

Foot switches / Safety foot switches



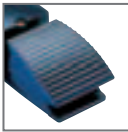
SAFE SWITCHGEAR FOR COMPLEX AND
CRITICAL APPLICATIONS

// Control technology / Catalogue



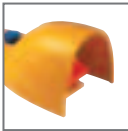
4 The company

PRODUCTS



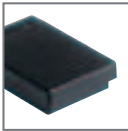
8 Foot switches Metal enclosure

- 12 Series GF, single-pedal
- 18 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
- 51 Series GFS 3, triple-pedal



52 Safety foot switches Metal enclosure

- 56 Series GFS VD, single-pedal
- 57 Series GFSI VD, single-pedal
- 58 Series GFS2 VD, double-pedal



60 Foot switches Thermoplastic enclosure

- 64 Series KF
- 67 Series KFS
- 70 Series KF 2
- 74 Series KF 3
- 75 Series KF 4
- 76 Series KF 5

79 Appendix

Legend of symbols

STEUTE SCHALTGERÄTE IN LÖHNE
SAFE SWITCHGEAR FOR COMPLEX AND CRITICAL APPLICATIONS

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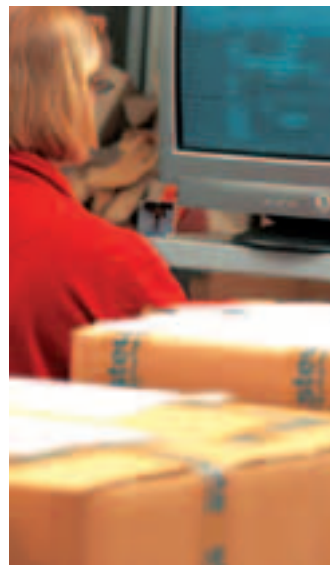
Löhne in Westphalia, Germany. Embedded between the "Wiehen-gebirge" and the "Teutoburger Wald". This is the location of steute Schaltgeräte GmbH & Co. KG. Here switchgear is designed and produced for explosion protection, medical technology and control technology. Historians know our region as the area where the Battle of Varus took place in the year 9 AD. About 1700 years later the Treaty of Westphalia marked the end of the 30 Years War. Gourmets love Westphalian sausage, walkers the beautiful landscape. Briefly: it's a good place to live. It's also a good place to work.

The industrial culture of Westphalia is mostly characterised by SME companies; the region is also the home of many hidden champions and world-market leaders, specialist machine and systems manufacturers, as well as electronic and connecting technology. This

means we have many important suppliers, customers and partners practically "on our doorstep". And even so, our employees travel a great deal all over the world. This is because renowned companies in all industrial markets use switchgear by steute when the focus is on high quality and availability. And when they appreciate cooperating with suppliers who can adapt flexibly to their requests.



STEUTE LIVES AND BREATHES A HIGH QUALITY STANDARD IN ALL AREAS



160 employees attentively develop and manufacture electrical and electronic components for high-standard and explosive safety applications. These applications comply with established international directives, laws, standards and regulations. In this context, key significance is attributed to a close cooperation with technical certification institutions.

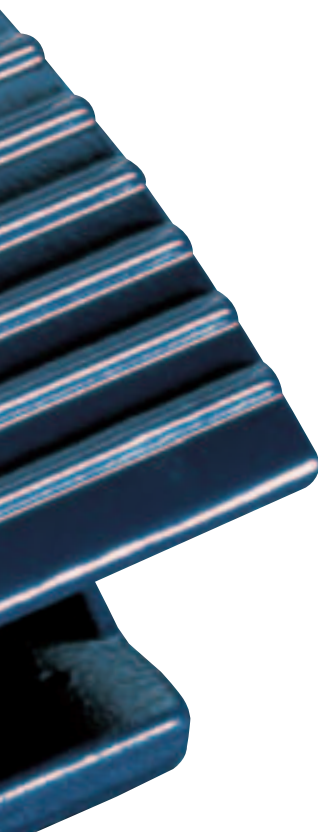
With its high standards and specific orientation, steute "lives and breathes" three QM systems:

- DIN EN ISO 9001: 2000
- DIN EN ISO 13485: 2000
- Certificate of Quality Assurance acknowledgement in accordance with the Directive 94/9/EC (ATEX)

On the following pages please find our wide range of foot switches, each of which can be modified in accordance with customer specifications. Talk to us. Let us help you find what you are looking for.

Your steute team.





Foot switches Metal enclosure

Single-pedal types

// **Series GF**

from page 12

// **Series GFS**

from page 18

// **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

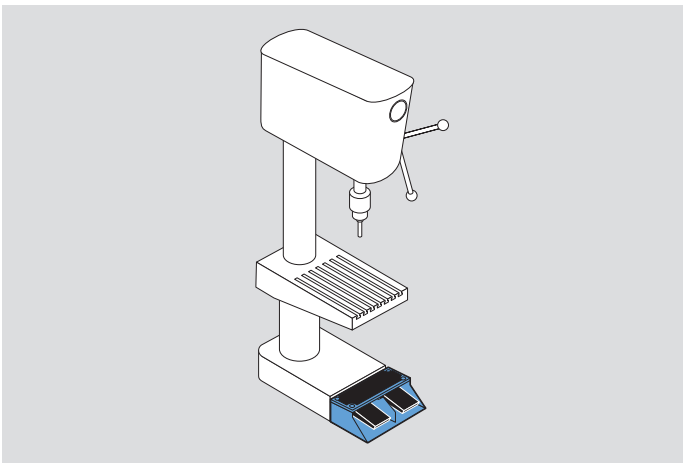
The GF and GFS range foot switches are available in versions with multiple pedals. GFS and GFSI range switches are mounted with a shield to protect against unintentional actuation. All foot switches are equipped with slow or snap action contacts. Different versions are available with pressure point,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

All foot switches series EEx GF, EEx GFS, EEx GFI and EEx GFSI are Ex approved according to ATEX.

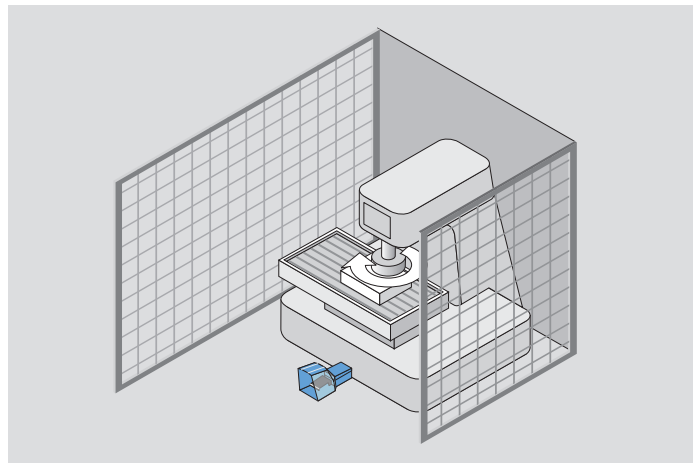
The foot switches bear the CE mark according to the Low Voltage Directive.

Application

Foot switch at a drill machine



Foot switch at a CNC machining center



Foot switches

// Series GF

Features/Options

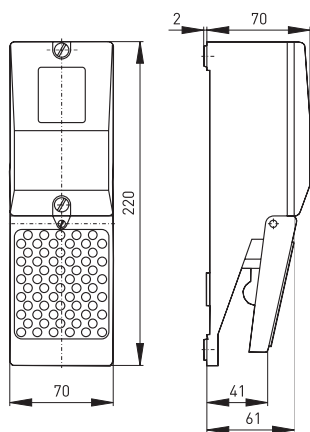
- Without protective shield
- Max. 4 contacts
- Metal enclosure
- High level of stability
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

// GF



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	glass-fibre reinforced thermoplastic
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to EN 60529
Switching system	slow or snap action with double break, positive break NC contact $\ominus$
Switch insert	slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	cULUS



Contact variants: Travel/contacts

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

Ordering details

GFM K 10/1S

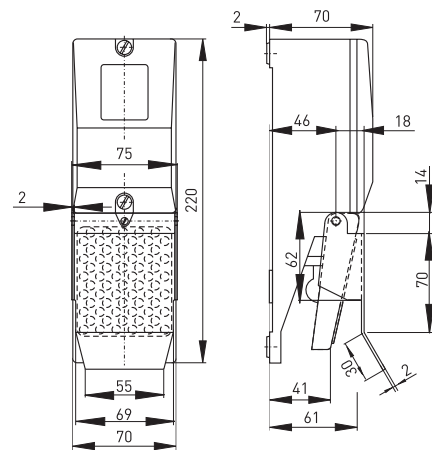
1NC/1NO contact, (20/2S, 10/3S),
other configurations possible
Pedal Cover
M Snap action (without M slow action)
Series

Foot switches
// Series GF, variants

// Pedal cover K



// Pedal cover K



Foot switches

// Series GF, variants

Features/Options

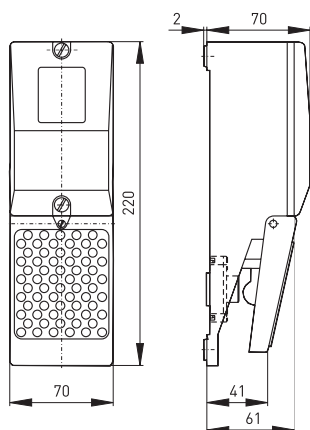
- With pressure point: 2-step switching
- 4 contacts
- Metal enclosure
- Without protective shield
- High level of stability
- Low pedal height
- Wiring compartment
- Available with mechanical interlock
- Available with special finish in RAL colour tones

// GF D



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	glass-fibre reinforced thermoplastic
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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
Utilisation category	AC-15
I _e /U _e	6 A/400 VAC
Max. fuse rating	6 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	C US



Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GF 10S D 10S

Ordering details

GF 10S D 10S

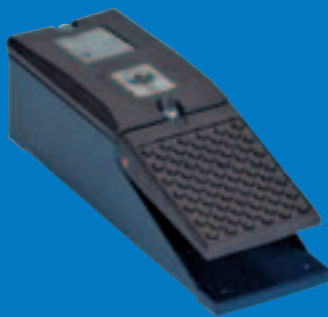
1NC/1NO contact
Pressure point
Contacts 1NC/1NO contact, other configurations possible
Series



Features/Options

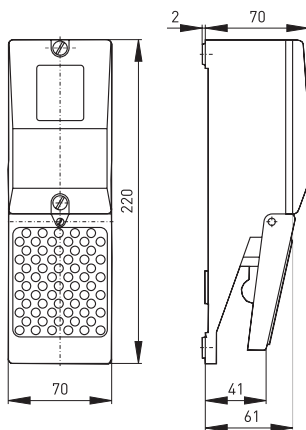
- With latching: ON/OFF principle
- Max. 2 contacts
- Metal enclosure
- Without protective shield
- High level of stability
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

// GF RE



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	glass-fibre reinforced thermoplastic
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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 gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	  



Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GF 10/1S RE 

Ordering details

GF 10/1S RE

Latching element
1NC/1NO contact
Series



Foot switches

// Series GF, variants

Features/Options

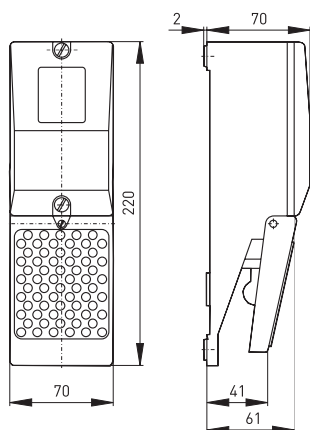
- With Hall sensor: Analogue output
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- Without protective shield
- Available with additional micro switch
- High level of stability
- Low pedal height
- Wiring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

// GF HS



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	glass-fibre reinforced thermoplastic
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Cable entry	M20 x 1.5
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
Utilisation category	-
I_e/U_e	with U_a : 25 mA/15 ... 30 VDC with I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 70 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Hall sensor
U_a	GF HS 0...10 VDC + OUT (U_a)
I_a	GF HS 0...20 mA GF HS 4...20 mA + OUT (I_a)

Ordering details

GF HS 0...20 mA

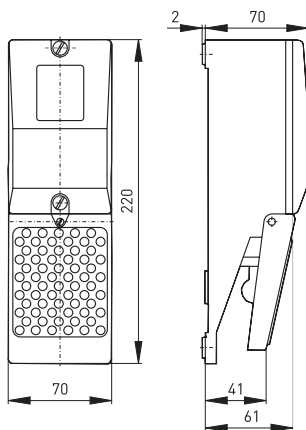
Output value I_a 0...20 mA
(I_a 4...20 mA, U_a 0...10 VDC)
Hall sensor
Series



Features/Options

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

// GF POTI



Technical data

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

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Contact variants: Travel/contacts

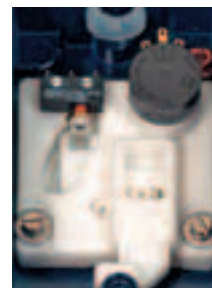
	Potentiometer
1 change-over	GF POTI ... 1PW
2 change-over	GF POTI ... 2PW

Ordering details

GF POTI 1k Ω 1PW

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

Potentiometer
 Series



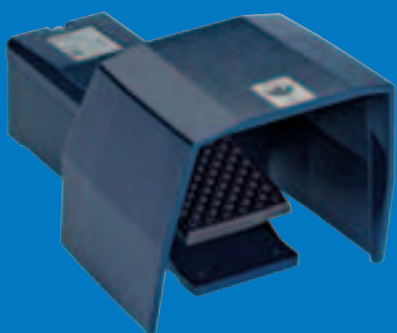
Foot switches

// Series GFS

Features/Options

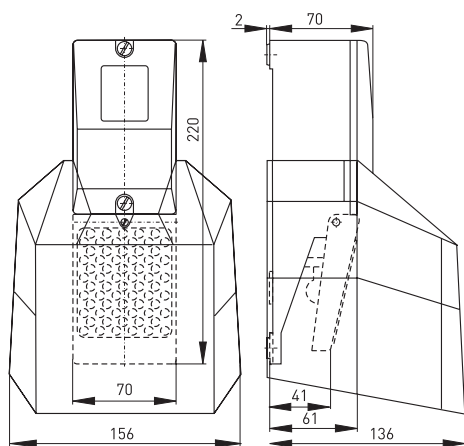
- With protective shield
- Max. 4 contacts
- Metal enclosure
- High level of stability
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour tones

// GFS



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	US



Contact variants: Travel/contacts

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

Ordering details

GFSM K 10/1S FST

.steute

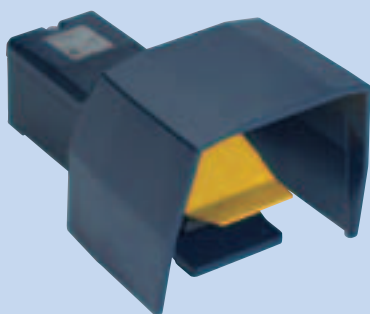
Foot switches

// Series GFS, variants

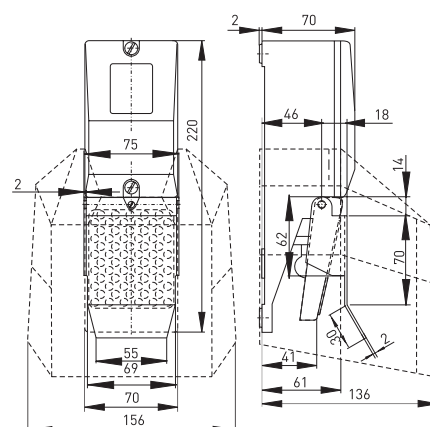
Features/Options

- Carrying handle:
stainless steel 4104 with thermoplastic grip

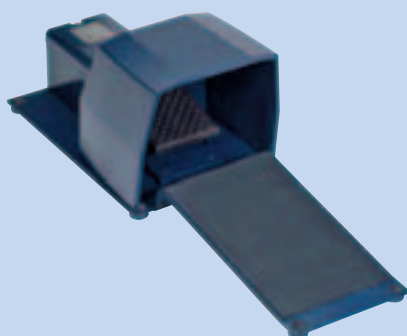
// Pedal cover K



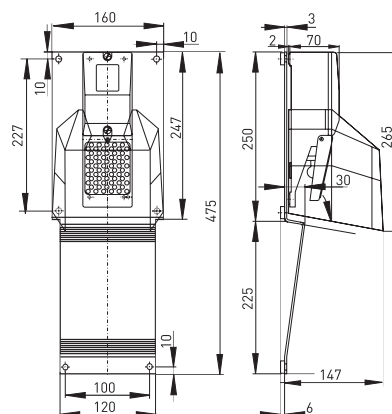
// Pedal cover K



// Foot rest FST



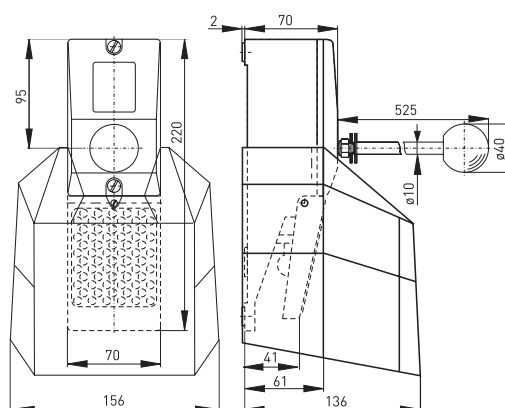
// Foot rest FST



// Carrying handle TST



// Carrying handle TST



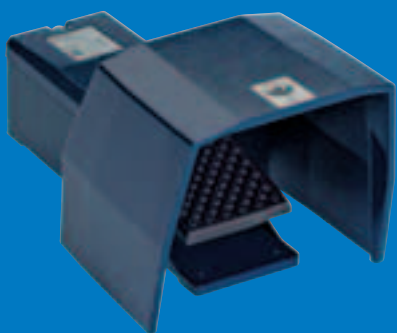
Foot switches

// Series GFS, variants

Features/Options

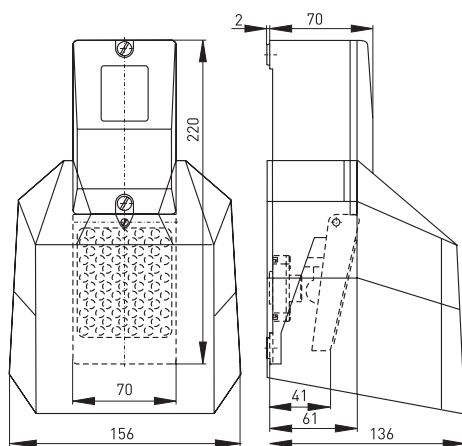
- With pressure point: 2-step switching
- 4 contacts
- Metal enclosure
- With protective shield
- High level of stability
- Low pedal height
- Wiring compartment
- Available with mechanical interlock
- Available with special finish in RAL colour tones

// GFS D



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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
Utilisation category	AC-15
I _e /U _e	6 A/400 VAC
Max. fuse rating	6 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	cULus



Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFS 1ÖS D 1ÖS

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

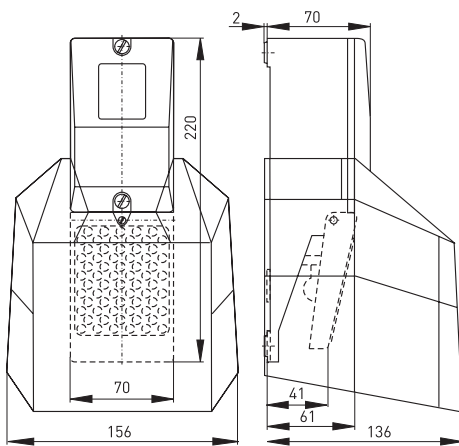
// GFS RE



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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 gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	  

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Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFS 10/1S RE
	

Ordering details

GFS 10/1S RE


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



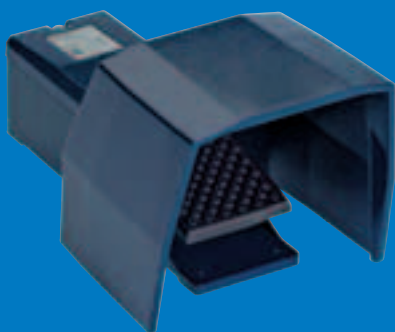
Foot switches

// Series GFS, variants

Features/Options

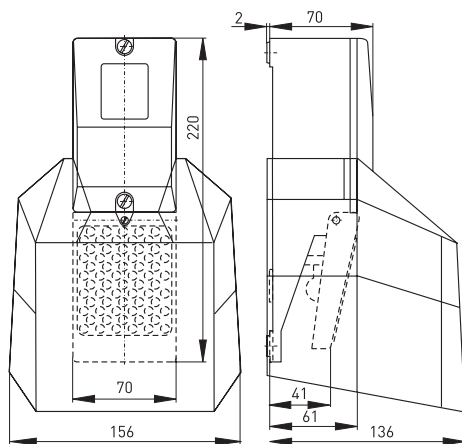
- With Hall sensor: Analogue output
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- With protective shield
- Available with additional micro switch
- High level of stability
- Low pedal height
- Wiring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

// GFS HS



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Cable entry	M20 x 1.5
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
Utilisation category	-
I_e/U_e	with U_a : 25 mA/15 ... 30 VDC with I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 70 °C
Mechanical life	> 1 million operations



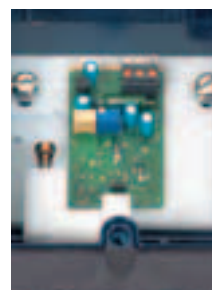
Contact variants: Travel/contacts

	Hall sensor
U_a	GFS HS 0...10 VDC +  -OUT (U_a)
I_a	GFS HS 0...20 mA GFS HS 4...20 mA +  -OUT (I_a)

Ordering details

GFS HS 0...20 mA

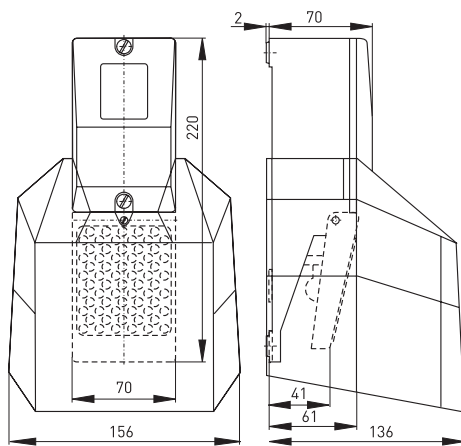
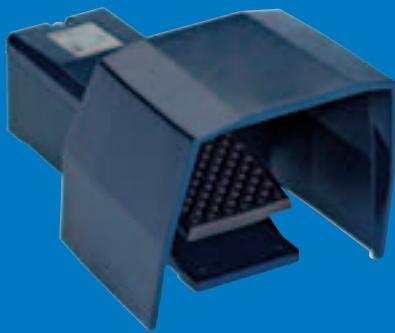
Output value I_a 0...20 mA
(I_a 4...20 mA, U_a 0...10 VDC)
Hall sensor
S Protective shield
Series



Features/Options

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

// GFS POTI



Technical data

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

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Contact variants: Travel/contacts

	Potentiometer
1 change-over	GFS POTI ... 1PW 
2 change-over	GFS POTI ... 2PW 

Ordering details

GFS POTI 1k Ω 1PW

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



Foot switches

// Series GFS, variants

Features/Options

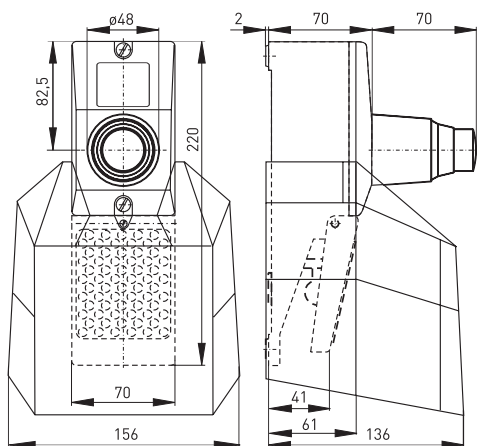
- With emergency-stop push button
- Max. 4 contacts
- Metal enclosure
- With protective shield
- High level of stability
- Low pedal height
- Wiring compartment
- Available with special finish in RAL colour tones

// GFS NA

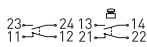
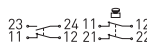


Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules) Emergency-stop: flat-plug connectors 2.8 x 0.8 mm per DIN 46247-3 also to be soldered
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFS 10/1S NA 10/1S 
1 NC/1 NO contact	GFS 10/1S NA 20 

Ordering details

GFSM 10/1S NA 10/1S
Emergency-stop push button contacts 1 NC/1 NO contact (20)
Emergency-stop push button 1 NC/1 NO contact (20/2S)
M Snap action (without M slow action)
S Protective shield
Series

PRODUCTION PROCESS PAINT SHOP
PROTECTIVE SHIELDS ON AN ENAMELLING FIXTURE



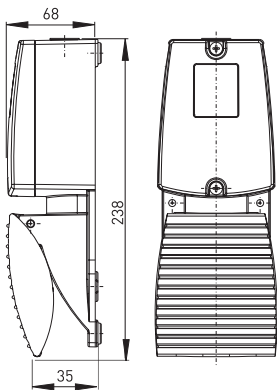
Foot switches
// Series GFI

- Features/Options
- Metal enclosure
 - Max. 4 contacts
 - Without protective shield
 - High level of stability
 - Ergonomic pedal design and low pedal height
 - Protection class 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



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Technical data

Standards	IEC/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
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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: 2 NC/2 NO contacts
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations

Contact variants: Travel/contacts

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

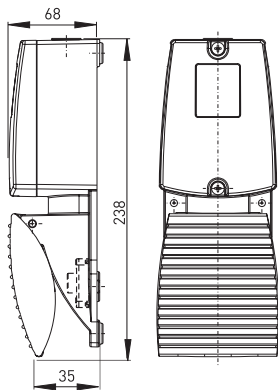
Ordering details

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

Foot switches
// Series GFI, variants

- 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
 - Protection class IP 67/IP 68 possible on request
 - Available with mechanical interlock
 - Available with special finish in RAL colour tones

// GFI D



Technical data

Standards	IEC/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
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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
Utilisation category	AC-15
I _e /U _e	6 A/400 VAC
Max. fuse rating	6 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations

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Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFI 10S D 10S

Ordering details

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



Foot switches

// Series GFI, variants

Features/Options

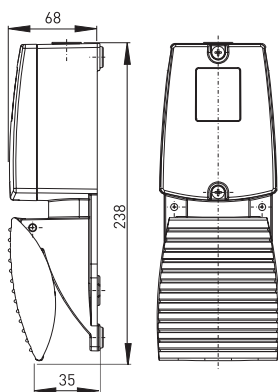
- With latching: ON/OFF principle
- Metal enclosure
- 2 contacts
- Without protective shield
- High level of stability
- Low pedal height
- Ergonomic pedal design
- Protection class IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

// GFI RE



Technical data

Standards	IEC/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
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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 gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFI 10/1S RE

Ordering details

GFI 10/1S RE

Latching element
Contacts 1NC/1NO contact
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
- Without protective shield
- Available with additional micro switch
- Ergonomic pedal design and low pedal height
- Protection class IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

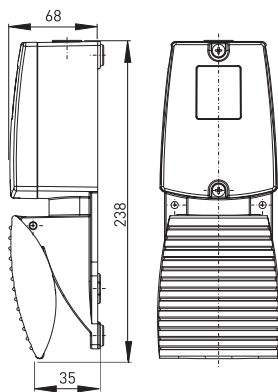
// GFI HS



Technical data

Standards	IEC/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
Protective shield	-
Termination	screw terminals
Cable entry	M20 x 1.5
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
Utilisation category	-
I_e/U_e	with U_a : 25 mA/15 ... 30 VDC with I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 70 °C
Mechanical life	> 1 million operations

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Contact variants: Travel/contacts

	Hall sensor
U_a	GFI HS 0...10 VDC +  OUT (U_a)
I_a	GFI HS 0...20 mA GFI HS 4...20 mA +  OUT (I_a)

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



Foot switches

// Series GFI, variants

Features/Options

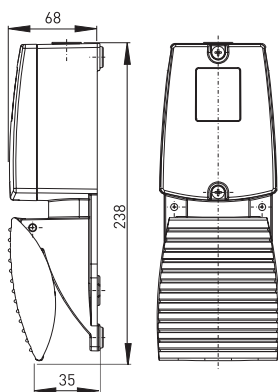
- With potentiometer: Analogue output
- Metal enclosure
- With various potentiometers available: 1 k Ω , 2 k Ω , 5 k Ω or 10 k Ω
- Start value can be set in factory
- Without protective shield
- Low pedal height
- Ergonomic pedal design
- Protection class IP 67/IP 68 possible on request
- Wiring compartment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

// GFI POTI



Technical data

Standards	IEC/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
Protective shield	-
Termination	soldering terminals
Cable entry	M20 x 1.5
Contact material	silver, gold-plated
Protection class	IP 65 to EN 60529
Switching system	potentiometer
Resistance R	20 Ω ... 1 k Ω $\pm$ 3 %; 20 Ω ... 2 k Ω $\pm$ 3 %; 50 Ω ... 5 k Ω $\pm$ 3 %; 100 Ω ... 10 k Ω $\pm$ 3 %
Linearity	$\pm$ 0.5 %
Utilisation category	-
I_e/U_e	micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC
Switching power	potentiometer: max. 1.5 W at 40 °C
Max. fuse rating	-
Ambient temperature	- 15 °C ... + 80 °C
Mechanical life	> 1 million operations
Note	The built-in micro switch provides for potential-free switching of the potentiometer.



Contact variants: Travel/contacts

	Potentiometer
1 change-over	GFI POTI ... 1PW
2 change-over	GFI POTI ... 2PW

Ordering details

GFI POTI 1k Ω 1PW

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



PRODUCTION PROCESS ASSEMBLY
ENAMELLED DOUBLE-PEDAL FOOT SWITCH ENCLOSURE



Foot switches

// Series GFSI

Features/Options

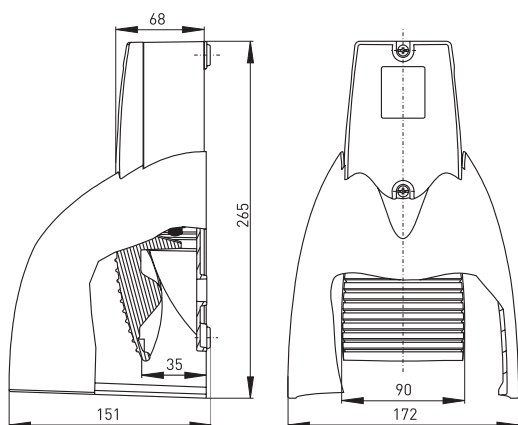
- Metal enclosure
- Max. 4 contacts
- With protective shield
- Wide opening in protective shield
- Ergonomic pedal design
- Protection class IP 67/IP 68 possible on request
- Ex version available
- Wiring compartment
- Available with mechanical interlock (only for slow action S)
- Available with special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

// GFSI



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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; 2 NC/2 NO contacts
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 2 and 4 contacts: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

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

Ordering details

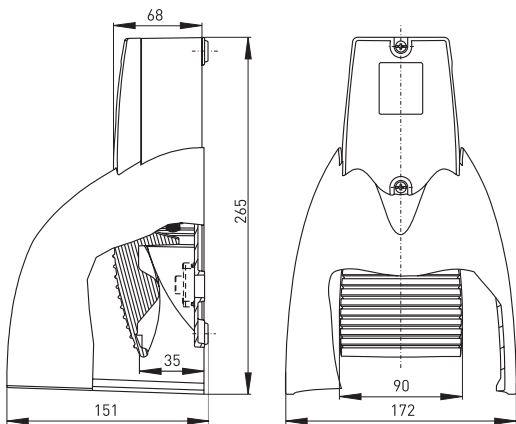
GFSIM 10/1S

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

Foot switches

// Series GFİ, variants

// GFİ D



- 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
 - Protection class IP 67/IP 68 possible on request
 - Available with mechanical interlock
 - Available with special finish in RAL colour tones

Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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
Utilisation category	AC-15
I _e /U _e	6 A/400 VAC
Max. fuse rating	6 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations

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Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFİ 1ÖS D 1ÖS

Ordering details

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



Foot switches

// Series GFSI, variants

Features/Options

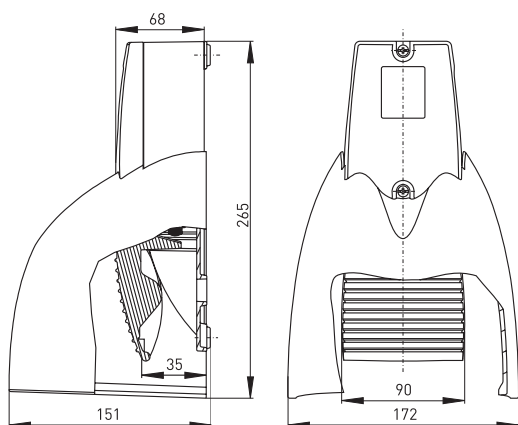
- With latching: ON/OFF principle
- Metal enclosure
- 2 contacts
- With protective shield
- Wide opening in protective shield
- Low pedal height
- Ergonomic pedal design
- Protection class IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

// GFSI RE



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to 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 gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFSI 10/1S RE

Ordering details

GFSI 10/1S RE

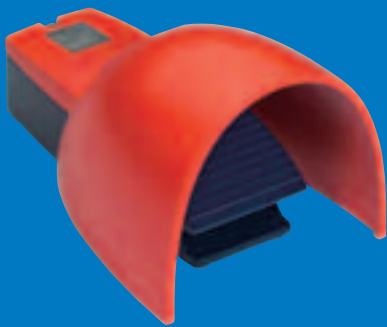
Latching element
Contacts 1NC/1NO contact
Series, S Protective shield



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
- Protection class IP 67/IP 68 possible on request
- Wiring compartment
- Available with special finish in RAL colour tones

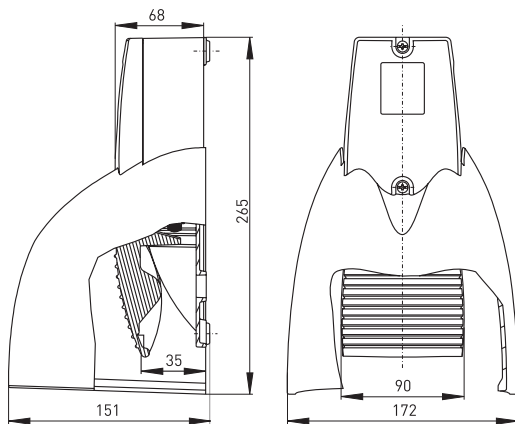
// GFSI HS



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Termination	screw terminals
Cable entry	M20 x 1.5
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
Utilisation category	-
I_e/U_e	with U_a : 25 mA/15 ... 30 VDC with I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 70 °C
Mechanical life	> 1 million operations

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Contact variants: Travel/contacts

	Hall sensor
U_a	GFSI HS 0...10 VDC +  OUT (U_a)
I_a	GFSI HS 0...20 mA GFSI HS 4...20 mA +  OUT (I_a)

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



Foot switches

// Series GFSI, variants

Features/Options

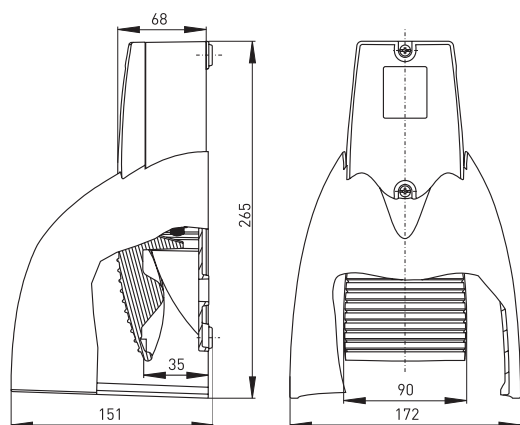
- With potentiometer: Analogue output
- Metal enclosure
- With various potentiometers available: 1 k Ω , 2 k Ω , 5 k Ω or 10 k Ω
- Start value can be set in factory
- With protective shield
- Wide opening in protective shield
- Ergonomic pedal design
- Protection class IP 67/IP 68 possible on request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

// GFSI POTI



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	–
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Termination	soldering terminals
Cable entry	M20 x 1.5
Contact material	silver, gold-plated
Protection class	IP 65 to EN 60529
Switching system	potentiometer
Resistance R	20 Ω ... 1 k Ω $\pm$ 3 %; 20 Ω ... 2 k Ω $\pm$ 3 %; 50 Ω ... 5 k Ω $\pm$ 3 %; 100 Ω ... 10 k Ω $\pm$ 3 %
Linearity	$\pm$ 0.5 %
Utilisation category	–
I_e/U_e	micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC
Switching power	potentiometer: max. 1.5 W at 40 °C
Max. fuse rating	–
Ambient temperature	– 15 °C ... + 80 °C
Mechanical life	> 1 million operations
Note	The built-in micro switch provides for potential-free switching of the potentiometer.



Contact variants: Travel/contacts

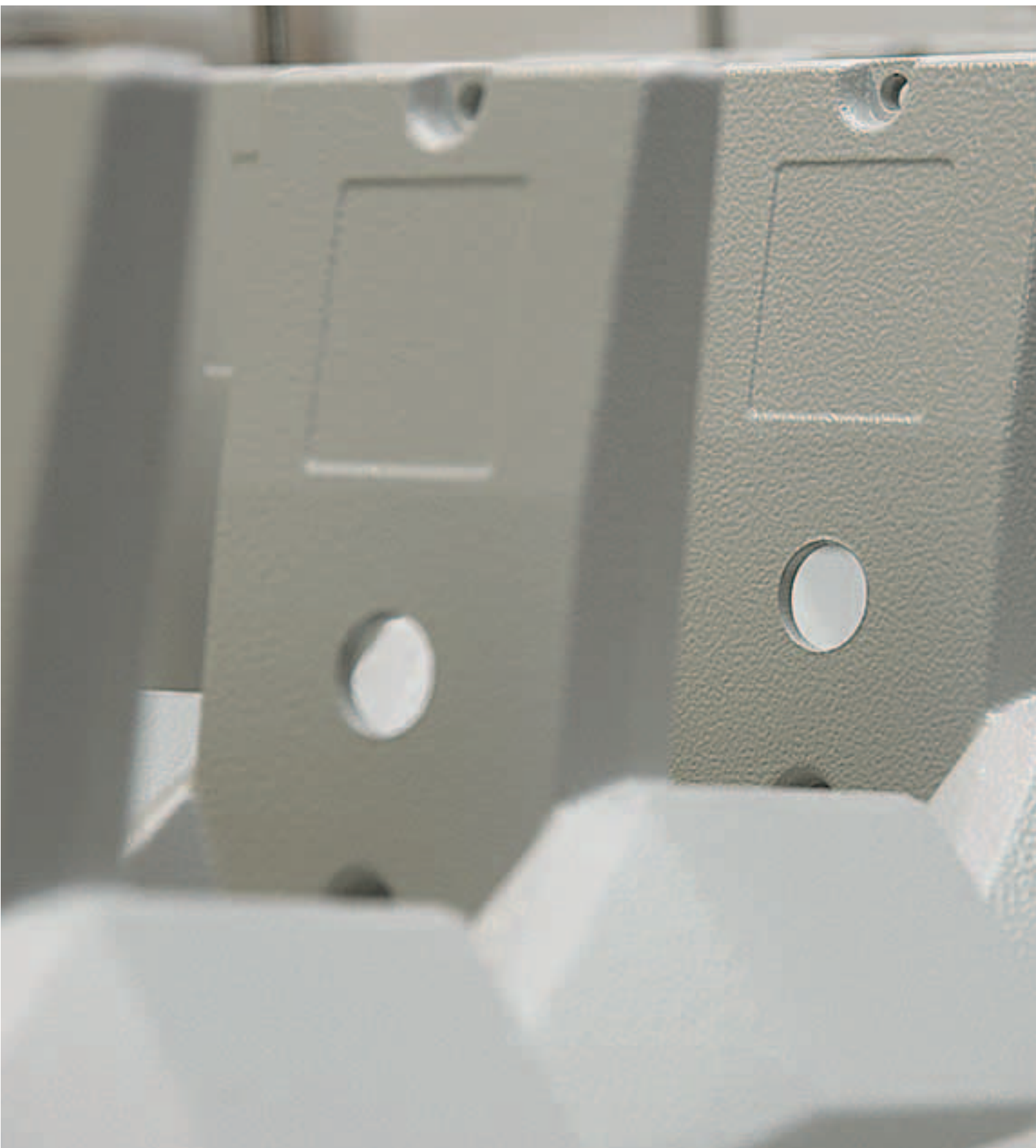
	Potentiometer
1 change-over	GFSI POTI ... 1PW
2 change-over	GFSI POTI ... 2PW

Ordering details

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



PRODUCTION PROCESS ASSEMBLY
PROTECTIVE SHIELD AFTER ENAMEL FINISH



Foot switches // Series GF 2

// GF 2

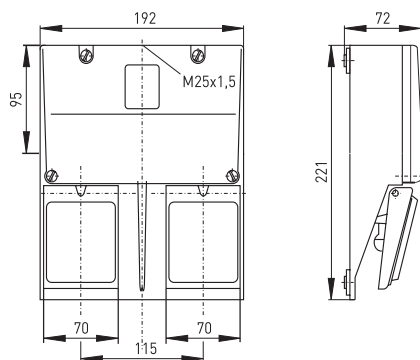


Features/Options

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

Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	aluminium cast, enamel finish, RAL 5011
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M25 x 1.5
Contact material	silver
Protection class	IP 65 to 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
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	CE, UL



Contact variants: Travel/contacts

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

Ordering details

GFMK 2 10S/10S

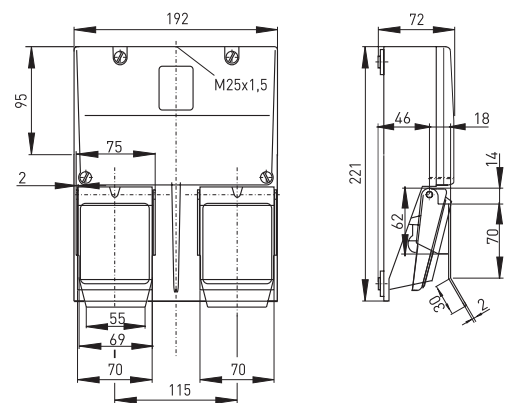
- 1NC/1NO contact (20/2S) right pedal
 - 1NC/1NO contact (20/2S) left pedal, other configurations possible
 - 2 pedals
 - K Pedal cover
 - M Snap action (without M slow action)
- Series

Foot switches
// Series GF 2, variants

// Pedal cover K



// Pedal cover K



Foot switches

// Series GF 2, variants

Features/Options

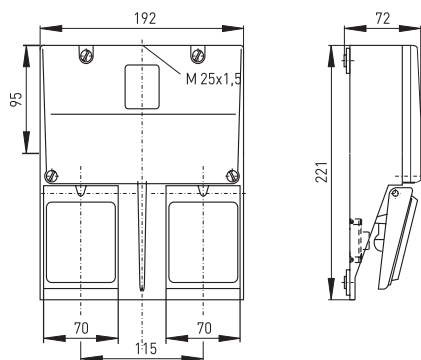
- With pressure point: 2-step switching
- Double-pedal type
- Max. 4 contacts per pedal
- Metal enclosure
- Without protective shield
- Different pedal functions possible
- Wiring compartment
- Available with mechanical interlock
- Available with special finish in RAL colour tones

// GF 2 D



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	aluminium cast, enamel finish, RAL 5011
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M25 x 1.5
Contact material	silver
Protection class	IP 65 to 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
Utilisation category	AC-15
I _e /U _e	6 A/400 VAC
Max. fuse rating	6 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	CE, UL



Contact variants: Travel/contacts

Slow action	
1 NC/1 NO contact	GF 2 10S D 10S/10S D 10S

Ordering details

GF 2 10S D 10S/10S D 10S

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



Features/Options

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

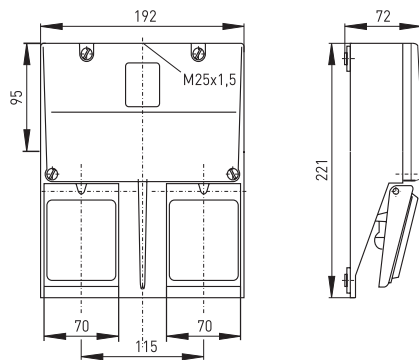
// GF 2 RE



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	aluminium cast, enamel finish, RAL 5011
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M25 x 1.5
Contact material	silver
Protection class	IP 65 to 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 gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations

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Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GF 2 1ÖS RE/1ÖS RE

Ordering details

GF 2 1ÖS RE/1ÖS RE

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



Foot switches

// Series GF 2, variants

Features/Options

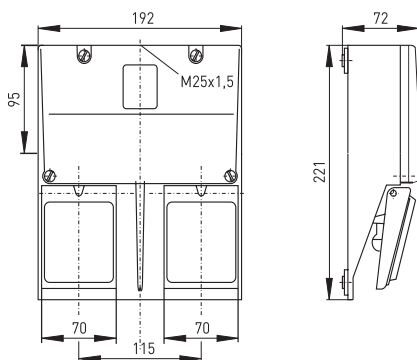
- With Hall sensor: Analogue output
- Double-pedal type
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- Without protective shield
- Available with additional micro switch
- Different pedal functions possible
- Wiring compartment
- Available with special finish in RAL colour tones

// GF 2 HS



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	aluminium cast, enamel finish, RAL 5011
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Cable entry	M25 x 1.5
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
Utilisation category	-
I_e/U_e	with U_a : 25 mA/15 ... 30 VDC with I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 70 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Hall sensor
U_a	GF 2 HS 0...10 VDC/0...10 VDC
I_a	GF 2 HS 0...20 mA/0...20 mA GF 2 HS 4...20 mA/4...20 mA

Ordering details

GF 2 HS 0...20 mA/0...20 mA

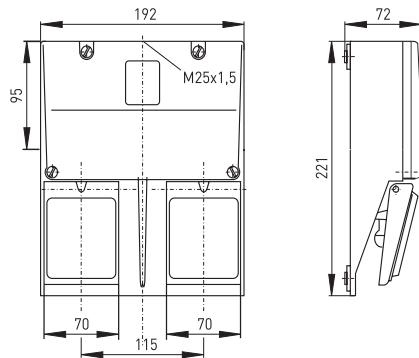
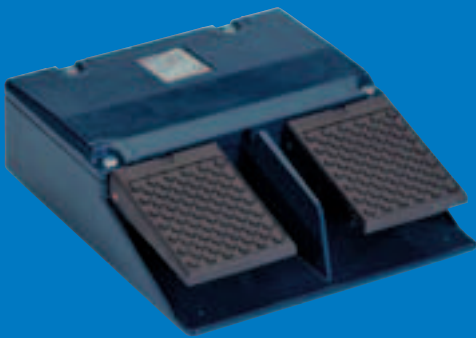
Output value I_a 0...20 mA left/right pedal (I_a 4...20 mA, U_a 0...10 VDC), other configurations possible
Hall sensor
2 pedals
Series



Features/Options

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

// GF 2 POTI



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	aluminium cast, enamel finish, RAL 5011
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	soldering terminals
Cable entry	M25 x 1.5
Contact material	silver, gold-plated
Protection class	IP 65 to EN 60529
Switching system	potentiometer
Resistance R	20 Ω ... 1 k Ω $\pm$ 3 %; 20 Ω ... 2 k Ω $\pm$ 3 %; 50 Ω ... 5 k Ω $\pm$ 3 %; 100 Ω ... 10 k Ω $\pm$ 3 %
Linearity	$\pm$ 0.5 %
Utilisation category	-
I_e/U_e	micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC
Switching power	potentiometer: max. 1.5 W at 40 °C
Max. fuse rating	-
Ambient temperature	- 15 °C ... + 80 °C
Mechanical life	> 1 million operations
Note	The built-in micro switch provides for potential-free switching of the potentiometer.

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Contact variants: Travel/contacts

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

Ordering details

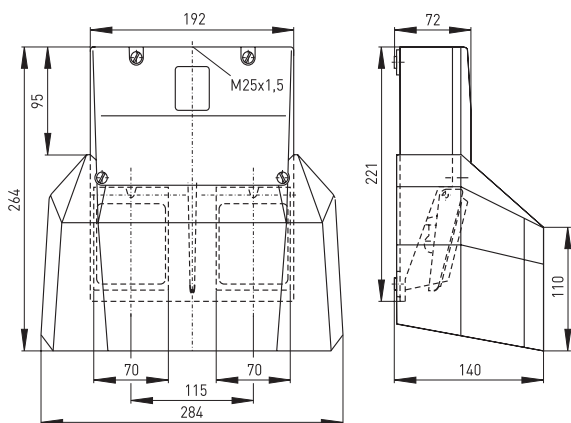
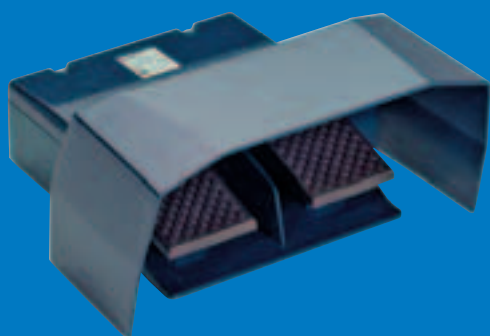
GF 2 POTI 1k Ω 1PW/1k Ω 1PW

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



Foot switches // Series GFS 2

// GFS 2



Features/Options

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

Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M25 x 1.5
Contact material	silver
Protection class	IP 65 to EN 60529
Switching system	slow or snap action with double break, positive break NC contact $\ominus$
Switch insert	slow action: 2 contacts: ES 60 GF 4 contacts: ES 40 GF snap action: 2 and 4 contacts: ZS 232
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	

Contact variants: Travel/contacts

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

Ordering details

GFSM 2 101S/101S TST

	TST Carrying handle (FST foot rest)
	1NC/1NO contact (20/2S) right pedal
	1NC/1NO contact (20/2S) left pedal, other configurations possible
	2 pedals
	K Pedal cover
	M Snap action (without M slow action)
	S Protective shield
	Series

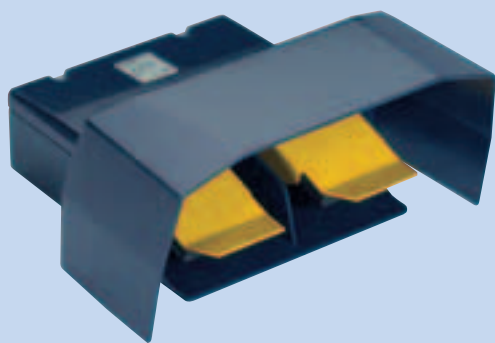
Foot switches

// Series GFS 2, variants

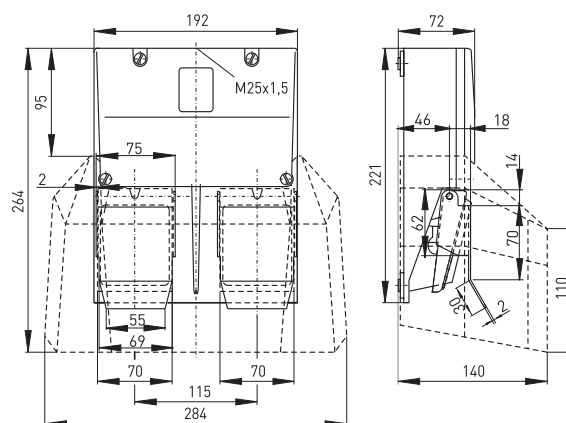
Features/Options

- Carrying handle:
stainless steel 4104 with thermoplastic grip

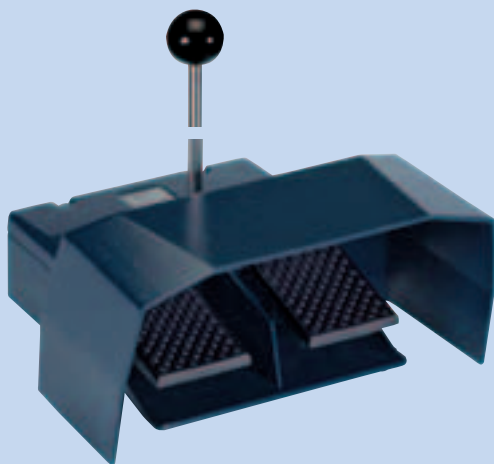
// Pedal cover K



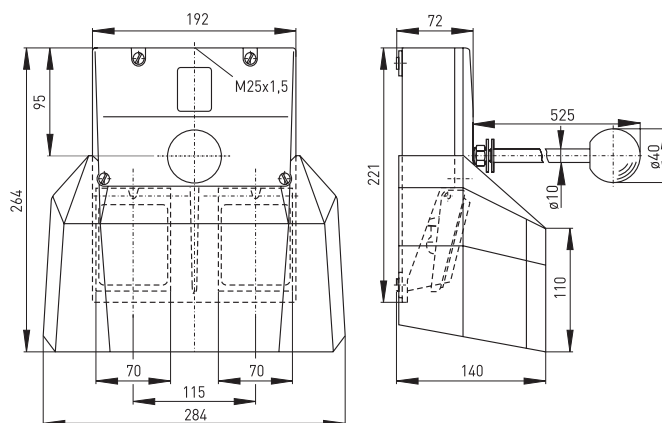
// Pedal cover K



// Carrying handle TST



// Carrying handle TST



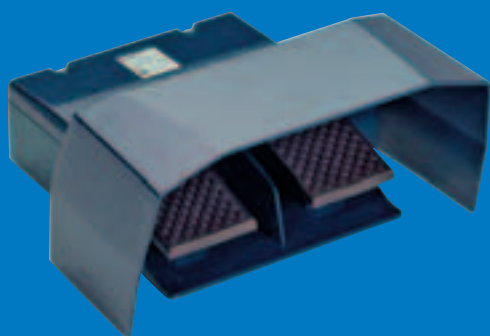
Foot switches

// Series GFS 2, variants

Features/Options

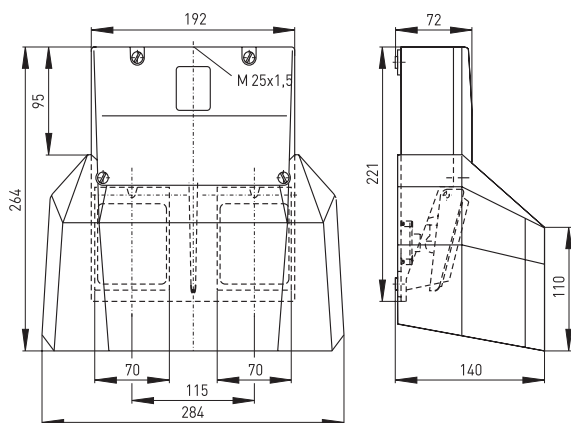
- With pressure point: 2-step switching
- Double-pedal type
- Max. 4 contacts per pedal
- Metal enclosure
- With protective shield
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Available with mechanical interlock
- Available with special finish in RAL colour tones

// GFS 2 D

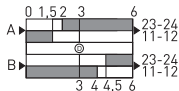


Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	–
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M25 x 1.5
Contact material	silver
Protection class	IP 65 to 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
Utilisation category	AC-15
I _e /U _e	6 A/400 VAC
Max. fuse rating	6 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	 

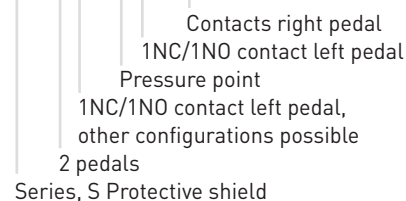


Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFS 2 1ÖS D 1ÖS/1ÖS D 1ÖS 

Ordering details

GFS 2 1ÖS D 1ÖS/1ÖS D 1ÖS



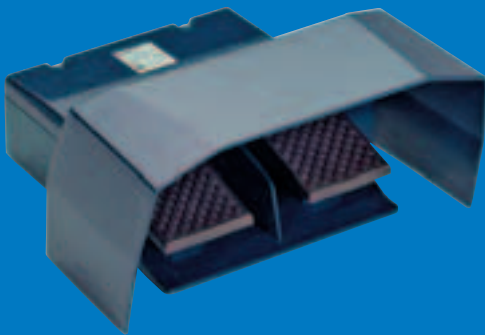
Series, S Protective shield



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

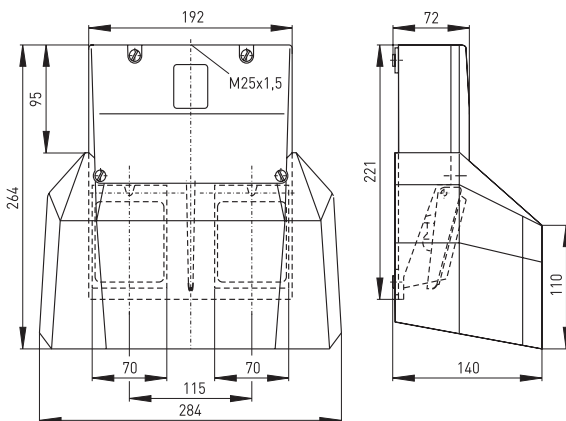
// GFS 2 RE



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M25 x 1.5
Contact material	silver
Protection class	IP 65 to 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 gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations

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Contact variants: Travel/contacts

	Slow action
1 NC/1 NO contact	GFS 2 10S RE/10S RE

Ordering details

GFS 2 10S RE/10S RE

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



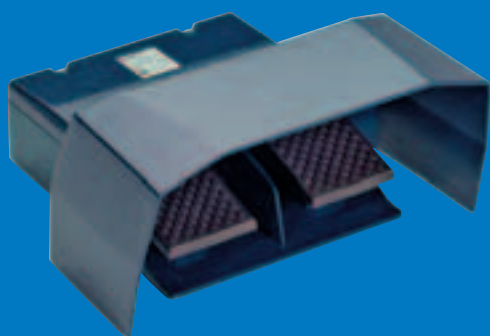
Foot switches

// Series GFS 2, variants

Features/Options

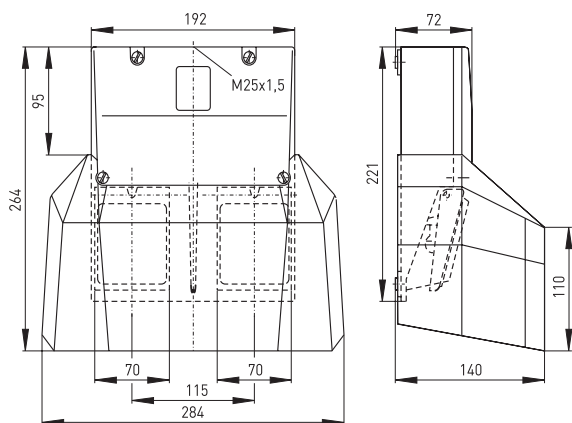
- With Hall sensor: Analogue output
- Double-pedal type
- Metal enclosure
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- With protective shield
- Available with additional micro switch
- Different pedal functions possible
- Wiring compartment
- Available with special finish in RAL colour tones

// GFS 2 HS



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Cable entry	M25 x 1.5
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
Utilisation category	-
I_e/U_e	with U_a : 25 mA/15 ... 30 VDC with I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 70 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Hall sensor
U_a	GFS 2 HS 0...10 VDC/0...10 VDC + [Symbol] - OUT (U_a) -
I_a	GFS 2 HS 0...20 mA/0...20 mA GFS 2 HS 4...20 mA/4...20 mA + [Symbol] - OUT (I_a) -

Ordering details

GFS 2 HS 0...20 mA/0...20 mA

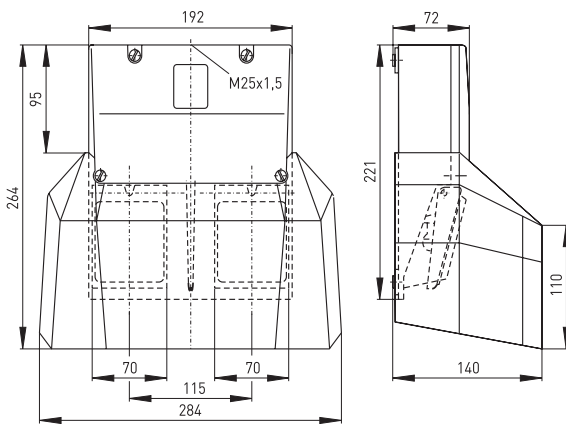
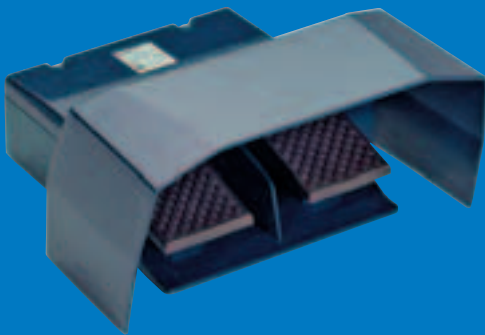
Output value I_a 0...20 mA left/right
pedal (I_a 4...20 mA, U_a 0...10 VDC)
Hall sensor
2 pedals
S Protective shield
Series



Features/Options

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

// GFS 2 POTI



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	soldering terminals
Cable entry	M25 x 1.5
Contact material	silver, gold-plated
Protection class	IP 65 to EN 60529
Switching system	potentiometer
Resistance R	20 Ω ... 1 k Ω $\pm$ 3 %; 20 Ω ... 2 k Ω $\pm$ 3 %; 50 Ω ... 5 k Ω $\pm$ 3 %; 100 Ω ... 10 k Ω $\pm$ 3 %
Linearity	$\pm$ 0.5 %
Utilisation category	-
I _e /U _e	micro switch: 0.1 A/250 VAC; 0.1 A/24 VDC
Switching power	potentiometer: max. 1.5 W at 40 °C
Max. fuse rating	-
Ambient temperature	- 15 °C ... + 80 °C
Mechanical life	> 1 million operations
Note	The built-in micro switch provides for potential-free switching of the potentiometer.

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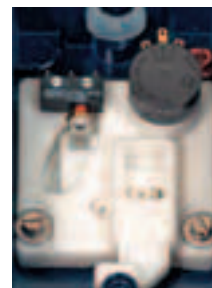
Contact variants: Travel/contacts

	Potentiometer
1 change-over	GFS 2 POTI ... 1W/... 1W
2 change-over	GFS 2 POTI ... 2W/... 2W

Ordering details

GFS 2 POTI 1k Ω 1S/1k Ω 1W

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

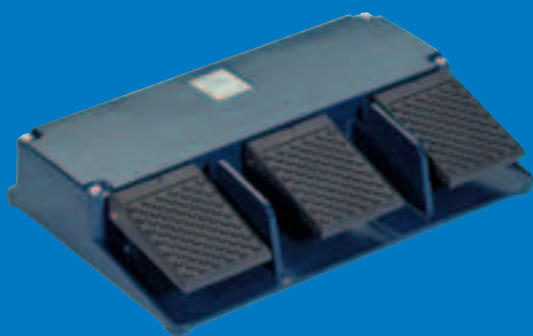


Foot switches // Series GF 3

Features/Options

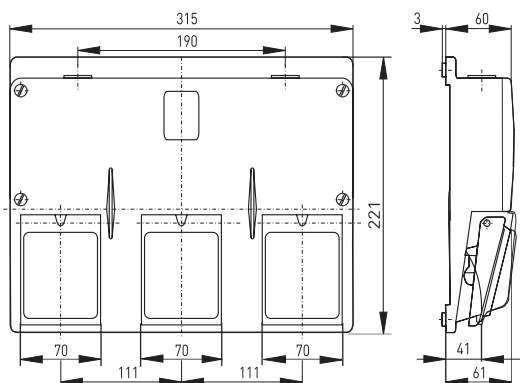
- Triple-pedal type
- Without protective shield
- Max. 4 contacts per pedal
- Metal enclosure
- Different pedal functions possible
- Low pedal height
- Wiring compartment
- Ex version available
- Available with mechanical interlock (only for slow action S)
- Available with special finish in RAL colour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

// GF 3



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium cast, enamel finish, RAL 5011
Cover	aluminium cast, enamel finish, RAL 5011
Pedal	glass-fibre reinforced thermoplastic
Protective shield	-
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	2 x M25 x 1.5
Contact material	silver
Protection class	IP 65 to 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
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Snap action	Slow action
1 NC/1 NO contact	GFM 3 10S/10S/10S 	GF 3 10S/10S/10S
2 NC/2 NO contacts	GFM 3 20S/20S/20S 	GF 3 20S/20S/20S

Ordering details

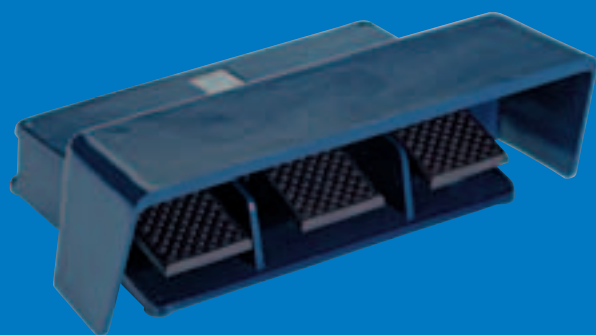
GFM 3 10S/10S/10S

Contacts right pedal
Contacts center pedal
1NC/1NO contact (20/2S) left pedal,
other configurations possible
3 pedals
M Snap action (without M slow action)
Series

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

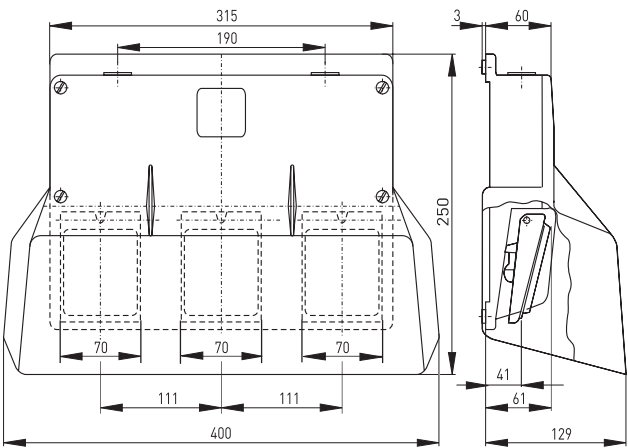
// GFS 3



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium cast, enamel finish, RAL 5011
Cover	-
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	2 x M25 x 1.5
Contact material	silver
Protection class	IP 65 to 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
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 gL/gG D-fuse 2 contacts: 16 A gL/gG D-fuse snap action: 4 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations

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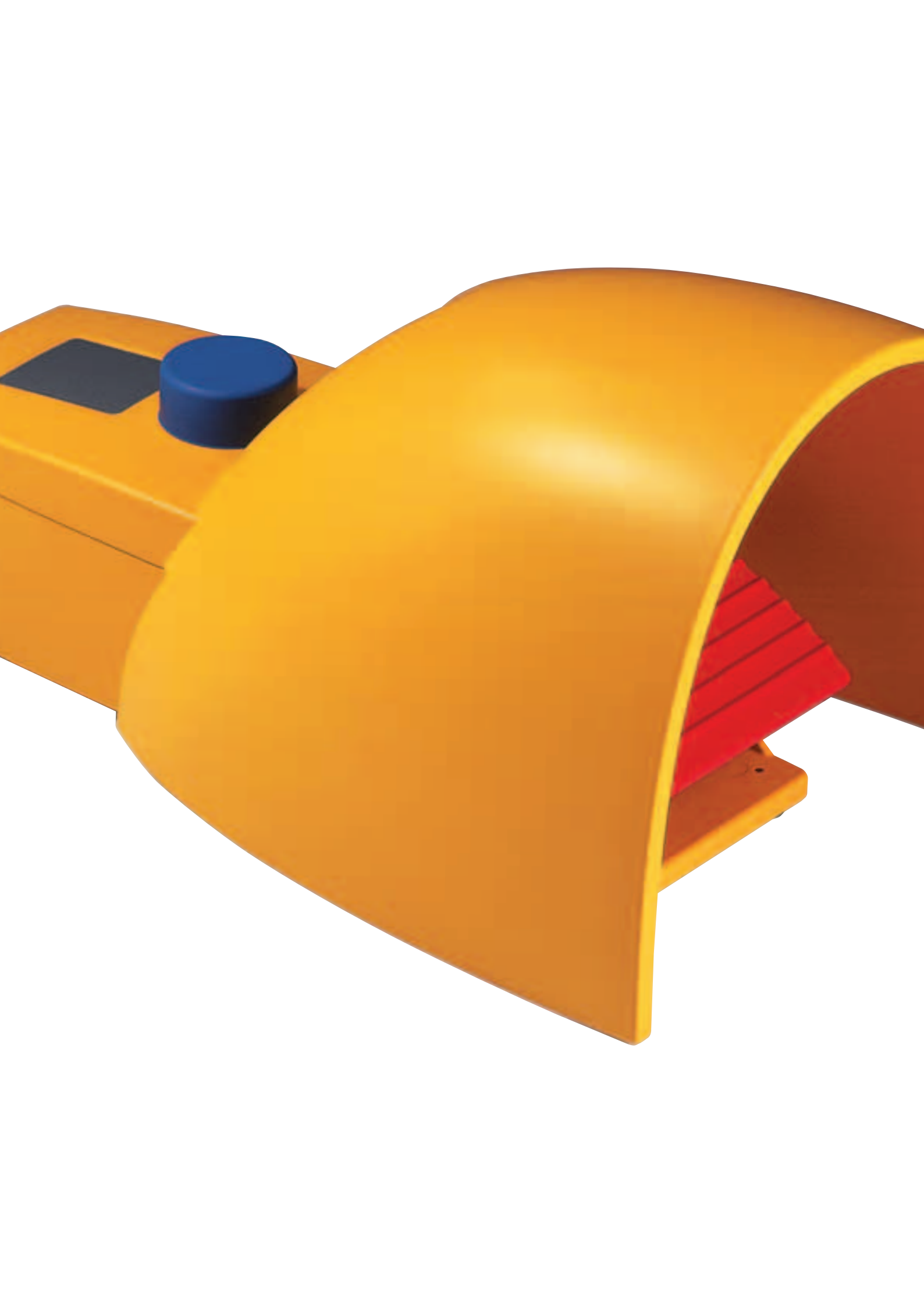


Contact variants: Travel/contacts

	Snap action	Slow action
1 NC/1 NO contact	GFSM 3 10S/10S/10S 	GFS 3 10S/10S/10S
2 NC/2 NO contacts	GFSM 3 20S/20S/20S 	GFS 3 20S/20S/20S

Ordering details

GFSM 3 10S/10S/10S	Contacts right pedal
	Contacts center pedal
	1NC/1NO contact [20/2S] left pedal,
	other configurations possible
	3 pedals
	M Snap action (without M slow action)
	S Protective shield
Series	





Safety foot switches Metal enclosure

Single-pedal types

// **Series GFS**

from page 56

// **Series GFSI**

from page 57

Double-pedal types

// **Series GFS 2**

from page 58



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 situation is required.

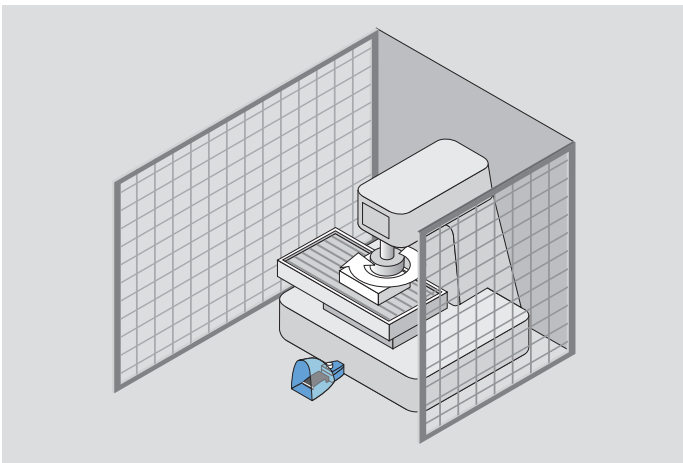
Design and mode of operation

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

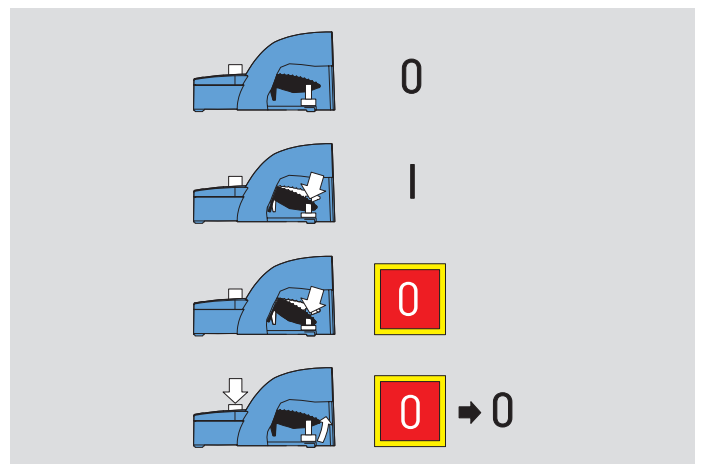
All safety foot switches bear the CE mark according to the Machinery Directive.

Application

Safety foot switch at a machining center



Function principle



Safety foot switches

// Series GFS VD

Features/Options

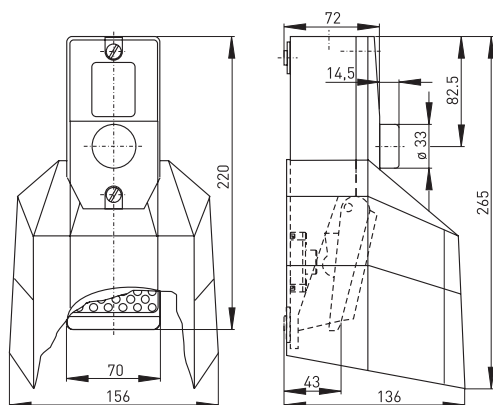
- GFS VD: NC contact 15-16 ⊖ in series with NO contact 23-24 (internal wiring)
- With impulse wiping contacts GFS IK VD: without switching impulse when unlocking foot switch; NO contact 13-14 is converted into positive break NC contact ⊖ by internal baffle after pressure point, Safety contact: 13-14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

// GFS VD



Technical data

Standards	IEC/EN 60947-5-1, GFS VD: BG-GS-ET-15
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	–
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to EN 60529
Switching system	slow action with double break, positive break NC contact ⊖ per IEC 60947-5-1
Switch insert	ES 60 GF VD, ES 60 GF IK VD
Contacts	GFS VD: 1 NO/1 NC or 2 NO/2 NC contacts GFS IK VD: 1 NO/1 NC or 2 NO/2 NC contacts
Actuating force	aprox. 240 N
Utilisation category	AC-15
U _{imp}	6 kV
U _i	500 V
I _{the}	GFS VD: 16 A, GFS IK VD: 6 A
I _e /U _e	GFS VD: 16 A/400 VAC, GFS IK VD: 6 A/400 VAC
Contact load capacity	max. 400 VAC, GFS VD: max. 16 A (cos φ = 1), GFS IK VD: max. 6 A (cos φ = 1)
Max. fuse rating	GFS VD: 16 A gL/gG D-fuse, GFS IK VD: 6 A gL/gG D-fuse
Ambient temperature	– 25 °C ... + 80 °C
Mechanical life	> 1 million operations
Approvals	GFS VD:



Contact variants: Travel/contacts

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

Ordering details

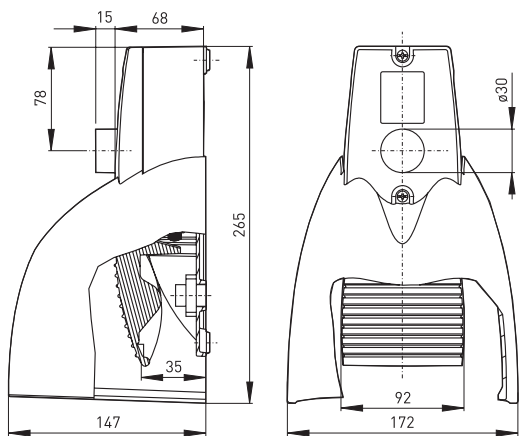
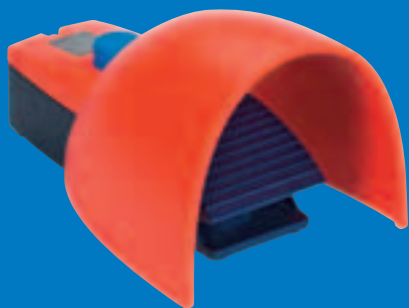
GFS 1S D 10 VD

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

Safety foot switches
// Series GFSI VD

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

// GFSI VD



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	-
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M20 x 1.5
Contact material	silver
Protection class	IP 65 to EN 60529
Switching system	slow action with double break, positive break NC contact ⊖ per IEC 60947-5-1
Switch insert	ES 60 GF VD, ES 60 GF IK VD
Contacts	GFS VD: 1 NO/1 NC or 2 NO/2 NC contacts GFS IK VD: 1 NO/1 NC or 2 NO/2 NC contacts
Actuating force	aprox. 240 N
Utilisation category	AC-15
U _{imp}	6 kV
U _i	500 V
I _{the}	GFS VD: 16 A, GFS IK VD: 6 A
I _e /U _e	GFS VD: 16 A/400 VAC, GFS IK VD: 6 A/400 VAC
Contact load capacity	max. 400 VAC, GFS VD: max. 16 A (cos φ = 1)
Max. fuse rating	GFS VD: 16 A gL/gG D-fuse, GFS IK VD: 6 A gL/gG D-fuse
Ambient temperature	- 25 °C ... + 80 °C
Mechanical life	> 1 million operations

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Contact variants: Travel/contacts

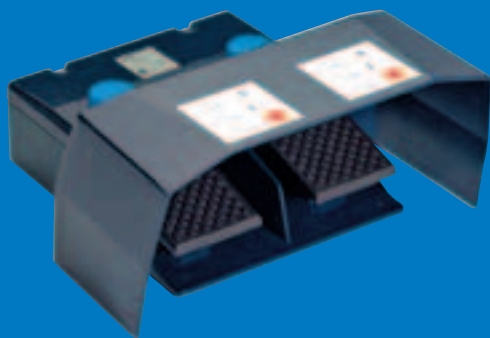
	Slow action	Impulse wiping contact
1 NC/1 NO contact	GFSI 1S D 1Ö VD 	GFSI IK 1Ö1S D 1ÖVD
2 NC/2 NO contacts	GFSI 2S D 2Ö VD 	GFSI IK 2Ö2S D 2ÖVD

Ordering details

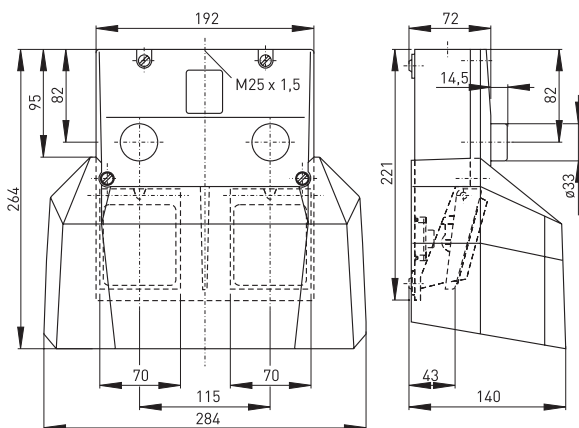
GFSI 1S D 1Ö VD
1 NO contact (2S D 2Ö VD,
IK 1ÖS D 1Ö VD, IK 2ÖS D 2Ö VD)
Series, S Protective shield

Safety foot switches // Series GFS 2 VD

// GFS 2 VD



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Features/Options

- Double-pedal type
- GFS 2 VD: NC contact 15-16 $\ominus$ 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 $\ominus$ by internal baffle after pressure point, Safety contact: 13-14 $\ominus$, Signalling contact: 21-22
- Max. 4 contacts per pedal, max. 3 pedals available
- Wiring compartment
- Available with special finish in RAL colour tones

Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	–
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Termination	screw terminals
Wire cross-section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M25 x 1.5
Contact material	silver
Protection class	IP 65 to EN 60529
Switching system	slow action with double break, positive break NC contact $\ominus$ per IEC 60947-5-1
Switch insert	ES 60 GF VD, ES 60 GF IK VD
Contacts	GFS 2 VD: 1 NO/1 NC or 2 NO/2 NC contacts per pedal; GFS 2 IK VD: 1 NO/1 NC or 2 NO/2 NC contacts per pedal
Actuating force	aprox. 240 N
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 capacity	max. 400 VAC, GFS VD: max. 16 A (cos φ = 1), GFS 2 IK VD: max. 6 A (cos φ = 1)
Max. fuse rating	GFS 2 VD: 16 A gL/gG D-fuse, GFS 2 IK VD: 6 A gL/gG D-fuse
Ambient temperature	– 25 °C ... + 80 °C
Mechanical life	> 1 million operations

Contact variants: Travel/contacts

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

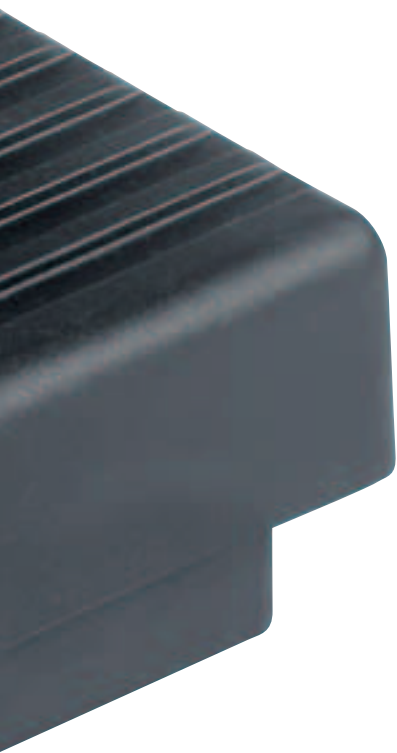
Ordering details

GFS 2 IK 1ÖS D 1Ö VD/IK 1ÖS D 1Ö VD

PRODUCTION PROCESS FINAL TESTING
SAFETY FOOT SWITCHES BEFORE FUNCTIONAL TEST







Foot switches Thermoplastic enclosure

Single-pedal types

// [Series KF](#)

from page 64

// [Series KFS](#)

from page 67

Double-pedal types

// [Series KF 2](#)

from page 70

Triple-pedal types

// [Series KF 3](#)

from page 74

Four-pedal types

// [Series KF 4](#)

from page 75

Five-pedal types

// [Series KF 5](#)

from page 76



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.

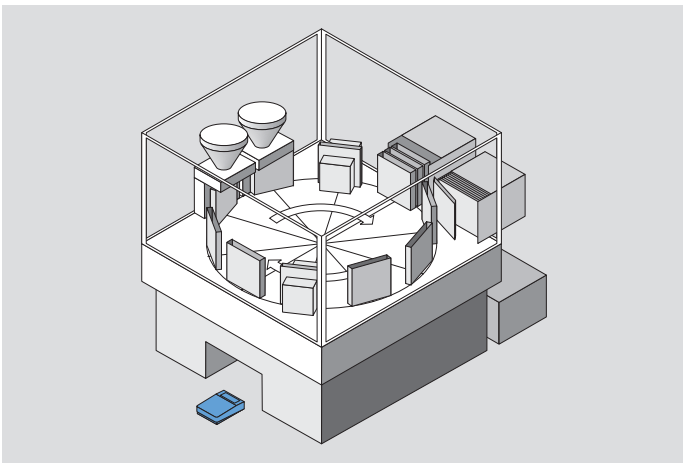
Design and mode of operation

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

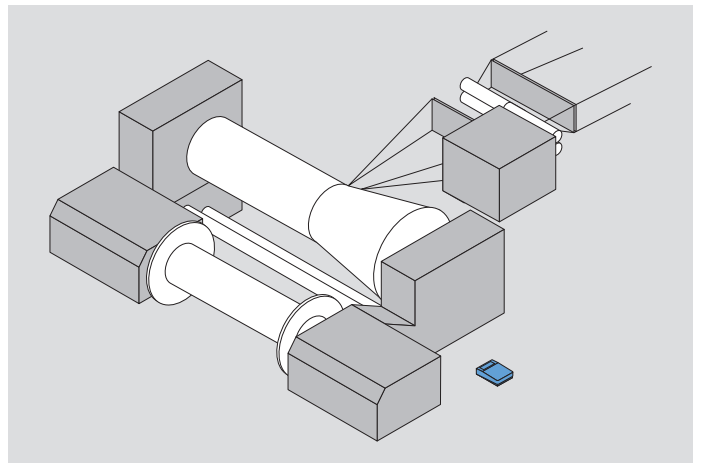
All foot switches bear the CE mark according to the Low Voltage Directive.

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 m
 - Available with plug-in connector
 - Other cable lengths and types possible

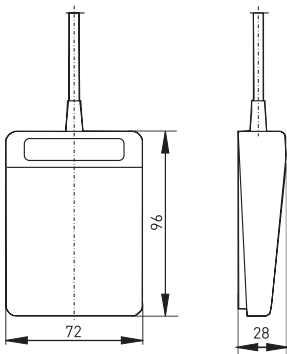
// KF



64

Technical data

Standards	IEC/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	-
Termination	cable AWG, length 2 m
Wire cross-section	2-/3-core: AWG 20: 0.52 mm ² 4-core: AWG 24: 0.20 mm ²
Protection class	IP 65 to EN 60529
Switching system	reed contacts or snap action: change-over contact
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 gL/gG D-fuse
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations
Approvals	 US



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

Foot switches

// Series KF, variants

Features/Options

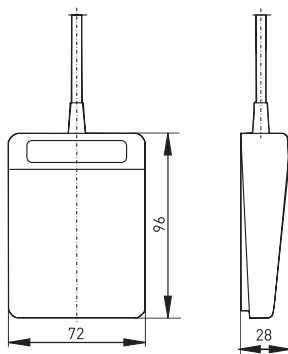
- With pressure point: 2-step switching
- 2 contacts
- Thermoplastic enclosure
- Small flat design
- Reed contacts for low currents from 1 mA to 1 A
- With prewired cable, length 2 m
- Available with plug-in connector
- Other cable lengths and types possible

// KF D



Technical data

Standards	IEC/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	-
Termination	cable AWG, length 2 m
Wire cross-section	4-core: AWG 24: 0.20 mm ²
Protection class	IP 65 to 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
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Reed contacts
2 NO contacts	KF 1S D 1S

Ordering details

KF 1S D 1S
1S 1 NO contact
Pressure point
1S 1 NO contact
Series

Foot switches // Series KFS

Features/Options

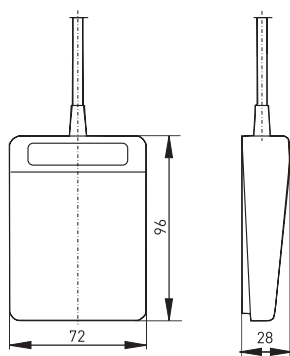
- With Hall sensor: Analogue output
- Thermoplastic enclosure
- Small flat design
- With prewired cable, length 2 m
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- Available with plug-in connector
- Other cable lengths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

// KF HS



Technical data

Standards	IEC/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	-
Termination	cable AWG, length 2 m
Wire cross-section	3-core: AWG 20: 0.52 mm ²
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
I_e/U_e	for U_a : 25 mA/15 ... 30 VDC for I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Analogue output
U_a	KF HS 0...10 VDC + BN - U, BK - RD
I_a	KF HS 0...20 mA KF HS 4...20 mA + BN - L, BK - RD

Ordering details

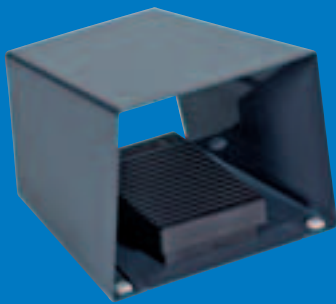
KF HS 0...10 VDC

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

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 m
- Available with plug-in connector
- Other cable lengths and types possible

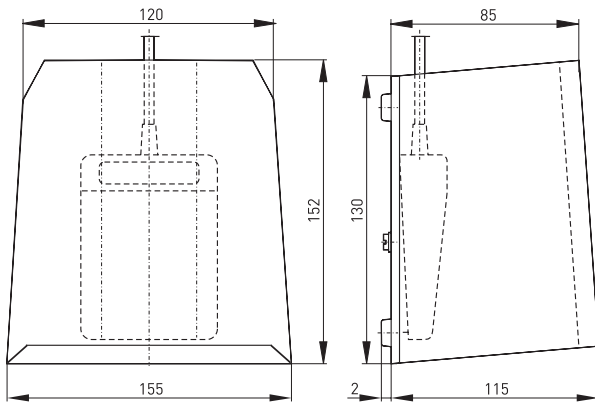
// KFS



Technical data

Standards	IEC/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
Termination	cable AWG, length 2 m
Wire cross-section	2-/3-core: AWG 20: 0.52 mm ² 4-core: AWG 24: 0.20 mm ²
Protection class	IP 65 to EN 60529
Switching system	reed contacts or snap action: change-over contact
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 gL/gG D-fuse
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations
Approvals	

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Contact variants: Travel/contacts

	Snap action	Reed contacts
1 NO contact		KFS 1S BN — BK
2 NO contacts		KF 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

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

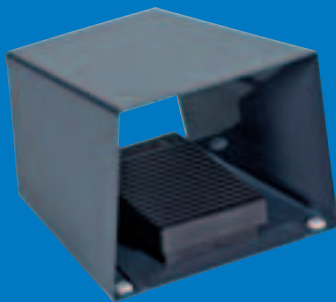
Foot switches

// Series KFS, variants

Features/Options

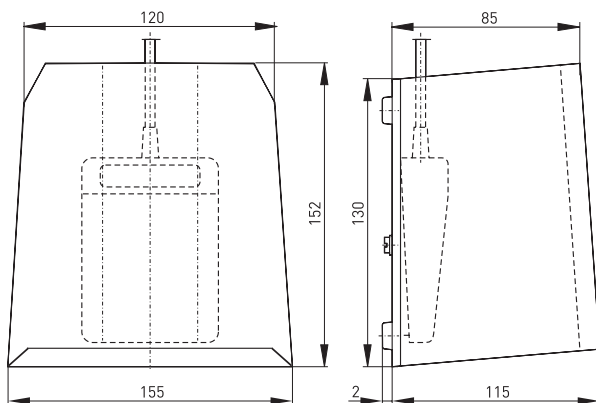
- With pressure point: 2-step switching
- 2 contacts
- Thermoplastic enclosure
- With metal protective shield, special RAL colours available
- Small flat design
- Reed contacts for low currents from 1 mA to 1 A
- With prewired cable, length 2 m
- Available with plug-in connector
- Other cable lengths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

// KFS D



Technical data

Standards	IEC/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
Termination	cable AWG, length 2 m
Wire cross-section	4-core: AWG 24: 0.20 mm ²
Protection class	IP 65 to 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
Max. fuse rating	–
Ambient temperature	– 10 °C ... + 60 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Reed contacts
2 NO contacts	KFS 1S D 1S

Ordering details

KFS 1S D 1S
1S 1 NO contact
Pressure point
1S 1 NO contact
S Protective shield
Series

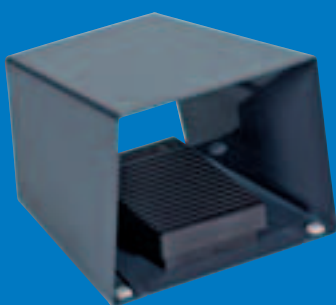
Foot switches

// Series KFS, variants

Features/Options

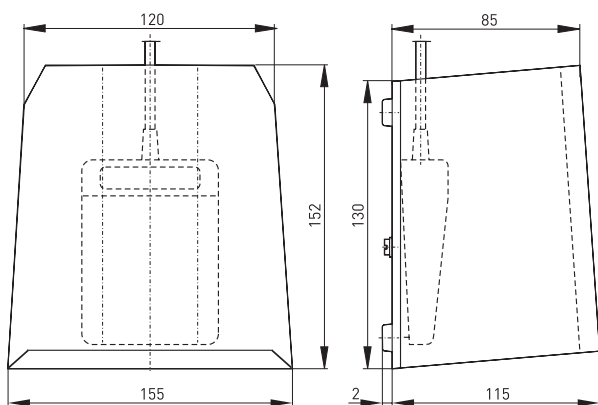
- With Hall sensor: Analogue output
- Thermoplastic enclosure
- Small flat design
- With metal protective shield, special RAL colours available
- With prewired cable, length 2 m
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal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

// KFS HS



Technical data

Standards	IEC/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
Termination	cable AWG, length 2 m
Wire cross-section	3-core: AWG 20: 0.52 mm ²
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
I_e/U_e	for U_a : 25 mA/15 ... 30 VDC for I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	–
Ambient temperature	– 10 °C ... + 60 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

	Analogue output
U_a	KFS HS 0...10 VDC + BN - U, BK - RD
I_a	KFS HS 0...20 mA KFS HS 4...20 mA + BN - I, BK - RD

Ordering details

KFS HS 0...10 VDC

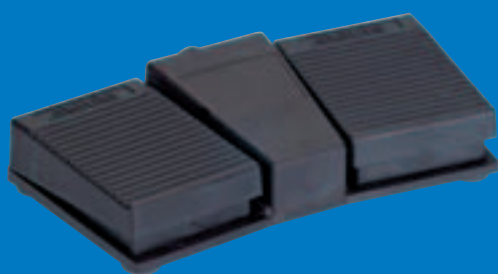
Output value U_a 0...10 VDC
(I_a 0...20 mA or 4...20 mA)
Hall sensor
S Protective shield
Series

Foot switches // Series KF 2

Features/Options

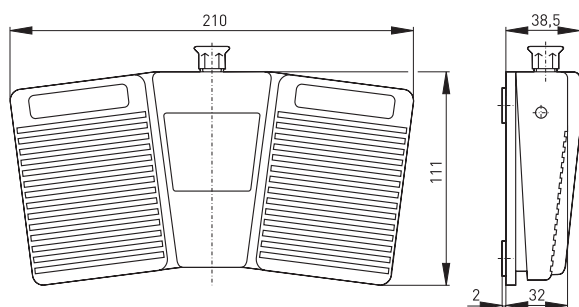
- Double-pedal type
- Thermoplastic enclosure
- Small flat design
- Max. 2 contacts per pedal
- With wiring compartment
- Without protective shield
- Reed contacts for low currents from 1 mA to 1 A
- Micro switches for current load up to 5 A

// KF 2



Technical data

Standards	IEC/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	-
Termination	wiring compartment, bellmouth gland M12 x 1.5
Wire cross-section	max. AWG 20: 0.52 mm ² , cable: ø max. 6.5 mm
Protection class	IP 65 to EN 60529
Switching system	reed contacts or snap action: change-over contact
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 gL/gG D-fuse
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations
Approvals	US



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 8 VT L 7 BU 2 BN R 1 BK 6 GN 5 YE 4 OG 3 RD
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

Foot switches

// Series KF 2, variants

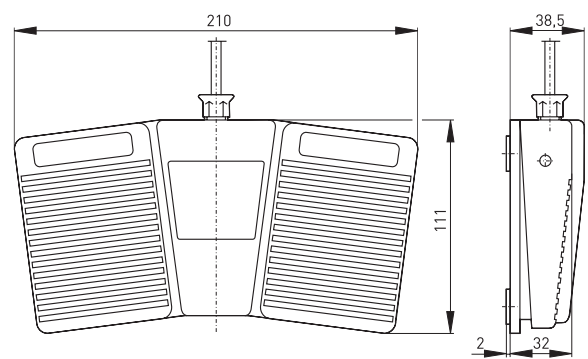
Features/Options

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

// Cable



// Cable



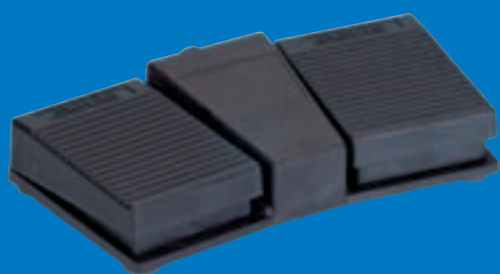
Foot switches

// Series KF 2, variants

Features/Options

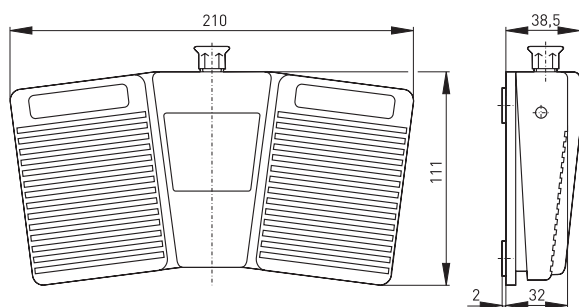
- With pressure point: 2-step switch
- Double-pedal type
- Thermoplastic enclosure
- Small flat design
- Max. 2 contacts per pedal
- With wiring compartment
- Without protective shield
- Reed contacts for low currents from 1 mA to 1 A
- Available with cable or plug-in connector

// KF 2 D



Technical data

Standards	IEC/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	-
Termination	wiring compartment, bellmouth gland M12 x 1.5
Wire cross-section	max. AWG 20: 0.52 mm ² cable: ø max. 6.5 mm
Protection class	IP 65 to 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
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations
Approvals	



Contact variants: Travel/contacts

	Reed contacts
2 NO contacts	KF 2 1S D 1S/1S D 1S

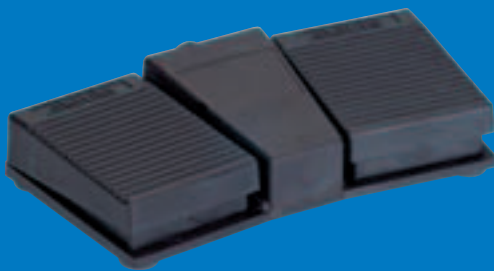
Ordering details

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

Features/Options

- With Hall sensor: Analogue output
- Double-pedal type
- Thermoplastic enclosure
- Small flat design
- With wiring compartment
- Without protective shield
- Various output values available: 0 ... 10 VDC, 0 ... 20 mA or 4 ... 20 mA
- Analogue output signal proportional to pedal travel
- Available with cable or plug-in connector

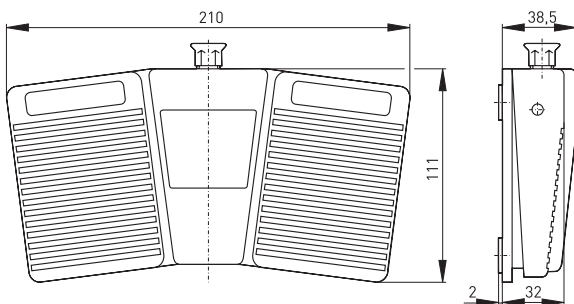
// KF 2 HS



Technical data

Standards	IEC/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	-
Termination	wiring compartment, bellmouth gland
Wire cross-section	M12 x 1.5 max. AWG 20: 0.52 mm ² cable: ø max. 6.5 mm
Protection class	IP 65 to EN 60529
Switching system	Hall sensor
Output values	
Output voltage U_a	0...10 VDC $\pm 1\%$
Output current I_a	0...20 mA $\pm 1\%$ or 4...20 mA $\pm 1\%$
I_e/U_e	for U_a : 25 mA/15 ... 30 VDC for I_a : 45 mA/15 ... 30 VDC
Max. fuse rating	-
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations

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Contact variants: Travel/contacts

	Analogue output
U_a	KF 2 HS 0...10 VDC/0...10 VDC + BN - U, BK - RD
I_a	KF 2 HS 0...20 mA/0...20 mA KF 2 HS 4...20 mA/4...20 mA + BN - I, BK - RD

Ordering details

KF 2 HS 0...10 VDC/0...10 VDC

Output value U_a 0...10 VDC
(I_a 0...20 mA or 4...20 mA) left/right
pedal
Hall sensor
2 pedals
Series

Foot switches // Series KF 3

Features/Options

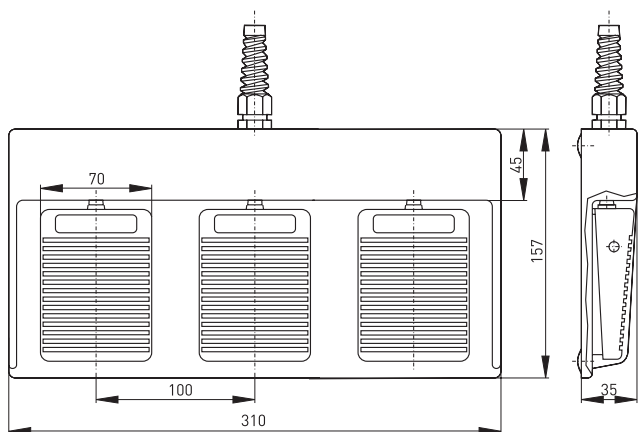
- Triple-pedal type
- Thermoplastic enclosure with metal base plate
- Small flat design
- Max. 2 contacts per pedal
- With wiring compartment
- Reed contacts for low currents from 1 mA to 1 A
- Micro switches for current load up to 5 A
- Available with Hall sensor: Analogue output signal proportional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

// KF 3



Technical data

Standards	IEC/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)
Protective shield	-
Termination	wiring compartment, cable gland M12 x 1.5 with spiral top
Wire cross-section	max. AWG 20: 0.52 mm ² , cable: ø max. 6.5 mm
Protection class	IP 65 to EN 60529
Switching system	reed contacts or snap action: change-over contact
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 gL/gG D-fuse
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations



Contact variants: Travel/contacts

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

Ordering details

KF 3 1S/1S/1S

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

Foot switches
// Series KF 4

// KF 4

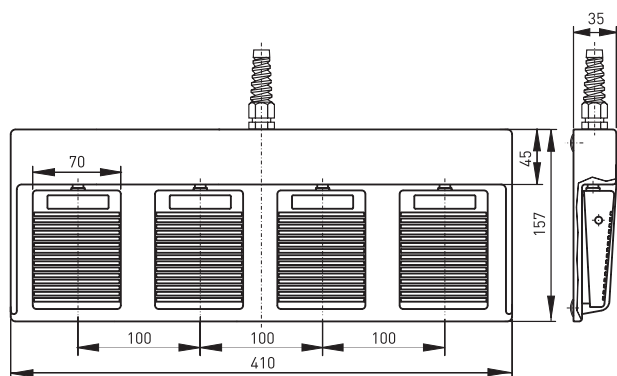
Features/Options

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

Technical data

Standards	IEC/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)
Protective shield	-
Termination	wiring compartment, cable gland
Wire cross-section	M12 x 1.5 with spiral top max. AWG 20: 0.52 mm ² , cable: ø max. 6.5 mm
Protection class	IP 65 to EN 60529
Switching system	reed contacts or snap action: change-over contact
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 gL/gG D-fuse
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations

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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

1PW 1-pole change-over contact micro switch, (reed contacts: 1S, 2S, 1W)

Contacts middle left pedal

Contacts middle right pedal

Contacts right pedal

Foot switches
// Series KF 5

// KF 5

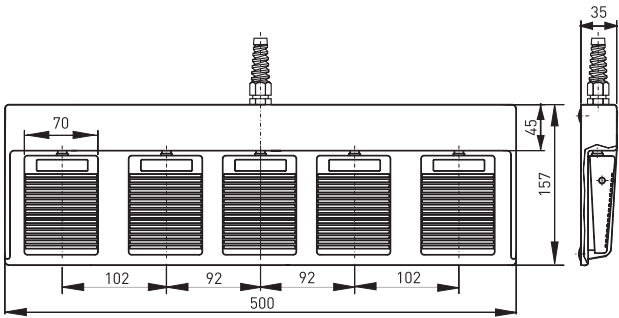


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- Features/Options
- Five-pedal type
 - Thermoplastic enclosure with metal base plate
 - Small flat design
 - Max. 2 contacts per pedal
 - With wiring compartment
 - Reed contacts for low currents from 1 mA to 1 A
 - Micro switches for current load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

Technical data

Standards	IEC/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)
Protective shield	-
Termination	wiring compartment, cable gland
Wire cross-section	M12 x 1.5 with spiral top max. AWG 20: 0.52 mm ² , cable: ø max. 6.5 mm
Protection class	IP 65 to EN 60529
Switching system	reed contacts or snap action: change-over contact
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 gL/gG D-fuse
Ambient temperature	- 10 °C ... + 60 °C
Mechanical life	> 1 million operations



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

PRODUCTION PROCESS ASSEMBLY
THERMOPLASTIC PEDALS BEFORE FIXING THE MAGNETS



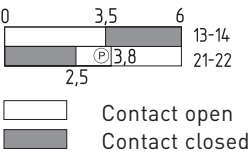
STEUTE'S SWITCHGEAR SECURE A SAFE WORK PROCESS AND
THUS A HIGH PRODUCTIVITY



EXPLANATION OF SYMBOLS

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

Explanation of switching travel diagrams



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

Beside foot switches steute designs and produces safety, position, emergency pull-wire, door handle switches and industrial switchgear with radio technology, as well as command devices for industrial applications of control technology. In addition, switchgear for explosion protection that are applied where

flammable atmospheres can occur – e.g. Ex position switches, Ex pull-wire switches, Ex safety switches and solenoid interlocks, as well as Ex magnetic sensors. Furthermore steute boasts a wide program of control devices for complex and critical applications for medical equipment.

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