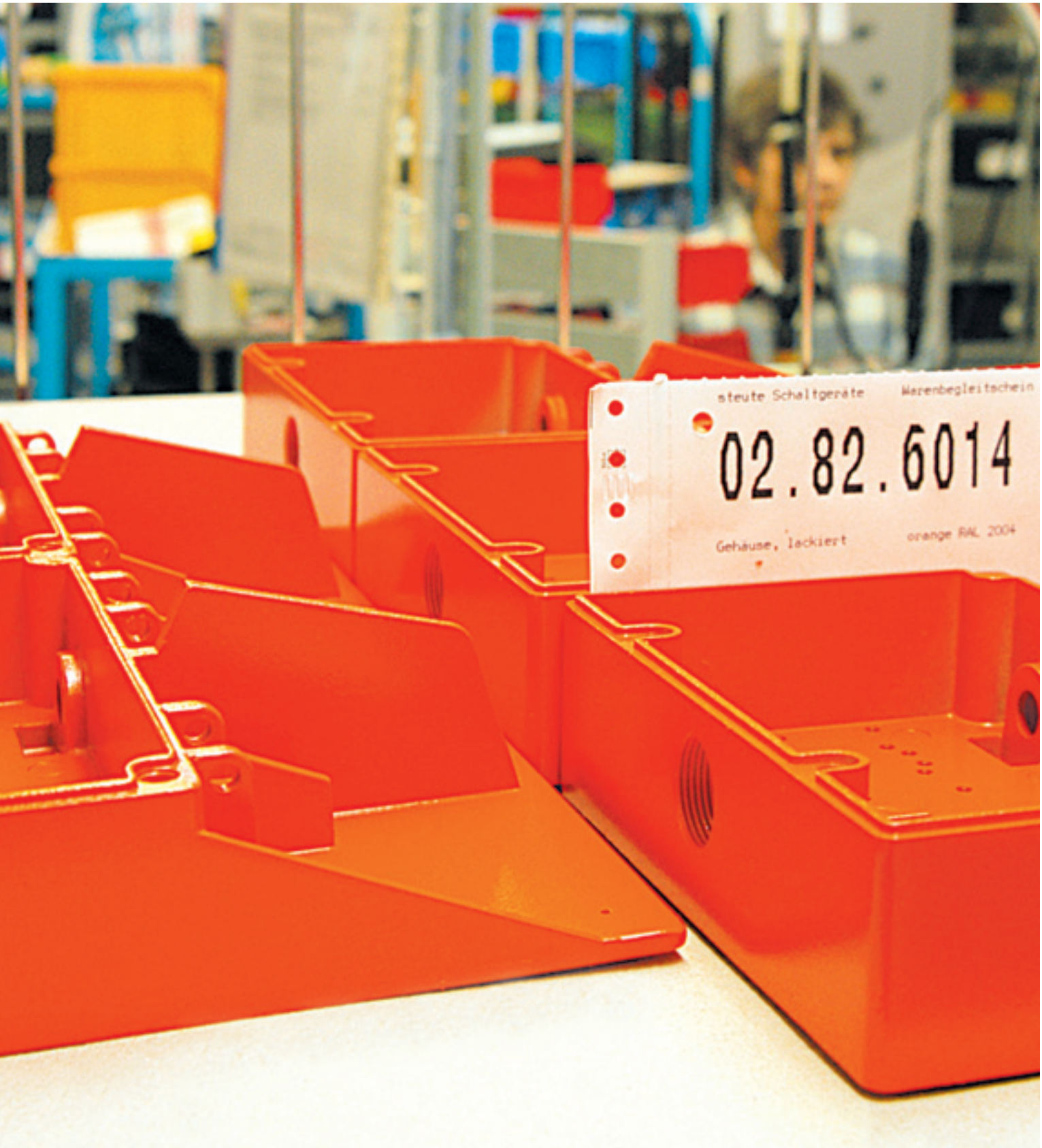
// Foot rest FST



Features/Options
- Variants with foot rest available on request

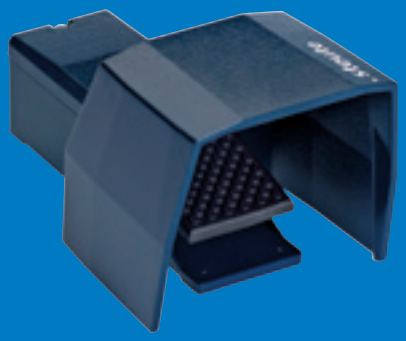
PRODUCTION PROCESS ASSEMBLY

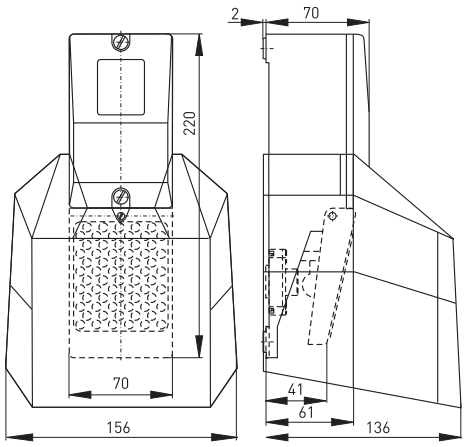
ENAMELLED DOUBLE-PEDAL FOOT SWITCH ENCLOSURE



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



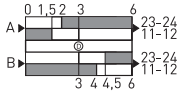


Technical data

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 mm² (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	

Contact variants: Travel/contacts

	Slow action	Material Number
1 NC/1 NO contact	GFS 1ÖS D 1ÖS	1048686

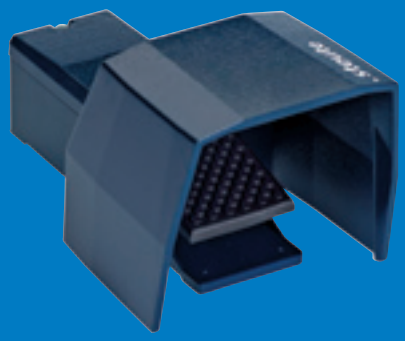


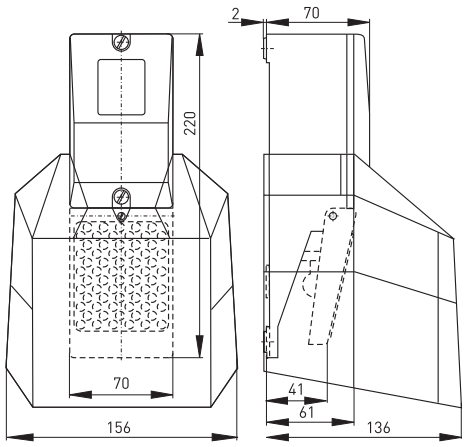
Ordering details GFS 1ÖS D 1ÖS

- 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 mm² (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	

Contact variants: Travel/contacts

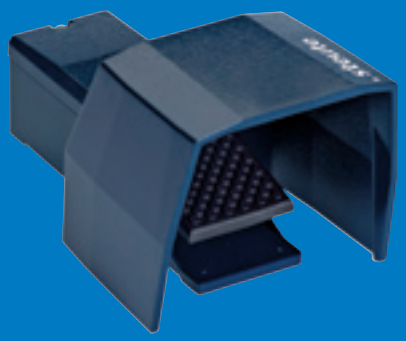
	Slow action	Material Number
1 NC/1 NO contact	GFS 1Ö/1S RE 23 → 24 11 → 12	1048587

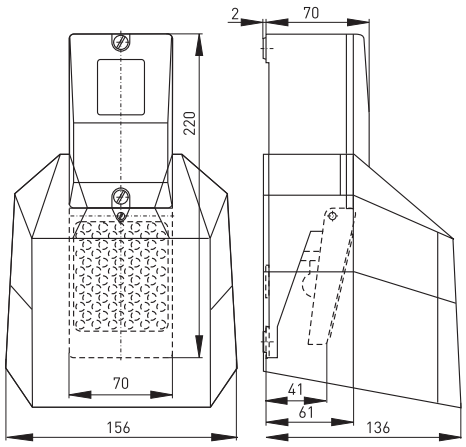
Ordering details GFS 1Ö/1S RE

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

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

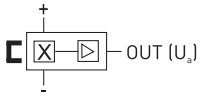
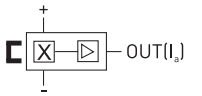




Technical data

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 mm² (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 %
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

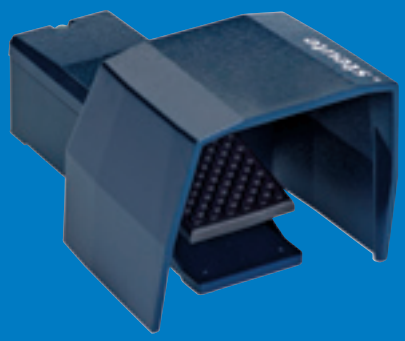
	Hall sensor	Material Number
U_a	GFS HS 0-10 VDC 	1048765
I_a	GFS HS 0-20 mA GFS HS 4-20 mA 	1048766 1048767

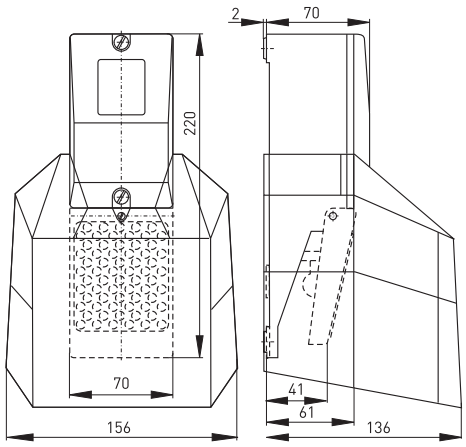
Ordering details GFS HS 0-20 mA

- 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 kΩ, 2 kΩ, 5 kΩ or 10 kΩ
- 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 POTI

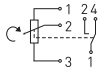
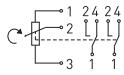




Technical data

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 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 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	GFS Poti 10K 1PW:
Note	The built-in micro switch provides for potential-free switching of the potentiometer.

Contact variants: Travel/contacts

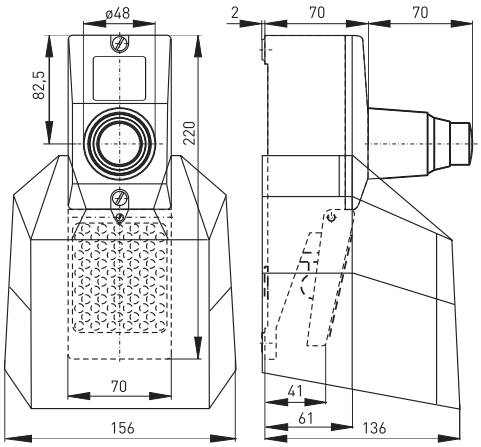
	Potentiometer	Material Number
1 change-over	GFS POTI 1K 1PW 	1048737
2 change-over	GFS POTI 1K 2PW 	on request

Ordering details GFS POTI 1K 1PW

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

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

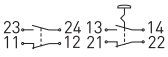
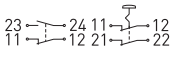
// GFS NA



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 mm² (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 1Ö/1S NA 1Ö/1S 	1184930
1 NC/1 NO contact	GFS 1Ö/1S NA 2Ö 	1184419

Ordering details GFSM 1Ö/1S NA 1Ö/1S

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

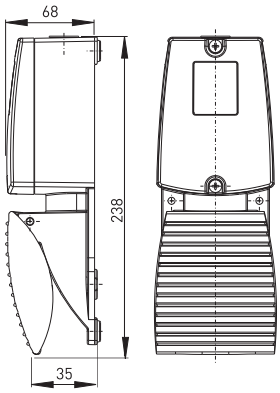
PRODUCTION PROCESS PAINT SHOP

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

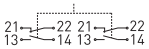
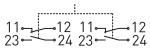
// GFI



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:

Contact variants: Travel/contacts

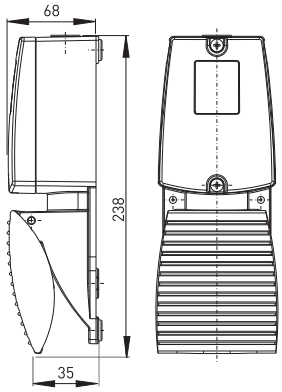
	Snap action	Slow action
1 NC/1 NO contact	**GFIM 1Ö/1S**	**GFI 1Ö/1S**
2 NC/2 NO contacts	**GFIM 2Ö/2S** 	**GFI 2Ö/2S** 

Ordering details

GFIM 1Ö/1S

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

// Without protective shield GFI

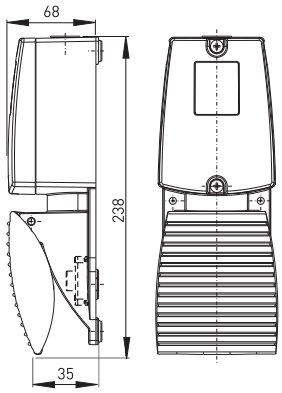


Snap action	Material Number
GFIM 1Ö/1S	1183831
GFIM 2Ö/2S	1186822

Slow action	Material Number
GFI 1Ö/1S	1053497
GFI 2Ö/2S	1186735

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

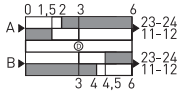


Technical data

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

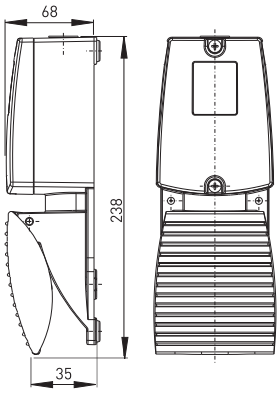


Ordering details GFI 1ÖS D 1ÖS

- 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

// GFI RE



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	

Contact variants: Travel/contacts

	Slow action	Material Number
1 NC/1 NO contact	**GFI 1Ö/1S RE**	**1180900**

Ordering details GFI 1Ö/1S RE

Latching element
Contacts 1NC/1NO contact
Series

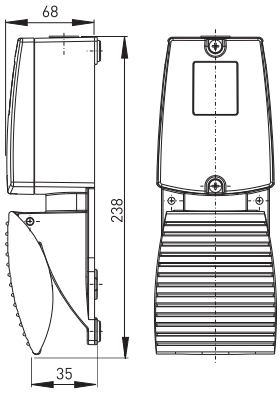
Foot switches
// Series GFI, variants

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

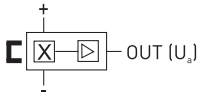
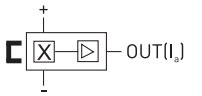
// GFI HS

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 mm² (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 %
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

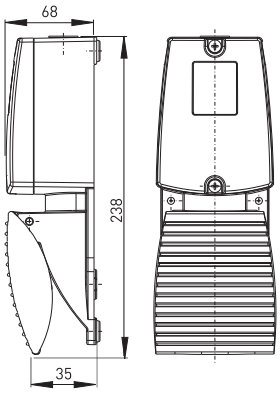
	Hall sensor	Material Number
U_a	GFI HS 0-10 VDC	on request
		
I_a	GFI HS 0-20 mA	on request
	GFI HS 4-20 mA	on request
		

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 kΩ, 2 kΩ, 5 kΩ or 10 kΩ
- 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

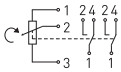


Technical data

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

Ordering details

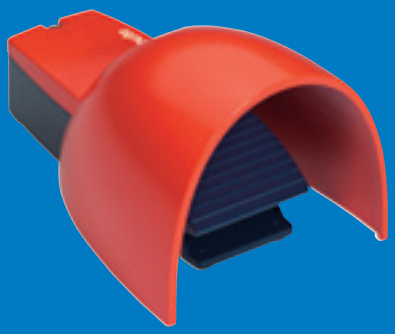
GFI POTI 1K 1PW

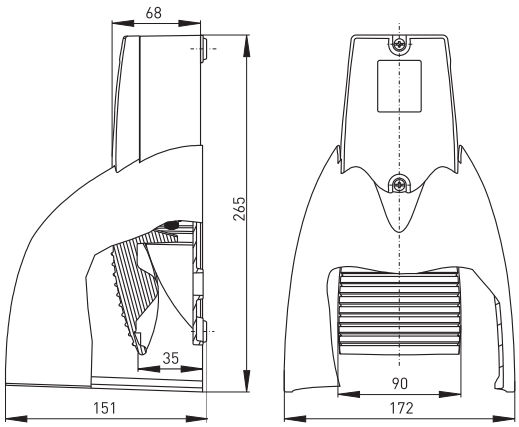
- GFI POTI: Series
- 1K: Potentiometer
- 1PW: Micro switch 1 change-over contact (2PW), other configurations possible

Potentiometer value 1 kΩ (2 kΩ, 5 kΩ or 10 kΩ)

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

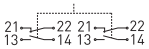
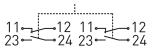




Technical data

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 1Ö/1S - GFSI 2Ö/2S:

Contact variants: Travel/contacts

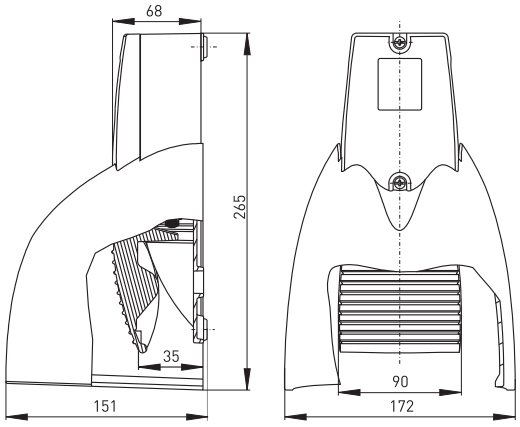
	Snap action	Slow action
1 NC/1 NO contact	**GFSIM 1Ö/1S**	**GFSI 1Ö/1S**
2 NC/2 NO contacts	**GFSIM 2Ö/2S** 	**GFSI 2Ö/2S** 

Ordering details

GFSIM 1Ö/1S

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

// With protective shield GFSI

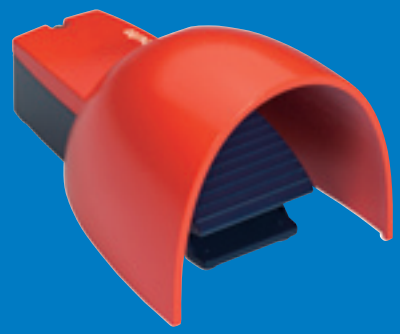


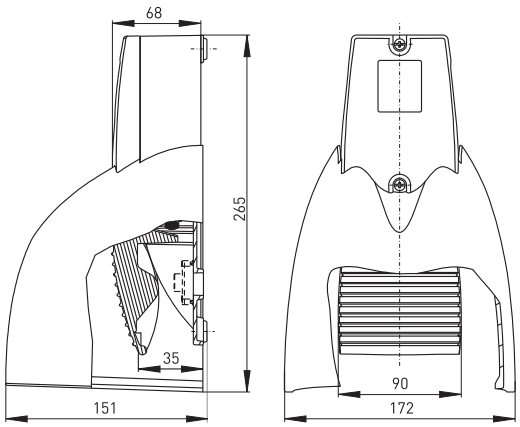
Snap action	Material Number
GFSIM 1Ö/1S	1159404
GFSIM 2Ö/2S	1184185

Slow action	Material Number
GFSI 1Ö/1S	1053499
GFSI 2Ö/2S	1161879

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

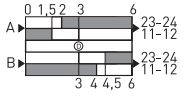




Technical data

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	

Contact variants: Travel/contacts

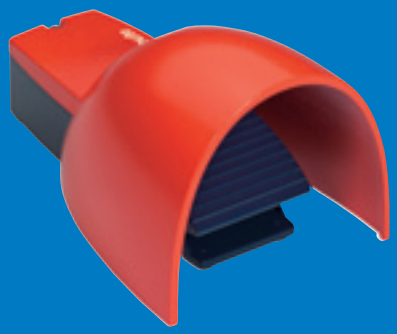
	Slow action	Material Number
1 NC/1 NO contact	GFSI 1ÖS D 1ÖS 	on request

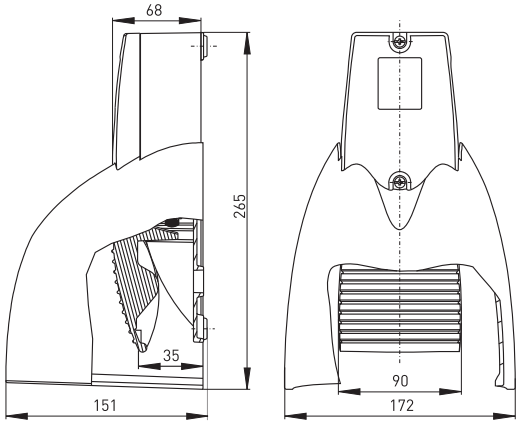
Ordering details GFSI 1ÖS D 1ÖS

- 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

// GFSI RE





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 mm² (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	

Contact variants: Travel/contacts

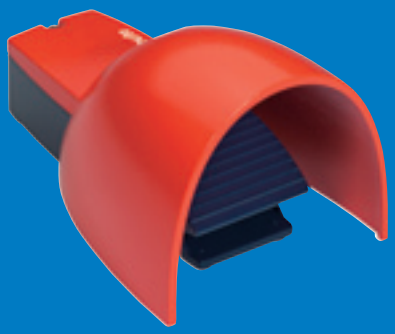
	Slow action	Material Number
1 NC/1 NO contact	GFSI 1Ö/1S RE 23 → 24 11 → 12	1182299

Ordering details GFSI 1Ö/1S RE

- GFSI: Series, S Protective shield
- 1Ö/1S: Contacts 1NC/1NO contact
- RE: Latching element

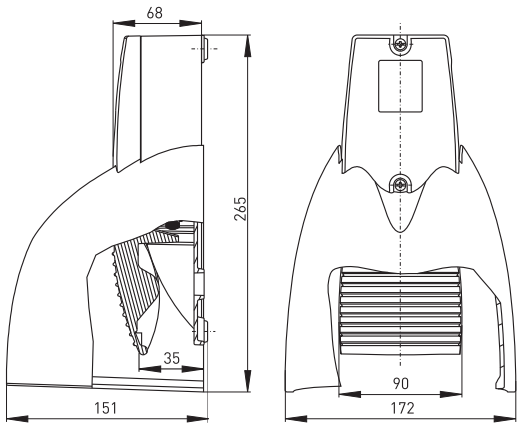
Features/Options
- With Hall sensor: Analogue output
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- With protective shield and wide opening in protective shield
- Available with additional micro switch
- 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

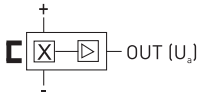
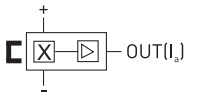


Technical data

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 mm² (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 %
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

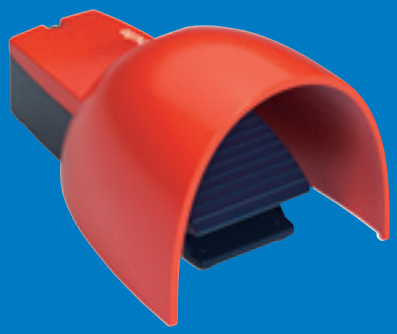
	Hall sensor	Material Number
U_a	GFSI HS 0-10 VDC 	1186230
I_a	GFSI HS 0-20 mA GFSI HS 4-20 mA 	on request 1169196

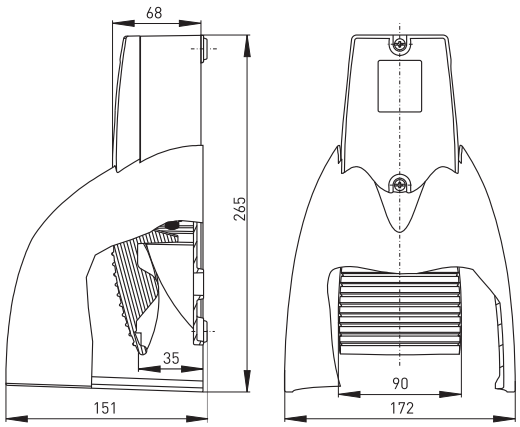
Ordering details GFSI HS 0-20 mA

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 kΩ, 2 kΩ, 5 kΩ or 10 kΩ
- 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

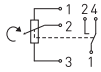
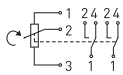




Technical data

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

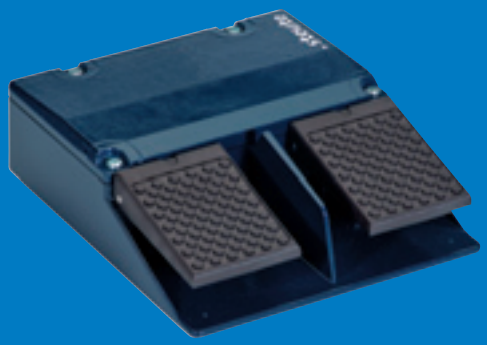
Ordering details

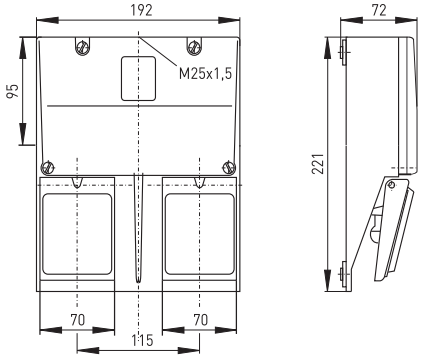
GFSI POTI 1K 1PW

- GFSI POTI: Potentiometer Series, S Protective shield
- 1K: Potentiometer value 1 kΩ (2 kΩ, 5 kΩ or 10 kΩ)
- 1PW: Micro switch 1 change-over contact (2PW), other configurations possible

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 mm² (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

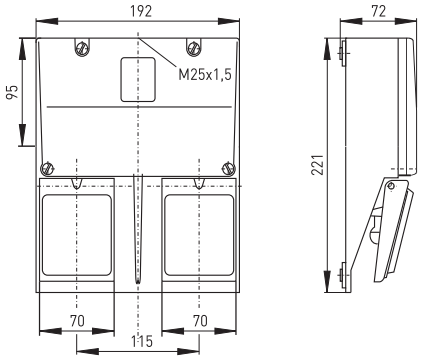
	Snap action	Slow action
1 NC/1 NO contact	GFM 2 1ÖS/1ÖS	GF 2 1ÖS/1ÖS
2 NC/2 NO contacts	GFM 2 2ÖS/2ÖS	GF 2 2ÖS/2ÖS

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

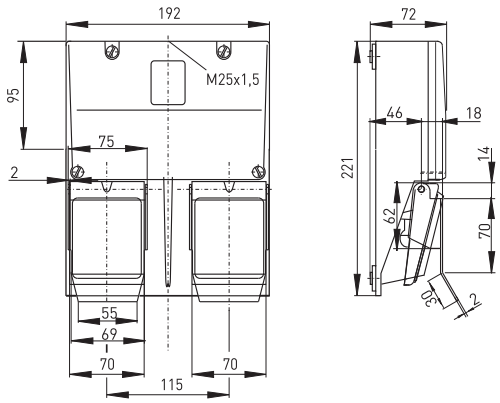
// Without protective shield GF 2



Snap action	Material Number
GFM 2 1ÖS/1ÖS	1048793
GFM 2 1ÖS/2ÖS	1048809
GFM 2 2ÖS/1ÖS	1048811
GFM 2 2ÖS/2ÖS	1048805

Slow action	Material Number
GF 2 1ÖS/1ÖS	1048770
GF 2 1ÖS/2ÖS	1048808
GF 2 2ÖS/1ÖS	1048810
GF 2 2ÖS/2ÖS	1048798

// Pedal cover K



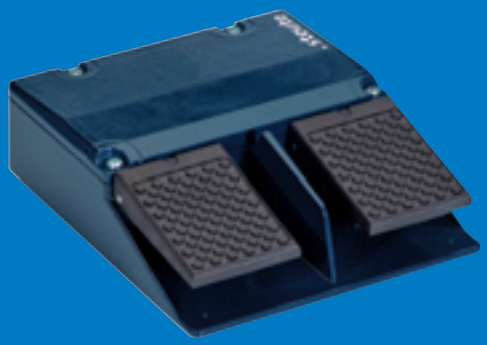
Snap action/Pedal cover	Material Number
GFMK 2 1ÖS/1ÖS	on request
GFMK 2 2ÖS/2ÖS	on request

Slow action/Pedal cover	Material Number
GFK 2 1ÖS/1ÖS	1048774
GFK 2 2ÖS/2ÖS	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



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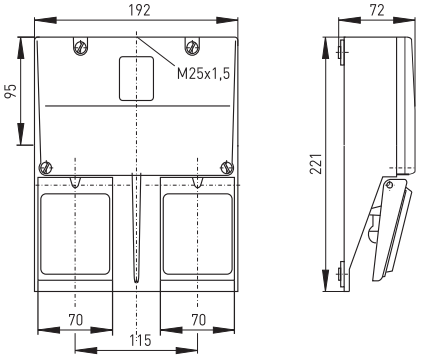
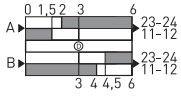


Technical data

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 mm² (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



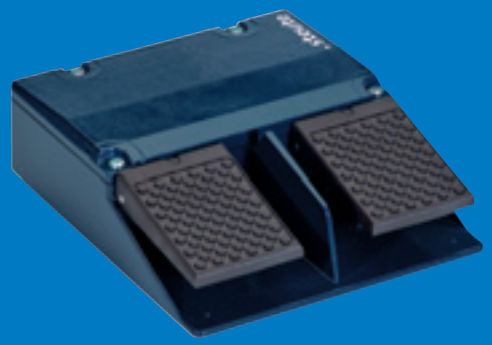
Ordering details

GF 2 1ÖS D 1ÖS/1ÖS D 1ÖS

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

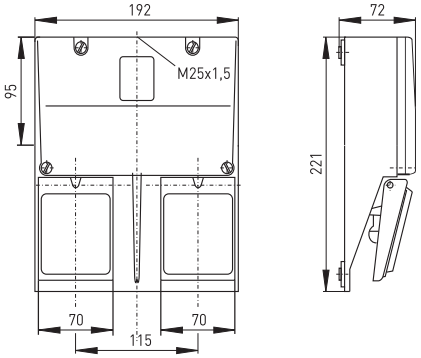
Features/Options
- With latching: ON/OFF principle
- Double-pedal type
- Max. 2 contacts per pedal
- Metal enclosure
- Without protective shield
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

// 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 mm² (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	



Contact variants: Travel/contacts

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

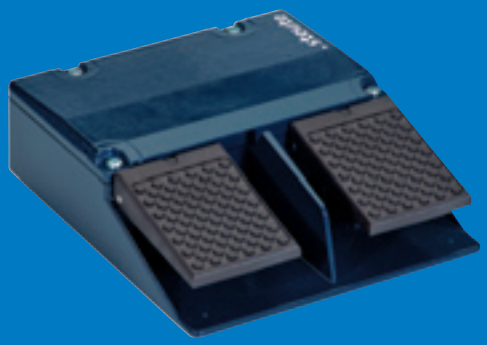
Ordering details GF 2 1ÖS RE/1ÖS RE

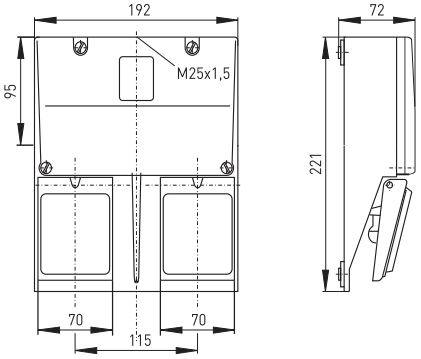
- Series
- 2 pedals
- 1NC/1NO contact left pedal, other configurations possible
- Latching element left pedal
- 1NC/1NO contact right pedal
- Latching element right p.

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 POTI

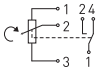
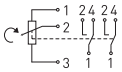




Technical data

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

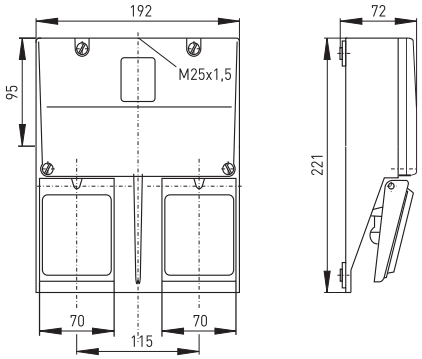
	Potentiometer
1 change-over	GF 2 POTI 1K 1PW/1K 1PW 
2 change-over	GF 2 POTI 1K 2PW/1K 2PW 

Ordering details

GF 2 POTI 1K 1PW/1K 1PW

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

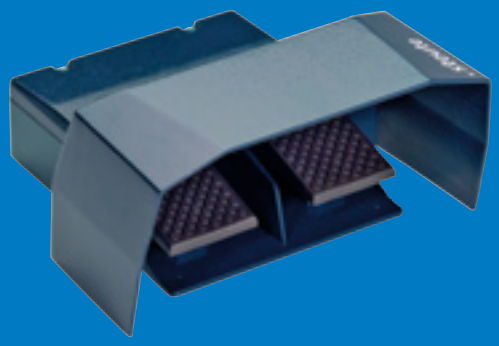
// Potentiometer

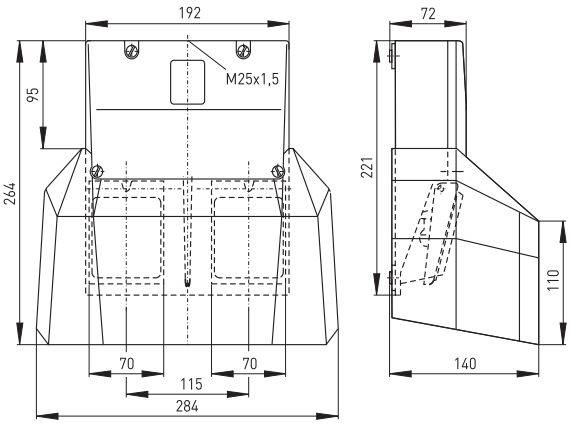


Potentiometer	Material Number
GF 2 Poti 1K 1PW/1K 1PW	1184063
GF 2 Poti 5K 1PW/5K 1PW	1048812
GF 2 Poti 10K 1PW/10K 1PW	1048813

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 mm² (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	

GFS 2 1ÖS/1ÖS, GFS 2 2ÖS/2ÖS:

Contact variants: Travel/contacts

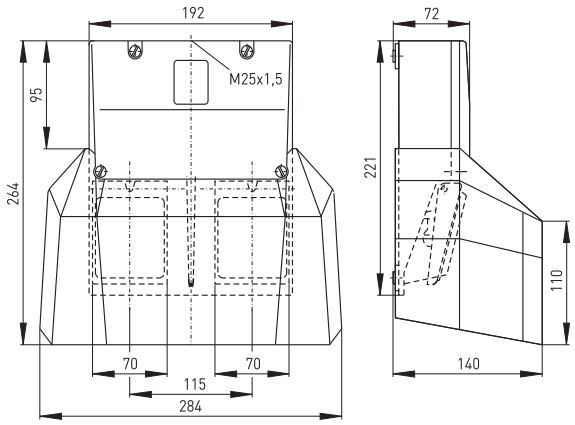
	Snap action	Slow action
1 NC/1 NO contact	GFSM 2 1ÖS/1ÖS	GFS 2 1ÖS/1ÖS
2 NC/2 NO contacts	GFSM 2 2ÖS/2ÖS	GFS 2 2ÖS/2ÖS

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

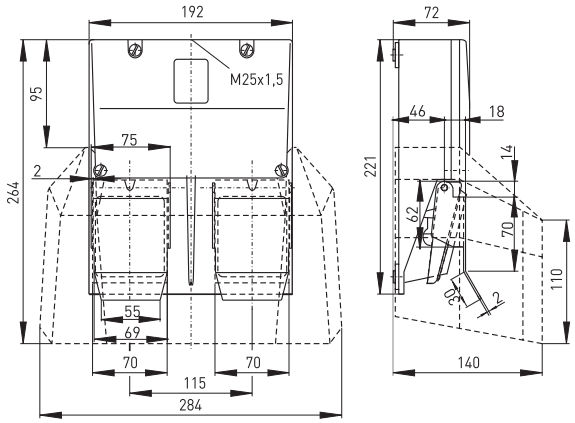
// Pedal cover K



Snap action	Material Number
GFSM 2 1ÖS/1ÖS	1048877
GFSM 2 1ÖS/2ÖS	1048905
GFSM 2 2ÖS/1ÖS	1048908
GFSM 2 2ÖS/2ÖS	1048893

Slow action	Material Number
GFS 2 1ÖS/1ÖS	1048842
GFS 2 1ÖS/2ÖS	1048903
GFS 2 2ÖS/1ÖS	1048906
GFS 2 2ÖS/2ÖS	1048883

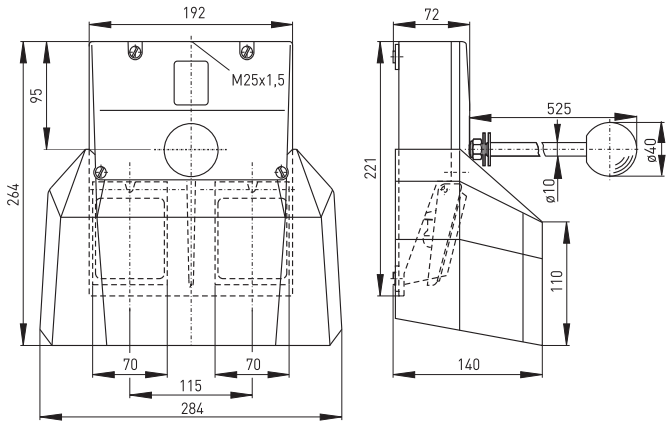
// Pedal cover K



Snap action/Pedal cover	Material Number
GFSMK 2 1ÖS/1ÖS	1048878
GFSMK 2 2ÖS/2ÖS	1048894

Slow action/Pedal cover	Material Number
GFSK 1ÖS/1ÖS	1048848
GFSK 2ÖS/2ÖS	on request

// Carrying handle TST

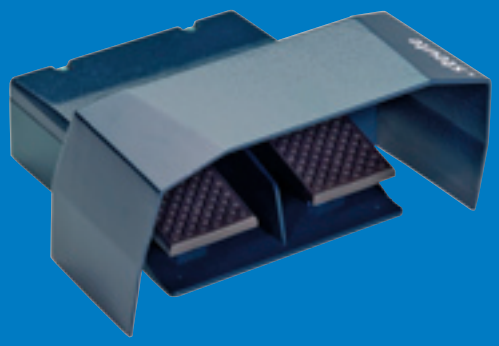


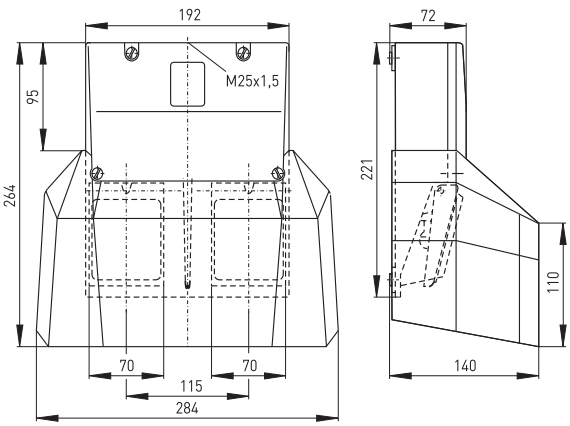
Features/Options
- Carrying handle:
  stainless steel 1.4104 with thermoplastic grip

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



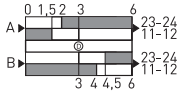


Technical data

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 mm² (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

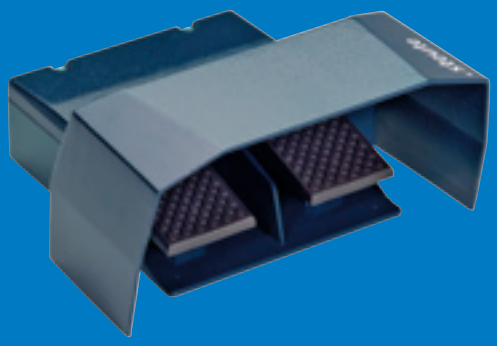


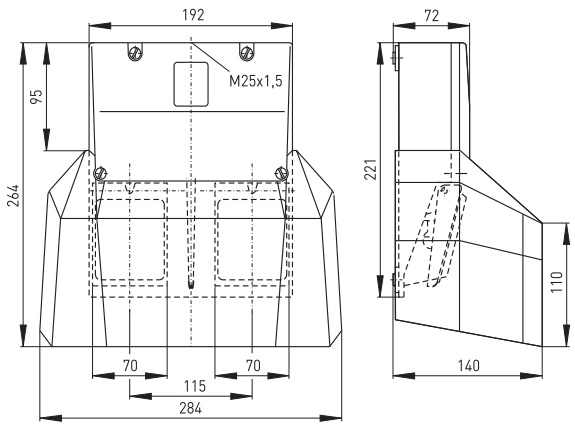
Ordering details GFS 2 1ÖS D 1ÖS/1ÖS D 1ÖS

- 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

// GFS 2 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 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	

Contact variants: Travel/contacts

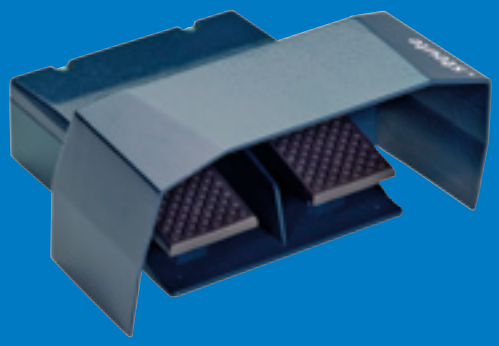
	Slow action	Material Number
1 NC/1 NO contact	GFS 2 1ÖS RE/1ÖS RE	1048862

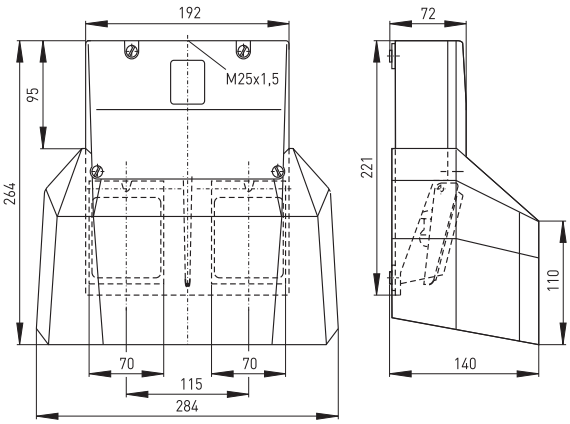
Ordering details GFS 2 1ÖS RE/1ÖS RE

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

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.

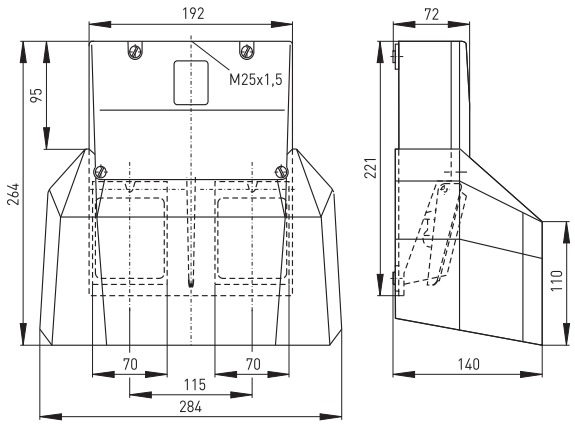
Contact variants: Travel/contacts

	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

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

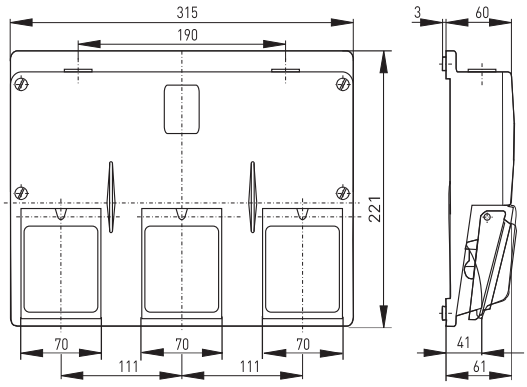
// Potentiometer



Potentiometer	Material Number
GFS 2 Poti 1K 1PW/1K 1PW	1171137
GFS 2 Poti 2K 1PW/1K 1PW	1165008
GFS 2 Poti 5K 1PW/5K 1PW	1048912
GFS 2 Poti 10K 1PW/10K 1PW	1048910
GFS 2 Poti 1K 2PW/1K 2PW	on request

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

// GF 3



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

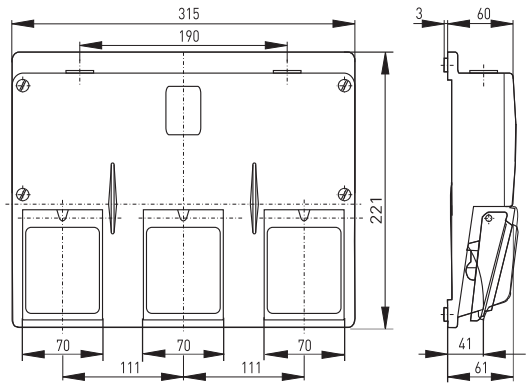
	Snap action	Slow action
1 NC/1 NO contact	GFM 3 1ÖS/1ÖS/1ÖS 21 22 13 14	GF 3 1ÖS/1ÖS/1ÖS 11 12 23 24
2 NC/2 NO contacts	GFM 3 2ÖS/2ÖS/2ÖS 21 22 21 22 13 14 13 14	GF 3 2ÖS/2ÖS/2ÖS 11 12 11 12 23 24 23 24

Ordering details

GFM 3 1ÖS/1ÖS/1ÖS

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

// Without protective shield GF



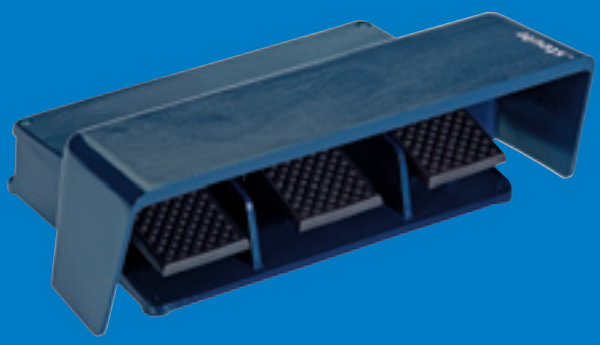
Snap action	Material Number
GFM 3 1ÖS/1ÖS/1ÖS	1048949
GFM 3 2ÖS/2ÖS/2ÖS	1048952

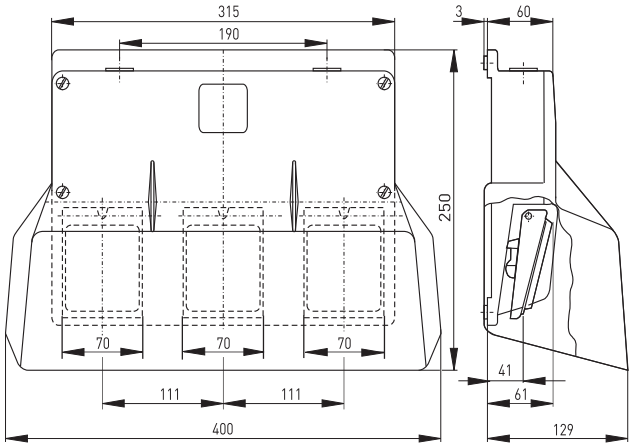
Slow action	Material Number
GF 3 1ÖS/1ÖS/1ÖS	1048945
GF 3 2ÖS/2ÖS/2ÖS	1048951

Foot switches
// Series 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

// GFS 3





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 mm² (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:

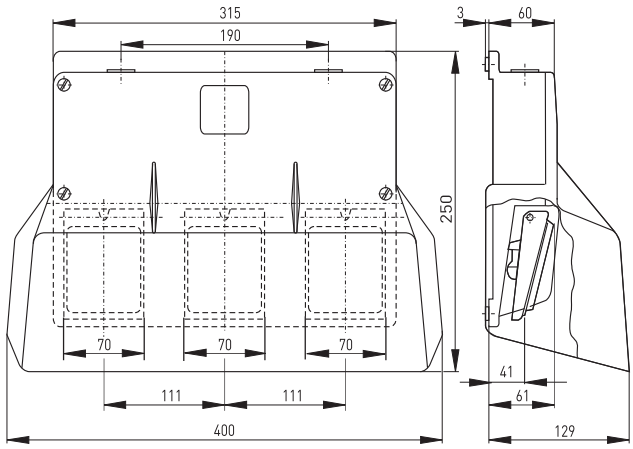
Contact variants: Travel/contacts

	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

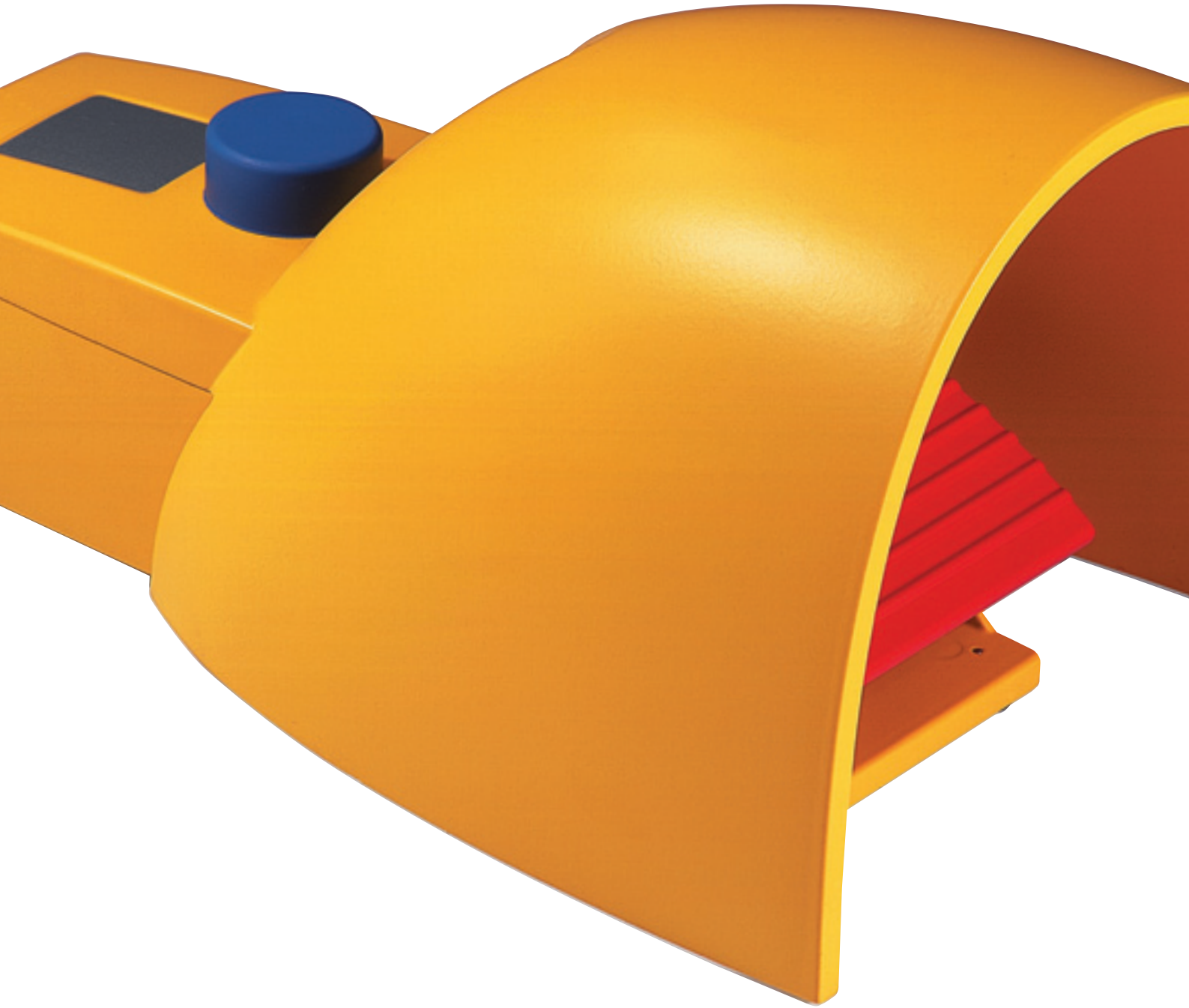
- Contacts right pedal
- Contacts center pedal
- 1NC/1NO contact (2Ö/2S) left pedal, other configurations possible
- 3 pedals
- M Snap action (without M slow action)
- S Protective shield
- Series

// With protective shield GFS 3



Snap action	Material Number
GFSM 3 1ÖS/1ÖS/1ÖS	1048959
GFSM 3 2ÖS/2ÖS/2ÖS	1048962

Slow action	Material Number
GFS 3 1ÖS/1ÖS/1ÖS	1048956
GFS 3 2ÖS/2ÖS/2ÖS	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

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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 an hazardous situatioin is required.

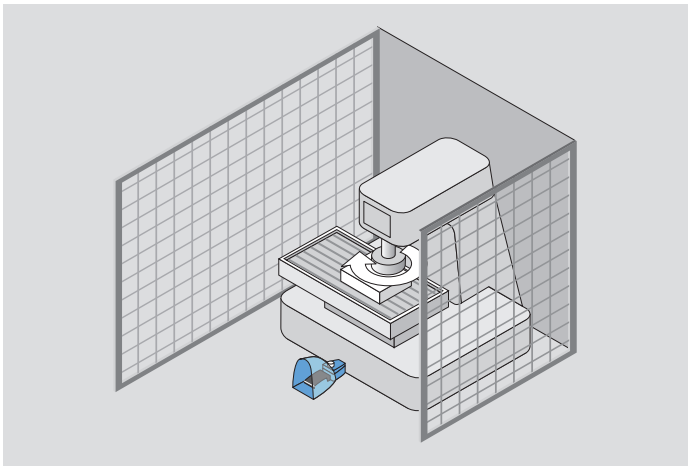
Design and mode of operation

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.

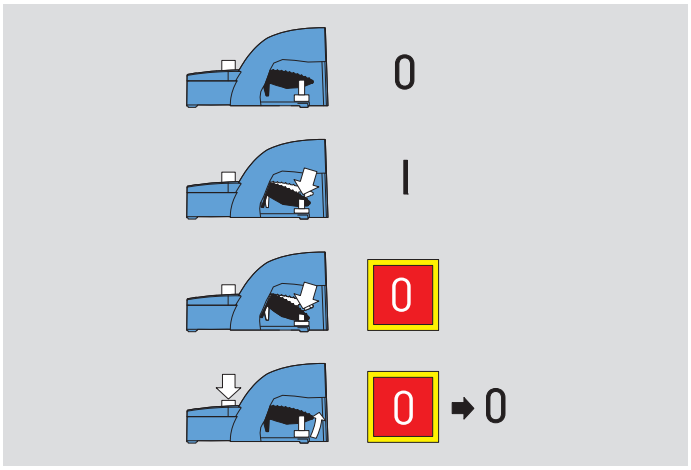
All safety foot switches bear the CE mark according to the Machinery Directive.

Application

Safety foot switch at a machining center

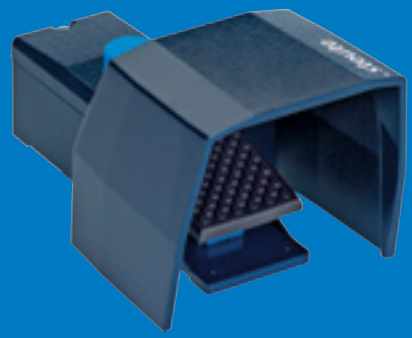


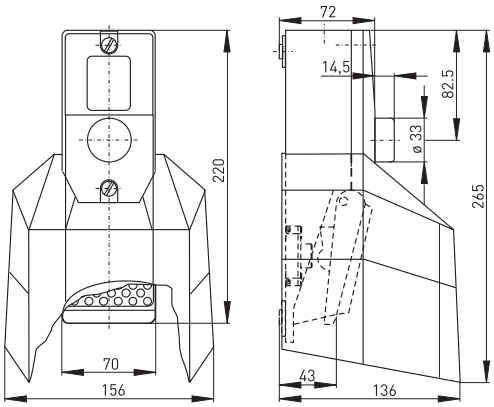
Function principle



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

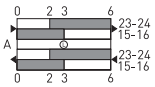
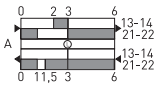
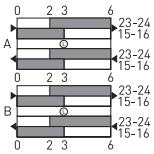
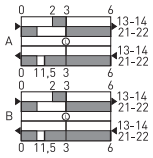




Technical data

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 mm² (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 capacitiy	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

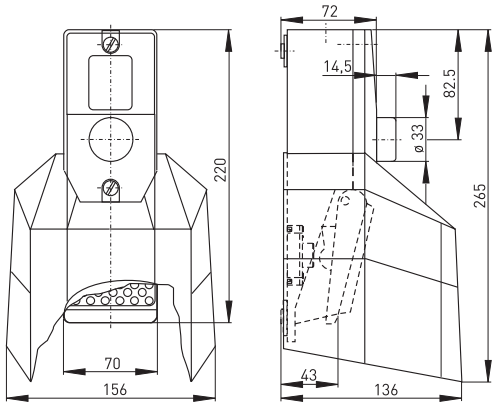
	Slow action	Impulse wiping contact
1 NC/1 NO contact	**GFS 1S D 1Ö VD** 	**GFS IK 1Ö1S D 1Ö VD** 
2 NC/2 NO contacts	**GFS 2S D 2Ö VD** 	**GFS IK 2Ö2S D 2Ö VD** 

Ordering details

GFS 1S D 1Ö VD

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

// With protective shield GFS

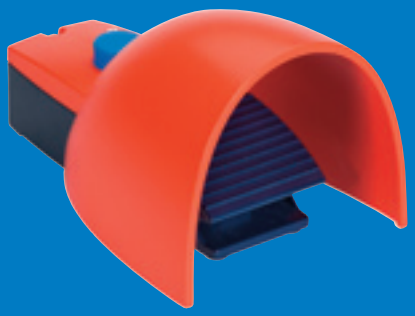


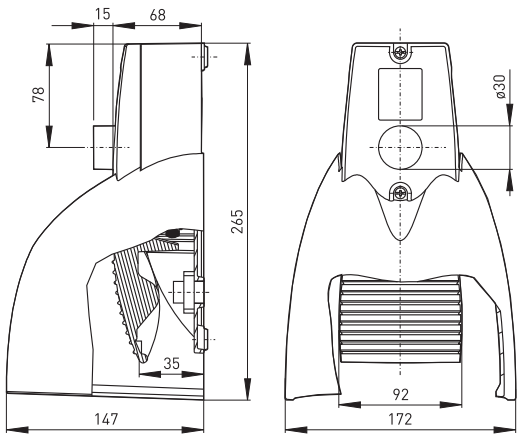
Slow action	Material Number
GFS 1S D 1Ö VD	1048696
GFS 2S D 2Ö VD	1048719

Impulse wiping contact	Material Number
GFS IK 1Ö1S D 1Ö VD	1181480
GFS IK 2Ö2S D 2Ö VD	1179113

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

// GFSI 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	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 mm² (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 capacitiy	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

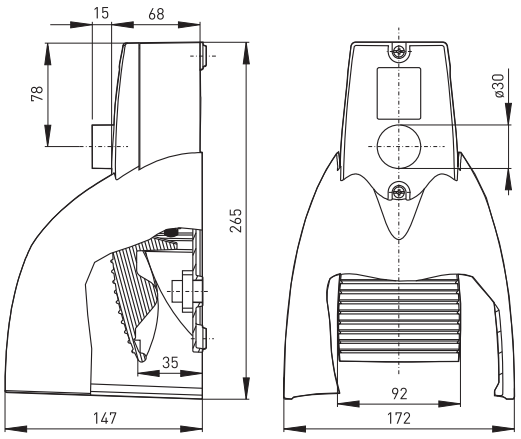
	Slow action	Impulse wiping contact
1 NC/1 NO contact	GFSI 1S D 1Ö VD	GFSI IK 1Ö1S D 1ÖVD
2 NC/2 NO contacts	GFSI 2S D 2Ö VD	GFSI IK 2Ö2S D 2ÖVD

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

// With protective shield GFS

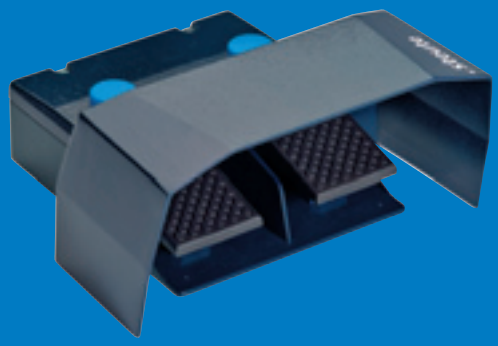


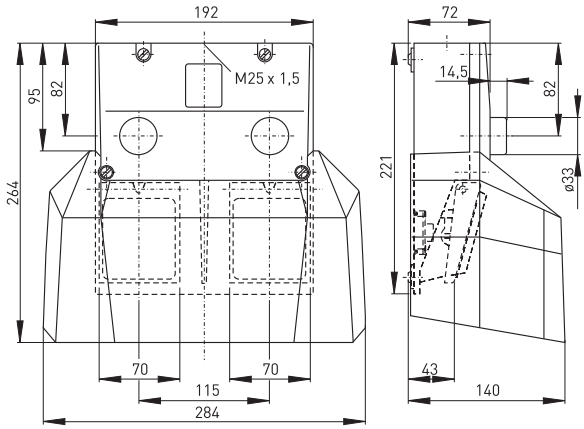
Slow action	Material Number
GFSI 1S D 1Ö VD	1159564
GFSI 2S D 2Ö VD	1177932

Impulse wiping contact	Material Number
GFS IK 1Ö1S D 1Ö VD	1184002
GFS IK 2Ö2S D 2Ö 1ÖSVD	1181942
GFSI IK 2Ö2S D 2Ö 1ÖS	1181885
GFSI IK 2Ö2S D 2Ö 2Ö	1183173

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 mm² (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_{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 capacitiy	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:

Contact variants: Travel/contacts

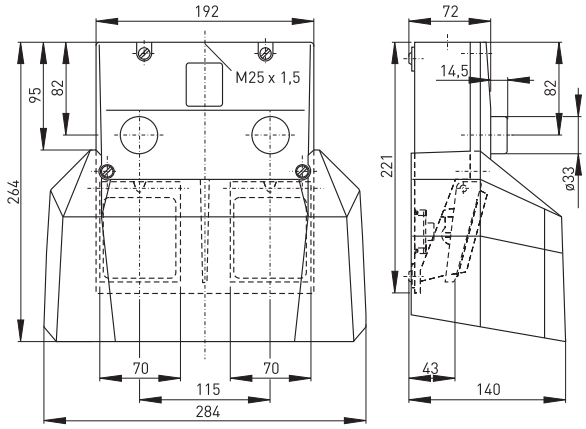
	Slow action	Impulse wiping contact
1 NC/1 NO contact	GFS 2 1S D 1Ö VD/...	GFS 2 IK 1ÖS D 1Ö ...
2 NC/2 NO contacts	GFS 2 2S D 2Ö VD/...	GFS 2 IK 2ÖS D 2Ö ...

Ordering details

GFS 2 IK 1ÖS D 1Ö VD/IK 1ÖS D 1Ö VD

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

// With protective shield GFS



Slow action	Material Number
GFS 2 1S D 1Ö VD/1S D 1Ö VD	1048899
GFS 2 2S D 2Ö VD/2S D 2Ö VD	1048930

Impulse wiping contact	Material Number
GFS 2 IK 1Ö1S D 1Ö VD	on request
GFS 2 IK 2Ö2S D 2Ö VD	on request

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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.

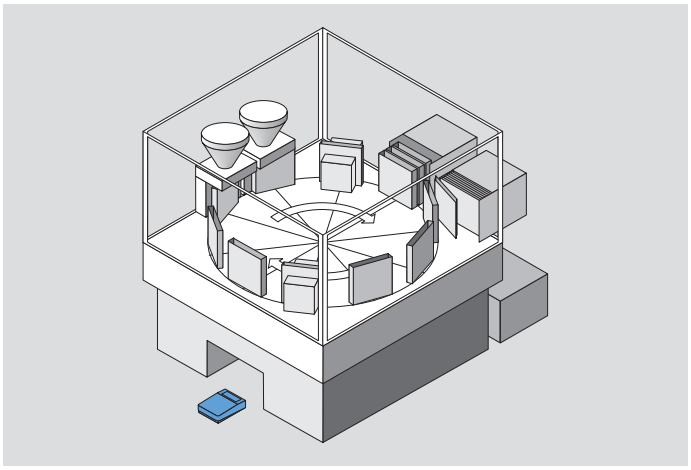
Design and mode of operation

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

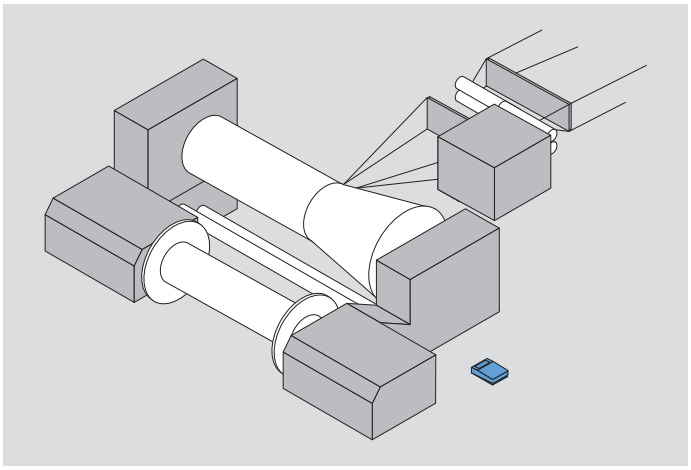
All foot switches bear the CE mark according to the Low Voltage Directive.

Application

Foot switch at a packaging machine



Foot switch at a textile machine



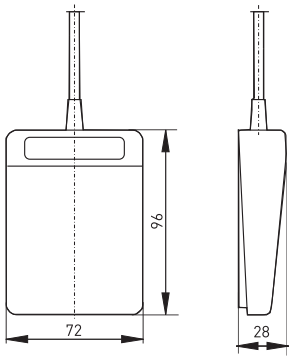
Foot switches
// Series KF

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	



Contact variants: Travel/contacts

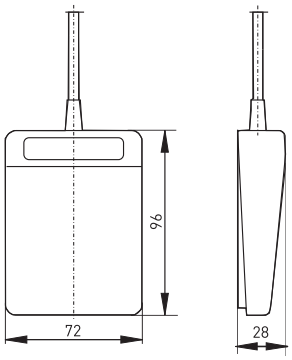
	Snap action	Reed contacts
1 NO contact		**KF 1S** BN ⟷ BK
2 NO contacts		**KF 2S** BK BN RD OG
1-pole change-over contact	**KF 1PW** 1 2 RD BN 4 BK	**KF 1W** 1 2 RD BN 3 BK

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

// Without protective shield KF



Snap action	Material Number
KF 1PW-2m	1049149
KF 1PW-5m	1049162

Reed contacts	Material Number
KF 1S-2m	1049191
KF 1S-5m	1049198
KF 2S-2m	1049295
KF 2S-5m	1189549
KF 1W-2m	1049279
KF 1W-5m	1049284

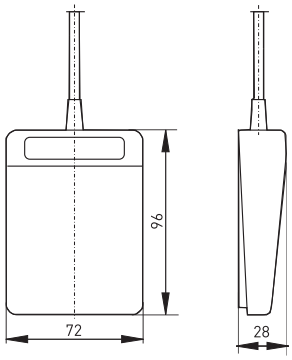
Foot switches
// Series KF, variants

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

// KF D

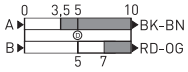
Technical data

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	cable AWG, length 2 or 5 m
Cable cross-section	4-core: AWG 24: 0.20 mm²
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	KF 1S D 1S-2m	1049324



Ordering details KF 1S D 1S-2m

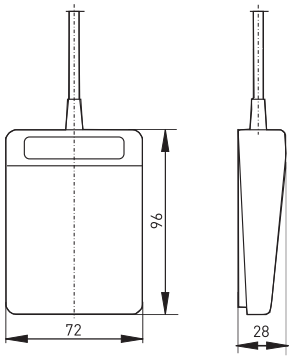
- KF – Series
- 1S – 1 NO contact
- D – Pressure point
- 1S – 1 NO contact
- 2m – Cable length 2 m

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 ±1 %
Output current I_a	0...20 mA ±1 % or 4...20 mA ±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
	+ BN U_a BK - RD	
I_a	KF HS 0...20 mA-2m	1049346
	KF HS 4...20 mA-2m	1049347
	+ BN I_a BK - RD	

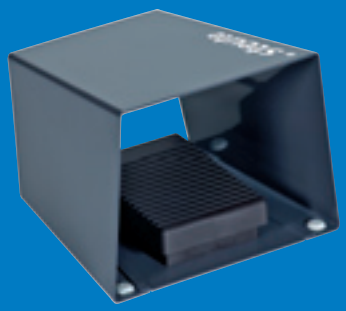
Ordering details KF HS 0...10 VDC-2m

- 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

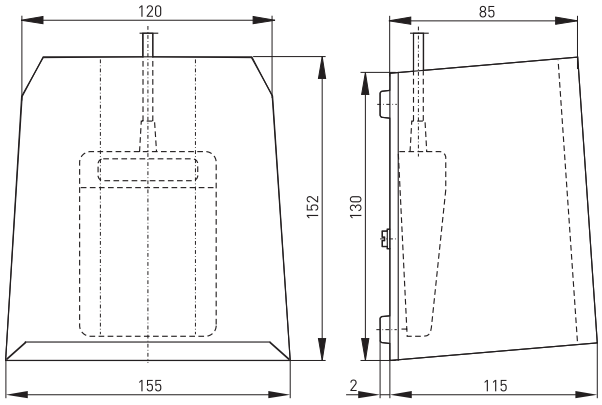
Features/Options
- Thermoplastic enclosure
- Small flat design
- With metal protective shield, special RAL colours available
- Max. 2 contacts
- Reed contacts for low currents from 1 mA to 1 A
- micro switches for current load up to 5 A
- With prewired cable, length 2 or 5 m
- Available with plug-in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



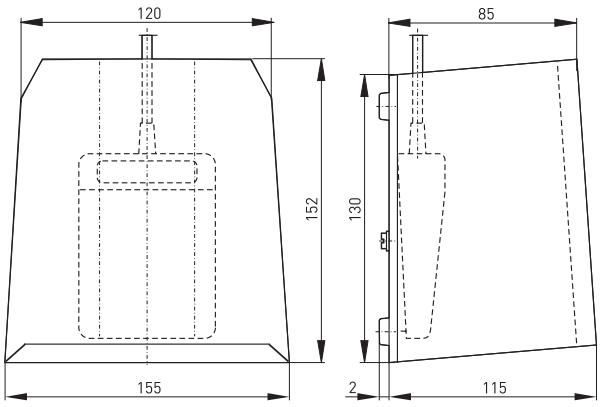
Contact variants: Travel/contacts

	Snap action	Reed contacts
1 NO contact		KFS 1S BN ⟶ BK
2 NO contacts		KFS 2S BK BN RD OG
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

// With protective shield KFS

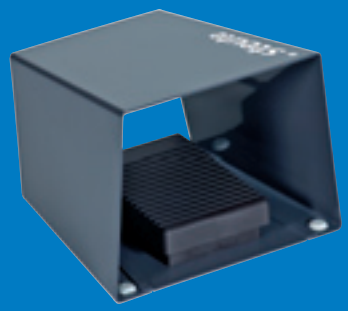


Snap action	Material Number
KFS 1PW-2m	1049352
KFS 1PW-5m	1049355

Reed contacts	Material Number
KFS 1S-2m	1049370
KFS 1S-5m	1049377
KFS 2S-2m	1049392
KFS 2S-5m	1051980
KFS 1W-2m	1049385
KFS 1W-5m	1189550

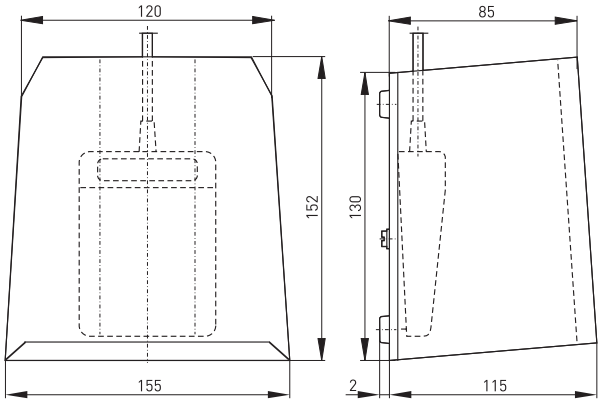
Features/Options
- With pressure point: 2-step switching
- 2 contacts
- Thermoplastic enclosure
- With metal protective shield, special RAL colours available
- Small flat design
- Reed contacts for low currents from 1 mA to 1 A
- With prewired cable, length 2 m
- Available with plug-in connector
- Other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

// KFS D



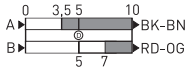
Technical data

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 mm²
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

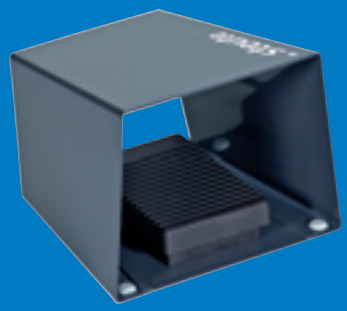


Ordering details KFS 1S D 1S-2m

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

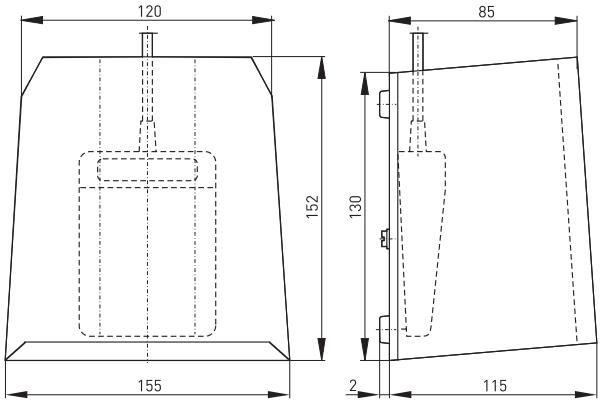
Features/Options
- With Hall sensor: Analogue output
- Thermoplastic enclosure
- Small flat design
- With metal protective shield, special RAL colours available
- With prewired cable, length 2 m
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional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

// KFS HS

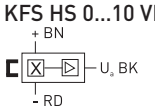
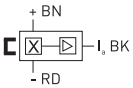


Technical data

Standards	EN 60947-5-1; VDE 0660 part 200
Enclosure	polyamide 66 glass-fibre reinforced, self-extinguishing
Pedal	glass-fibre reinforced thermoplastic (PA 66)
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 ±1 %
Output current I_a	0...20 mA ±1 % or 4...20 mA ±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	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

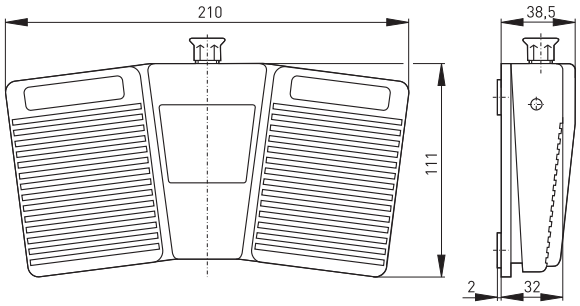
Foot switches
// Series KF 2

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	



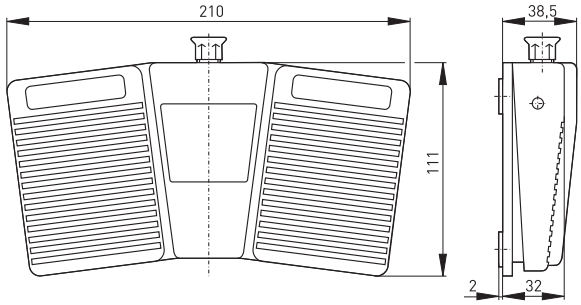
Contact variants: Travel/contacts

	Snap action	Reed contacts
1 NO contact		KF 2 1S/1S 6 OG 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 GN L 8 YE 2 BK R 3 BN 5 OG 4 RD	KF 2 1W/1W 5 OG L 6 YE 4 RD R 3 BN 7 GN 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

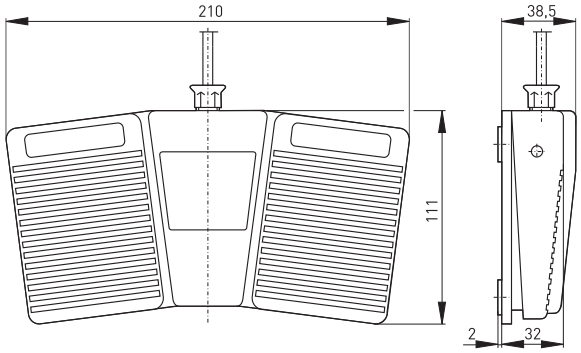
// Without protective shield KF 2



Snap action	Material Number
KF 2 1PW/1PW	1049096

Reed contacts	Material Number
KF 2 1S/1S	1049006
KF 2 2S/2S	1049129
KF 2 1W/1W	1049072

// Cable



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

Snap action	Material Number
KF 2 1PW/1PW-2m	1049095

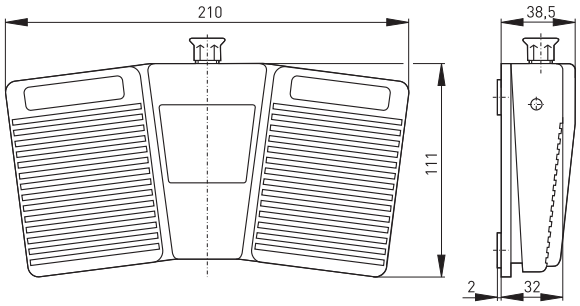
Reed contacts	Material Number
KF 2 1S/1S-2m	1049007
KF 2 2S/2S-2m	1049128
KF 2 1W/1W-2m	1049071

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

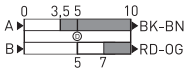
Technical data

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

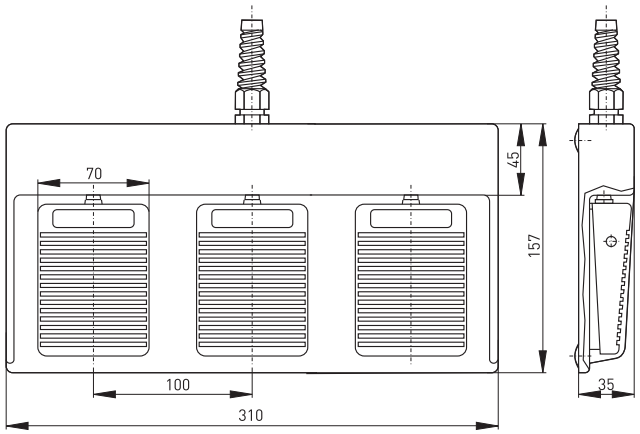
THERMOPLASTIC PEDALS BEFORE FIXING THE MAGNETS

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

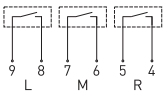
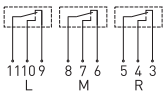
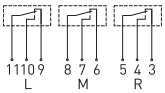
// KF 3

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 mm², 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	



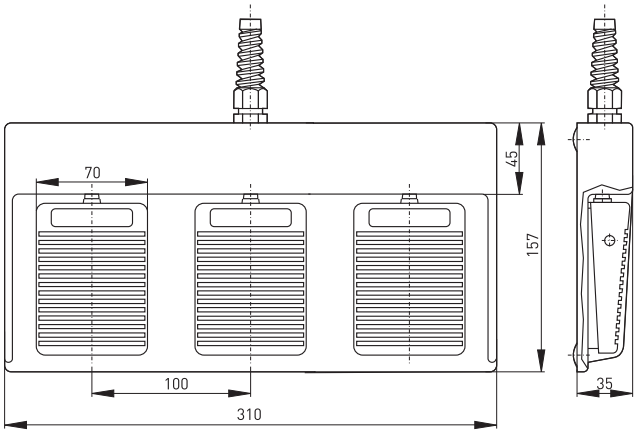
Contact variants: Travel/contacts

	Snap action	Reed contacts
1 NO contact		KF 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

// Without protective shield KF 3



Snap action	Material Number
KF 3 1PW/1PW/1PW	1049004

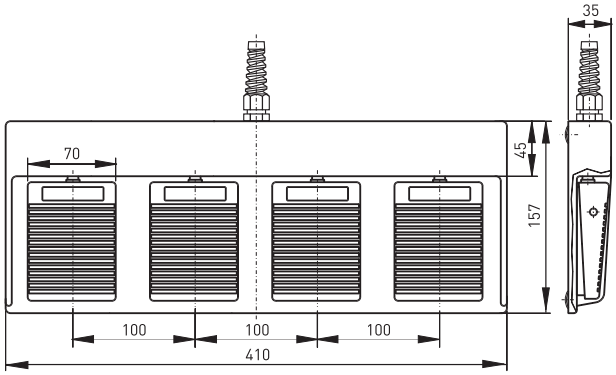
Reed contacts	Material Number
KF 3 1S/1S/1S	1048997
KF 3 1W/1W/1W	1049003

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

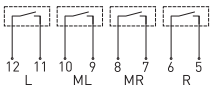
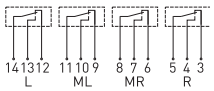
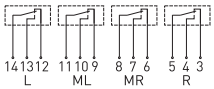
// KF 4

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 mm², 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

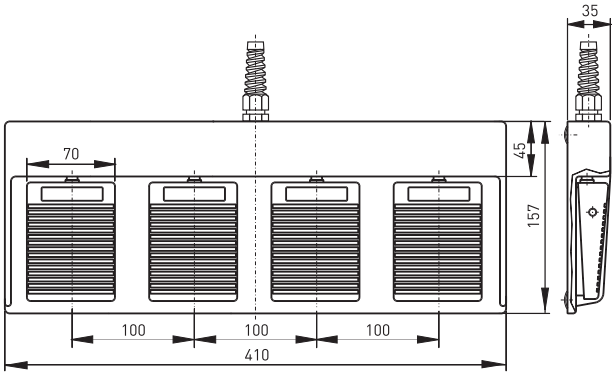
	Snap action	Reed contacts
1 NO contact		KF 4 1S/1S/1S/1S 
1-pole change-over contact	KF 4 1PW/1PW/... 	KF 4 1W/1W/1W/... 

Ordering details

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

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

// Without protective shield KF 4

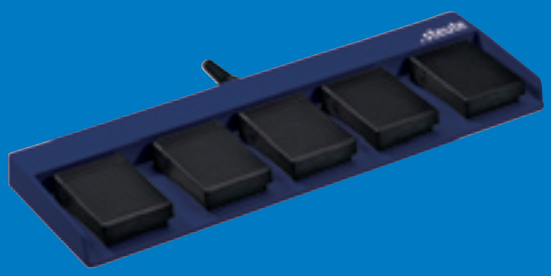


Snap action	Material Number
KF 4 1PW/1PW/1PW/1PW	1048993

Reed contacts	Material Number
KF 4 1S/1S/1S/1S	1048991
KF 4 1W/1W/1W/1W	1048992

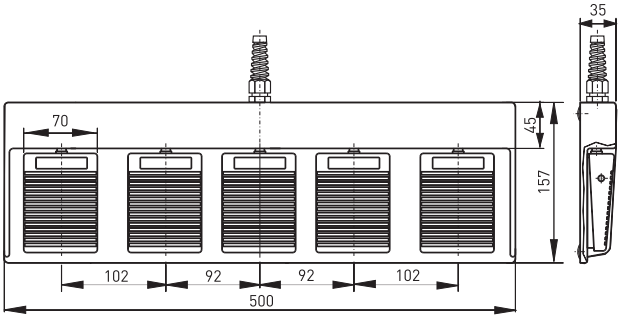
Features/Options
- Five-pedal type
- Thermoplastic enclosure with metal base plate
- Small flat design
- Max. 2 contacts per pedal
- With wiring compartment
- Reed contacts for low currents from 1 mA to 1 A
- Micro switches for current load up to 5 A
- Available with Hall sensor: Analogue output signal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

// KF 5

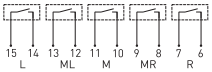
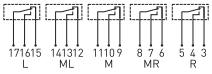


Technical data

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 mm², 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

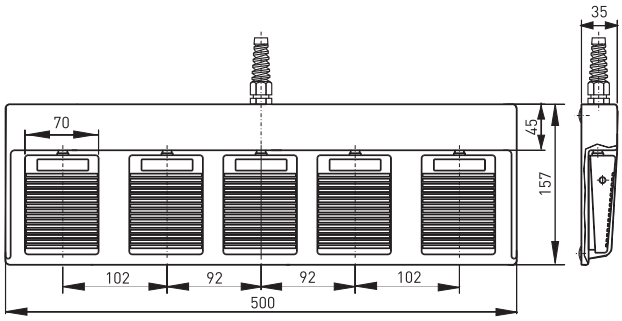
	Snap action	Reed contacts
1 NO contact		KF 5 1S/1S/1S/1S/... 
1-pole change-over contact	KF 5 1PW/1PW/...	KF 5 1W/1W/1W/... 

Ordering details

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

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

// Without protective shield KF 5



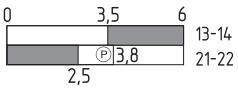
Snap action	Material Number
KF 5 1PW/1PW/1PW/1PW/1PW	1048986

Reed contacts	Material Number
KF 5 1S/1S/1S/1S/1S	1048984
KF 5 1W/1W/1W/1W/1W	1048985

EXPLANATION OF SYMBOLS

⊖→	positive break NC contact
Ⓓ	pressure point
Ⓟ	positive break travel/angle
Ⓛ	latching point
cSAus	CSA/UL approval, Canada
TÜV	TÜV prototype-tested
BG	BG prototype-tested
CE	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

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