



BERNSTEIN Foot switches Complete Range

BERNSTEIN – For over 50 years we have developed and produced foot switches

Tailored to your applications –
the modular foot switch concept from BERNSTEIN.



BERNSTEIN, a leader in the field of industrial foot switches, incorporates more than 50 years of experience into the development and production of its products. The wide range of models reflects the specialisation of the company in foot switch solutions for different applications.

You will therefore find models with a pressure point being used where a 2-way circuit is to be operated with only one pedal.

With their blocking function, switches with a pedal lock offer protection against inadvertent actuation even in the case of external influences such as heavy vibrations.

Foot switches equipped with a bistable switching function allow constant machine operation even after releasing the pedal which is only interrupted when the pedal is operated again.

In addition, the switches can be equipped with fixed or hinged protective hoods, hinged pedal guards or emergency stop devices for manual operation. This ensures maximum possible safety in all work situations.

This also applies for use in an explosive environment. BERNSTEIN offers Ex foot switches with Zone 1 and 2 approval.

Specific switch solutions demonstrate the practical experience and requirement orientation of the company. A power contactor integrated into the housing, for example, enable a motor to be controlled without additional junction boxes.

A foot switch featuring variable controlling current and voltage outputs with integral Hall element in the switch insert, is available for continuous control applications.



An overview



But the manufacturer also meets the demand for fast, simple commissioning. A product model with pre-assembled cable and plug offers immediate assistance in uncomplicated applications.

BERNSTEIN latest development is the first DGUV (BG)-approved enable foot switch. It is a technological further development of the classic foot switch and is unique on the market.

The comprehensive product portfolio of BERNSTEIN offers safety in many different work situations – wherever manual operation is not possible for ergonomic or safety reasons.

Resistance, extremely long life and mechanical stability are characteristic features of all our products and underline BERNSTEIN market position as the leading provider of industrial foot switches.

Customer specific versions of our foot switch range are available, our team will be happy to advise you.

Made for Practical work: Foot switches for every application

BERNSTEIN – Individual solutions for sophisticated technical requirements

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Foot switches pre-assembled with cable and plug connection guarantee faster commissioning. You will find the corresponding checklist on the last page.	



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Standard Foot Switches

Three basic enclosures of the same length and height with different width dimensions for one (F1), two (F2) and three (F3) pedals.



Dimension drawing 1 see page 34



Dimension drawing 2 see page 34

Ordering Instructions for standard foot switches:

Single pedal foot switch F1		
Article number	Designation	Switching contacts
Snap-action contact:		
		Pedal 1
6061300011	F1-SU1Z	1NC / 1NO
6061400061	F1-SU2Z	2NC / 2NO
Slow-action contact:		
		Pedal 1
6061100005	F1-U1Z	1NC / 1NO
6061200003	F1-U2Z	2NC / 2NO

Two pedal foot switch F2			
Article number	Designation	Switching contacts	
Snap-action contact:			
		Pedal 1 (left)	Pedal 2 (right)
6062330021	F2-SU1Z/SU1Z	1NC / 1NO	1NC / 1NO
6062440065	F2-SU2Z/SU2Z	2NC / 2NO	2NC / 2NO
Slow-action contact:			
		Pedal 1 (left)	Pedal 2 (right)
6062110013	F2-U1Z/U1Z	1NC / 1NO	1NC / 1NO
6062220015	F2-U2Z/U2Z	2NC / 2NO	2NC / 2NO



Dimension drawing 3 see page 34

Three pedal foot switch F3

Article number	Designation	Switching contacts		
Snap-action contact:				
		Pedal 1 (left)	Pedal 2 (middle)	Pedal 3 (right)
6163444577	F3-SU2Z/SU2Z/SU2Z	2NC / 2NO	2NC / 2NO	2NC / 2NO
Slow-action contact:				
		Pedal 1 (left)	Pedal 2 (middle)	Pedal 3 (right)
6063111025	F3-U1Z/U1Z/U1Z	1NC / 1NO	1NC / 1NO	1NC / 1NO

Foot switch with protective shroud

The aluminium pressure die-cast protective shroud (F3: aluminium sand casting) fully shields the pedal at the top and sides while the wide base provides a high degree of stability. It reliably prevents accidental operation from above by falling objects or careless operation from the side. Due to its robust construction the protective shroud withstands a drop of 20 kg from a height of 1 m.



Dimension drawing 4 see page 34



Dimension drawing 5 see page 34

Ordering Instructions for foot switches with protective shroud:

Foot switches with protective shroud have "UN" in the article designation.

Single pedal foot switch F1

Article number	Designation	Switching contacts	Special feature
Snap-action contact:			
		Pedal 1	
6061800012	F1-SU1Z UN	1NC / 1NO	Prot. shroud UN
6061900062	F1-SU2Z UN	2NC / 2NO	Prot. shroud UN
Slow-action contact:			
		Pedal 1	
6061600006	F1-U1Z UN	1NC / 1NO	Prot. shroud UN
6061700004	F1-U2Z UN	2NC / 2NO	Prot. shroud UN

Two pedal foot switch F2

Article number	Designation	Switching contacts	Special feature
Snap-action contact:			
		Pedal 1 (left) Pedal 2 (right)	
6062830022	F2-SU1Z/SU1Z UN	1NC / 1NO 1NC / 1NO	Prot. shroud UN
6062940066	F2-SU2Z/SU2Z UN	2NC / 2NO 2NC / 2NO	Prot. shroud UN
Slow-action contact:			
		Pedal 1 (left) Pedal 2 (right)	
6062610014	F2-U1Z/U1Z UN	1NC / 1NO 1NC / 1NO	Prot. shroud UN
6062720016	F2-U2Z/U2Z UN	2NC / 2NO 2NC / 2NO	Prot. shroud UN

The foot switch is uniquely designed to allow inclusion of additional equipment:

- Emergency Stop button
- Contactor on DIN rail as main power switch for can be delivered in single pedal version
- Customized installations (e.g. light indicators)



Dimension drawing 6 see page 34

Three pedal foot switch F3

Article number	Designation	Switching contacts			Special feature
Snap-action contact:					
		Pedal 1 (left)	Pedal 2 (middle)	Pedal 3 (right)	
6063833045	F3-SU1Z/SU1Z/SU1Z UN	1NC / 1NO	1NC / 1NO	1NC / 1NO	Prot. shroud UN
Slow-action contact:					
		Pedal 1 (left)	Pedal 2 (middle)	Pedal 3 (right)	
6063611026	F3-U1Z/U1Z/U1Z UN	1NC / 1NO	1NC / 1NO	1NC / 1NO	Prot. shroud UN

Foot switch with protective shroud

The cast aluminium hinged protective shroud (which must be raised by the foot before the pedals can be operated), is optionally available for the F1 enclosure to provide protection against falling objects and inadvertent pedal operation.



Dimension drawing 7 see page 35

Ordering Instructions for foot switches with hinged protective shroud

Foot switches with hinged protective shroud have "UK" in the article designation and can only be delivered in single pedal version.

Single pedal foot switch F1

Article number	Designation	Switching contacts	Pressure point	Special feature
6161600071	F1-U1Z UK	1NC / 1NO		Hinged prot. shroud UK
6161700213	F1-U2ZD UK	2NC / 2NO	140 N	Pressure point D, hinged prot. shroud UK

Foot switch with protection degree IP 67

Foot switches with increased degree of protection are dustproof and protected against partial submersion in water.



Ordering Instructions for foot switches with increased protection degree IP 67

IP 67 foot switches are available in one and two pedal versions.

Single pedal foot switch F1

Article number	Designation	Switching contacts Pedal 1	Special feature
6161100469	F1-U1Z	1NC / 1NO	IP67
6161100424	F1-U1Z	1NC / 1NO	IP67, 3 cable entries
6161600538	F1-U1Z UN	1NC / 1NO	IP67, Protective shroud UN
6161600345	F1-U1Z UN	1NC / 1NO	IP67, 3 cable entries, Protective shroud UN

Two pedal foot switch F2

Article number	Designation	Switching contacts Pedal 1	Pedal 2	Special feature
6162610468	F2-U1Z/U1Z	1NC / 1NO	1NC / 1NO	IP67, 3 cable entries, Protective shroud UN
6162000553	F2-SU1ZUV1DR / SU1ZUV1DR UN	2NC / 2NO	1 NC / 1 NO	IP67, Pressure point D, Latching R, Protective shroud UN

Foot switch with pressure point

The pressure point is a mechanical resistance during the actuating pedal travel. This provides the user with added physical signals about the actuator position (tactile feedback).

The pressure point applies when using two contact elements with differently adjusted forward travel (two-stage switch)

- Pedal pressed up to pressure point:
Switching point for first contact element
- Pedal pressed as far as it will go beyond the pressure point:
Switching point for second contact element.
The first contact element remains switched on.
- The force of the pressure point can be freely selected:
 - 15 N
 - 30 N
 - 140 N
 - 200 N
 - 460 N



Ordering Instructions for foot switches with pressure point:

Foot switches with pressure point have "D" in the article code which is suffixed to the contact element code. The protective shroud "UN" and the pressure point "D" are often used in combination in one foot switch.

Single pedal foot switch F1					Two pedal foot switch F2				
Article number	Designation	Switching contacts	Pressure point	Special feature	Article number	Designation	Switching contacts	Pressure point	
Snap-action contact:					Snap-action contact:				
		Pedal 1	Pedal 1				Pedal 1 (left)	Pedal 2 (right)	Pedal 1 (left)
6161800073	F1-SU1ZD UN	1NC / 1NO	200 N	Pressure point D, Prot. shroud UN	6162000418	F2-SU1Z/SU2ZD UN	1NC / 1NO	2NC / 2NO	460 N
6061900433	F1-SU2ZD UN	2NC / 2NO	200 N	Pressure point D, Prot. shroud UN	6062830417	F2-SU1ZD/SU1ZD UN	1NC / 1NO	1NC / 1NO	200 N
					6162000503	F2-SU4ZD/SU4ZD UN	4NC / 4NO	4NC / 4NO	200 N
Slow-action contact:					Slow-action contact:				
6061600010	F1-U1ZD UN	1NC / 1NO	200 N	Pressure point D, Prot. shroud UN	6162610253	F2-U1ZD/U1Z UN	1NC / 1NO	1NC / 1NO	140 N
6061200007	F1-U2ZD	2NC / 2NO	200 N	Pressure point D	6062620086	F2-U1Z/U2ZD UN	1NC / 1NO	2NC / 2NO	200 N
6061700008	F1-U2ZD UN	2NC / 2NO	200 N	Pressure point D, Prot. shroud UN	6062220019	F2-U2ZD/U2ZD	2NC / 2NO	2NC / 2NO	200 N
					6062720020	F2-U2ZD/U2ZD UN	2NC / 2NO	2NC / 2NO	200 N
					6062710376	F2-U2ZD/U1Z UN	2NC / 2NO	1NC / 1NO	200 N



Three pedal foot switch F3

Special feature	Article number	Designation	Switching contacts			Pressure point			Special feature
	Slow-action contact:								
			Pedal 1 (left)	Pedal 2 (middle)	Pedal 3 (right)	Pedal 1 (left)	Pedal 2 (middle)	Pedal 3 (right)	
Pressure point D (Pedal 2), Prot. shroud UN	6063612423	F3-U1Z/U1Z/U2ZD UN	1NC / 1NO	1NC / 1NO	2NC / 2NO		200 N		Pressure point D (Pedal 3), Prot. shroud UN
Press. point D (Pedal1+Pedal 2), Prot. shroud UN									
Pressure point D (Pedal 1+Pedal 2), Prot. shroud UN	6063721262	F3-U2ZD/U2ZD/U1Z UN	2NC / 2NO	2NC / 2NO	1NC / 1NO	200 N	200 N		Pressure point D (Pedal 1+Pedal 2), Prot. shroud UN
Pressure point D (Pedal 1), Prot. shroud UN									
Pressure point D (Pedal 2), Prot. shroud UN									
Pressure point D (Pedal 1+Pedal 2)									
Press. point D (Pedal 1+Pedal 2), Prot. shroud UN									
Pressure point D (Pedal 1), Prot. shroud UN									

Foot switch with latch-action switching

After initially pressing the pedal, the switch setting is retained even after the pedal is released. The contact is not interrupted before the pedal is pressed again (bistable).



Dimension drawing 8 see page 35



Dimension drawing 9 see page 35

Ordering Instructions for foot switches with latch-action switching:

Foot switches with latch-action switching have "Y" in the article code and can be delivered in single and two pedal versions.

Single pedal foot switch F1

Article number	Designation	Switching contacts	Special feature
Pedal 1			
6161800247	F1-SU1Y UN	1NC / 1NO	Bistable Y, Prot. shroud UN
6161000676	F1-A2Y	2NC	Bistable Y
6061100001	F1-U1Y	1NC / 1NO	Bistable Y
6161600295	F1-U1Y UN	1NC / 1NO	Bistable Y, Prot. shroud UN

Two pedal foot switch F2

Article number	Designation	Switching contacts		Special feature
		Pedal 1 (left)	Pedal 2 (right)	
6162840655	F2-SU1Y/SU2Z UN	1NC / 1NO	2NC / 2NO	Bistable Y (Pedal 1), Prot. shroud UN
6062610018	F2-U1Y/U1Y UN	1NC / 1NO	1NC / 1NO	Bistable Y (Pedal 1+Pedal 2), Prot. shroud UN
6062610047	F2-U1Y/U1Z UN	1NC / 1NO	1NC / 1NO	Bistable Y (Pedal 1), Prot. shroud UN

Foot switch with footrest

The sturdy tread face is covered with ribbed rubber and allows actuation of the foot switch with reduced operator fatigue due to its angle. It is equipped with six rubber feet to prevent slipping.



Dimension drawing 10 see page 35

Ordering Instructions for foot switches with footrest

Foot switches with footrest have "FS" in the article code and can only be delivered in single pedal versions.

Single pedal foot switch F1

Article number	Designation	Switching contacts	Special feature
6161700091	F1-U2Z FS UN	2NC / 2NO	Prot. shroud UN, Footrest FS

Foot switch with pedal lock

The pedal cannot be operated before the locking lever is released by the foot. This prevents inadvertent actuation of the pedals even in the event of strong vibration / shaking caused by incorrect handling.



Dimension drawing 11 see page 35

Ordering Instructions for foot switches with pedal lock:

Foot switches with pedal lock have "AT" in the article code and can be delivered in single and two pedal versions.

Single pedal foot switch F1

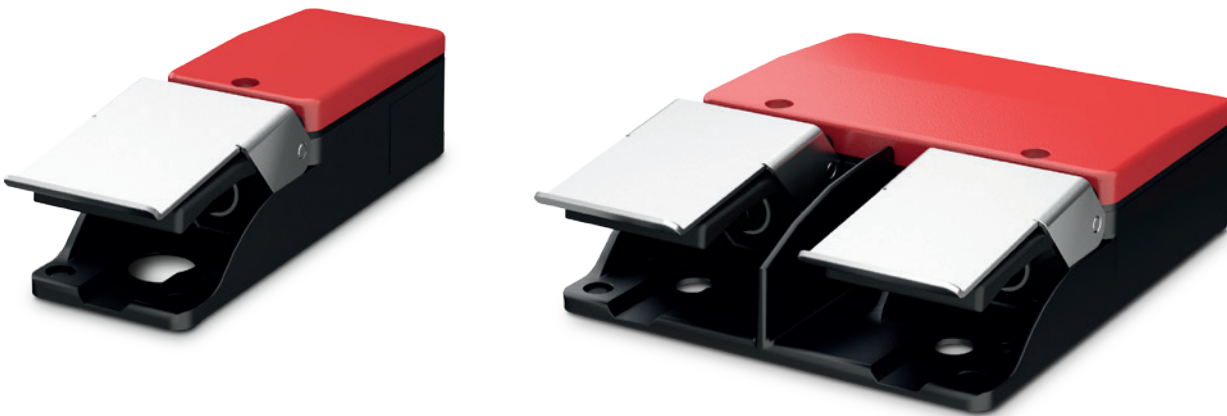
Article number	Designation	Switching contacts	Special feature
6161800482	F1-SU1Z AT UN	1NC / 1NO	Pedal lock AT, Prot. shroud UN
6161100554	F1-U1Z AT	1NC / 1NO	Pedal lock AT
6161600400	F1-U1Z AT UN	1NC / 1NO	Pedal lock AT, Prot. shroud UN
6161700483	F1-U2Z AT UN	2NC / 2NO	Pedal lock AT, Prot. shroud UN
6161700660	F1-U2ZD AT UN	2NC / 2NO	Pressure point D, Pedal lock AT, Prot. shroud UN

Two pedal foot switch F2

Article number	Designation	Switching contacts		Pressure point		Special feature
		Pedal 1 (left)	Pedal 2 (right)	Pedal 1 (left)	Pedal 2 (right)	
6162830500	F2-SU1ZAT/SU1ZAT UN	1NC / 1NO	1NC / 1NO			Pedal lock AT (Pedal 1+Pedal 2), Prot. shroud UN
6162930689	F2-SU1ZAT/SU2ZDAT UN	1NC / 1NO	2NC / 2NO		200 N	Pressure point D (Pedal 2), Pedal lock AT (Pedal 1+Pedal 2), Prot. shroud UN
6162720504	F2-U2ZAT/U2Z UN	2NC / 2NO	2NC / 2NO			Pedal lock AT (Pedal 1), Prot. shroud UN

Foot switch with hinged pedal protection

The hinged pedal protection is placed on the pedal to provide protection against inadvertent pedal operation. The pedal cannot be operated before raising the protective guard with the foot.



Dimension drawing 12 see page 35

Ordering Instructions for foot switches with hinged pedal protection:

Foot switches with hinged pedal protection have "PS" in the article designation and can only be delivered in single pedal versions.

Single pedal foot switch F1

Article number	Designation	Switching contacts	Special feature
6061400572	F1-SU2Z PS	2NC / 2NO	Pedal protection PS

Two pedal foot switch F2

Article number	Designation	Switching contacts		Special feature
		Pedal 1 (left)	Pedal 2 (right)	
6062440573	F2-SU2ZPS/SU2ZPS	2NC / 2NO	2NC / 2NO	Pedal protection PS

Foot switches with contactor

Foot switches with contactor LS combine an auxiliary power switch with a main power switch. Thus, the control of an engine can be realised without the need for an additional switch box. The contactor is directly mounted on a standard mounting rail in the shrouded enclosure.



Dimension drawing 13 see page 36

Ordering Instructions for foot switches with contactor:

Foot switches with contactor have "LS22" in the article designation and can only be delivered in single pedal versions.

Single pedal foot switch F1

Article number	Designation	Switching contacts	Special feature
6061800436	F1-SU1Z LS22 UN	1NC / 1NO	Power contactor LS, Prot. shroud UN
6061800439	F1-SU1Y LS22 UN	1NC / 1NO	Latch-action switch. Y, Power cont. LS, Prot. shroud UN

Foot switches with Emergency Stop button

Since the foot switch is often used in different locations other than on an actual machine or system, a conforming "Emergency Stop" button is directly available to the operator on the command unit.



Dimension drawing 14 on page 36

Ordering Instructions for foot switches with Emergency Stop button:

Foot switches with Emergency Stop button have "NA2" in the article designation and can be delivered in one and two pedal versions.

Single pedal foot switch F1

Article number	Designation	Switching contacts	Special feature
6061600435	F1-U1Z NA2 UN	1NC / 1NO	Emergency Stop button NA2 in the housing cover, Prot. shroud UN

Two pedal foot switch F2

Article number	Designation	Switching contacts		Special feature
		Pedal 1 (left)	Pedal 2 (right)	
6162720700	F2-U2Z/U2Z NA2 UN	2NC / 2NO	2NC / 2NO	Emerg. Stop butt. NA2 in the hous. cov., Prot. shroud UN

First approved enable foot switch by DGUV

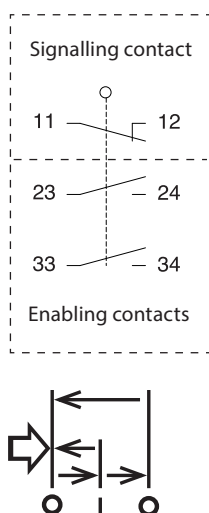
The BERNSTEIN three-stage-enable foot switch combines robust design and advanced technology. With many years of experience and expertise, BERNSTEIN is the preferred partner for industrial foot switches in industrial applications. Through the development of the first approved enable foot switch, BERNSTEIN succeeded again to convert this experience and expertise into customer value and to set new standards in safety technology.

The enable foot switch provides two enable contacts and one signalling contact and is available with or without latch. If the pedal is pressed up to pressure point, the two enable contacts are closed. If the pedal is released, the enable contacts are open again. If the pedal is pressed up to the pressure point, the enable positive opening action contacts are opened. For the application of an enable device, the rules DIN EN ISO 12100 and DIN EN 60204-1 apply.

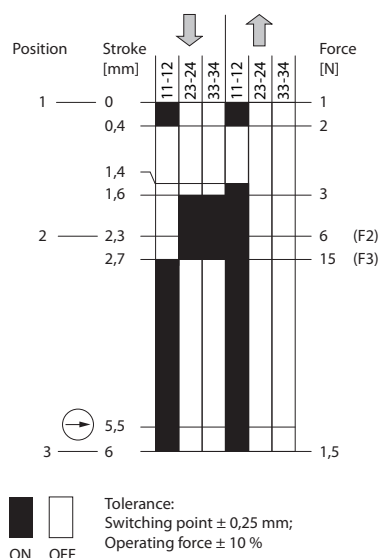
Thanks to this signalling contact, a dynamic position detection is possible. Alternatively, a static position detection can be realised by means of a PNP output. It is thus possible to determine the actuation position one - the OFF position of the enable contacts (the actuator is not pressed) – or the position three – the OFF position of the operating contacts (the actuator is fully pressed) and to make this information directly available to the control system.

The approved enable foot switch can be only delivered in standard version without protective shroud UN.

Circuit symbol

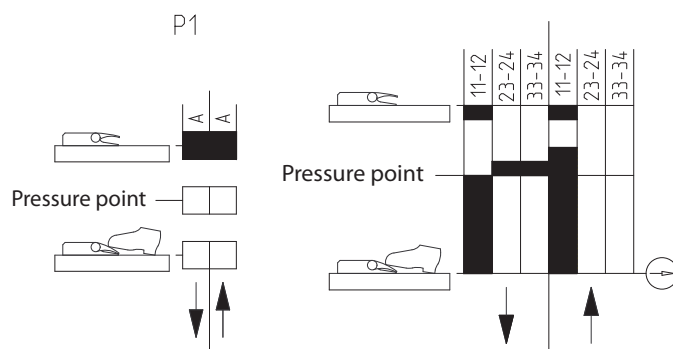


Switching diagram



The indicated travels and forces refer to the switch-in contact of the foot switch with latching function.

Switching diagram with PNP output



Example of a switching diagrams with static position monitoring in position 1



Dimension drawing 15/16 see page 36

Ordering Instructions for enable foot switches:

Single pedal enable foot switch F1

Article number	Designation	Switching contacts	Pressure point	Special feature
6061500559	F1-ZSD	1NC / 2NO	200 N	Pressure point D
6061500567	F1-ZSDR	1NC / 2NO	200 N	Pressure point D, Latching R
6061500569	F1-ZSP1D	1NC / 2NO	200 N	Additional board 1*, Pressure point D
6061500570	F1-ZSP3D	1NC / 2NO	200 N	Additional board 3**, Pressure point D

Two pedal enable foot switch F2

Article number	Designation	Switching contacts		Pressure point		Special feature
		Pedal 1 (left)	Pedal 2 (right)	Pedal 1 (left)	Pedal 2 (right)	
6062500561	F2-U1Z/ZSD	1NC / 1NO	1NC / 2NO		200 N	Pressure point D (Pedal 2)
6062500568	F2-ZSDR/ZSDR	1NC / 2NO	1NC / 2NO	200 N	200 N	Pressure point D, Latching R

* Additional board PNP for determination of switching position 1

** Additional board PNP for determination of switching position 3

Foot switch with enable function

Foot switches are often used as so-called "hold-to-run control device" (touch control) to bring a machine into operation. For this purpose, the enable foot switches equipped with the approved enable contact are ideally suited as they satisfy very demanding safety standards.

The contact and the switching function of these switches is identical with those of the enable foot switches. The pedal position is recognizable dynamically with the signalling contact or statically with the additional board. The foot switches with enable function are with or without latching function and with protective shroud available.



Dimension drawing 17/18 see page 36

Single pedal foot switch with enabling function F1

Article number	Designation	Switching contacts	Pressure point	Special feature
6061000558	F1-ZSD UN	1NC / 2NO	200 N	Pressure point D, Prot. shroud UN
6061000560	F1-ZSDR UN	1NC / 2NO	200 N	Pressure point D, Latching R, Prot. shroud UN
6061000564	F1-ZSP1D UN	1NC / 2NO	200 N	Additional board 1*, Pressure point D, Prot. shroud UN
6073700085	F1-ASI-ZSD UN		200 N	ASI-ZS, Pressure point D, Prot. shroud UN
6073700086	F1-ASI-ZSDR UN		200 N	ASI-ZS, Pressure point D, Latching R, Prot. shroud UN

* Additional board PNP for determination of switching position 1

Two pedal foot switch with enabling function F2

Article number	Designation	Switching contacts		Pressure point		Special feature
		Pedal 1 (left)	Pedal 2 (right)	Pedal 1 (left)	Pedal 2 (right)	
6062000562	F2-U1Z/ZSD UN	1NC / 1NO	1NC / 2NO		200 N	Pressure point D (Pedal 2), Prot. shroud UN
6062000563	F2-U1Z/ZSDR UN	1NC / 1NO	1NC / 2NO		200 N	Pressure point D (Pedal 2), Latching R, Prot. shroud UN
6062000565	F2-ZSP1D/ZSP1D UN	1NC / 2NO	1NC / 2NO	200 N	200 N	Additional board 1*, Press. point D (Pedal 1+Pedal 2), Prot. shroud UN
6062000566	F2-ZSP3D/ZSP3D UN	1NC / 2NO	1NC / 2NO	200 N	200 N	Additional board 3**, Press. point D (Pedal 1+Pedal 2), Prot. shroud UN

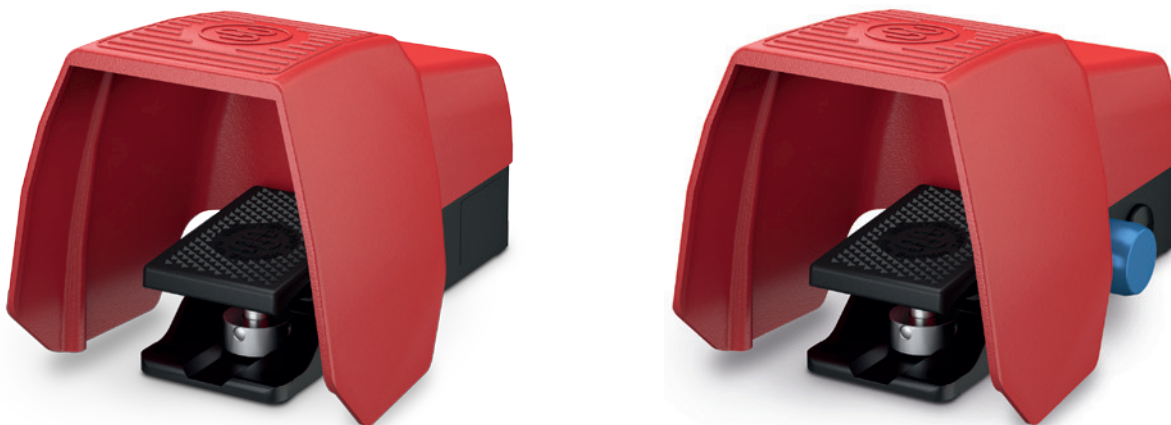
* Additional board PNP for determination of switching position 1

** Additional board PNP for determination of switching position 3



Foot switch with AS-Interface connection

The AS-Interface provides an affordable, fast and flexible connection of foot switches into an AS-i system. Thanks to the M12 plug connection, the foot switches can quickly and easily be replaced using the "plug & play" principle in case a fault should occur.



Dimension drawing 19 see page 37

Ordering Instructions for foot switches with AS-Interface connection:

Foot switches with AS-Interface connection have "ASI" in the article designation and can be delivered in single pedal versions.

Standard and "enabled" foot switches are available with an AS-Interface connection, please refer to the appropriate section for more information on "enabled" foot switch versions.

Standard single pedal foot switch F1 with AS-Interface connection

Article number	Designation	Switching contacts	Special feature
6073700076	ASI F1 UN		AS-Interface, Prot. shroud UN

Single pedal enable foot switch F1 with AS-Interface connection

Article number	Designation	Switching contacts	Special feature
6073700085	F1-ASI-ZSD UN		AS-Interface, Enabling function, Pressure point, Prot. shroud UN
6073700086	F1-ASI-ZSDR UN		AS-Interface, Enabling function, Latching, Press. point, Prot. shroud UN

**These and other foot switches are also available
with AS-Interface connection on demand.**



Foot switches with safety lock plus manual release



Dimension drawing 20 see page 37

Ordering Instructions for foot switches with safety lock plus manual release:

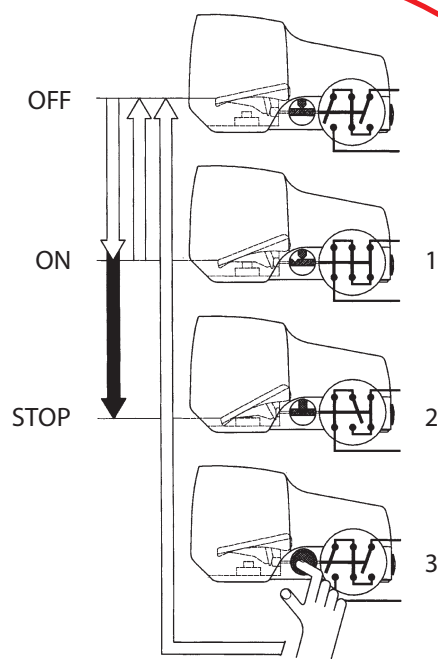
Single pedal foot switch F1

Article number	Designation	Switching contacts	Pressure point	Special feature
6161000560	F1-SU1ZUV1ZDR UN	2NC / 2NO	200 N	Pressure point D, Latching, Prot. shroud UN
6161000203	F1-SU1Z/UV1ZD UN	1NC / 2NO	200 N	Pressure point D, Latching, Prot. shroud UN
6161000626	F1-SU1ZCA2ZDR UN	3NC / 1NO	200 N	Pressure point D, Latching, Prot. shroud UN
6161000443	F1-UV1Z/UV1ZD	2NC / 2NO	200 N	Pressure point D, Latching
6161000532	F1-UV1Z/UV1ZD UN	2NC / 2NO	200 N	Pressure point D, Latching, Protective unlatch button, Prot. shroud UN

Two pedal foot switch F2

Article number	Designation	Switching contacts		Pressure point		Special feature
		Pedal 1 (left)	Pedal 2 (right)	Pedal 1 (left)	Pedal (right)	
6162000486	F2-SU1ZUV1ZD/SU1Z UN	2NC / 2NO	1NC / 1NO	460 N		Latching (Pedal 1), Pressure point D (Pedal 1) Prot. shroud UN
6162000364	F2-SU1ZSU1ZD/SU1Z UN	2NC / 2NO	1NC / 1NO	200 N		Latching (Pedal 1), Pressure point D (Pedal 1) Prot. shroud UN
6162000553	F2-SU1ZUV1D/SU1ZUV1D UN	2NC / 2NO	2NC / 2NO	200 N	200 N	Latching (Pedal 1+Pedal 2), Press. point D (Pedal 1+Pedal 2) Prot. shroud UN
6162000338	F2-SU1ZUV1D/SU1ZUV1D UN	1NC / 2NO	1NC / 2NO	200 N	200 N	Latching (Pedal 1+Pedal 2), Press. point D (Pedal 1+Pedal 2) Prot. shroud UN
6162000709	F2-SU1ZCA2ZD/SU1ZCA2ZD	3NC / 1NO	3NC / 1NO	200 N	200 N	Latching (Pedal 1+Pedal 2), Press. point D (Pedal 1+Pedal 2) Prot. shroud UN
6162000583	F2-UV1ZD/UV1ZD UN RAST	1NC / 1NO	1NC / 1NO	200 N	200 N	Latching (Pedal 1+Pedal 2), Press. point D (Pedal 1+Pedal 2) Prot. shroud UN

- **Pedal pressed up to pressure point:**
The make contact is closed and the work process is started.
- **Pedal pressed beyond resistance of the pressure point in an emergency situation:**
The make contact is interrupted and locked, the work process is interrupted. In this phase the lock remains in the Off position even when the pedal is not pressed. This reliably prevents uncontrolled restart of the machine or moving parts.
- **Release:**
Only after the hazardous situation has been remedied does manual release (pushbutton on the side of the enclosure) release the contacts again and the work process can be restarted by pressing the pedal as far as the pressure point.



Safety function on foot switches with mechanical lock (SiPf)

Three pedal foot switch F3

Slow-action contact:

Article number	Designation	Switching contacts			Pressure point			Special feature
		Pedal 1 (left)	Pedal 2 (middle)	Pedal 3 (right)	Pedal 1 (left)	Pedal 2 (middle)	Pedal 3 (right)	
6163500703	F3-SU1ZA2ZD/SU2ZD/SU1ZA2ZD Rast	3NC / 1NO	2NC / 2NO	3NC / 1NO	200 N	30 N	200 N	Pressure point D (Pedal 1+Pedal 2+Pedal 3), Latching (Pedal 1+Pedal 3)

Mobility handling for foot switches

The mobility handle option is a complementary accessory for the one (F1) and two (F2) pedal versions. Modification to the foot switch is not required and has retro fitting possibility.



Dimension drawing 21 see page 37



Dimension drawing 22 see page 37

Ordering Instructions for mobility handling:

Mobility handling for foot switches:	
Article number	Designation
3996000229	F1-TV
3996000230	F2-TV

Foot switch with analogue output

This version of foot switch has a variable controlling current and voltage output that is directly proportional to the pedal position. A programmable signalling output is additionally activated when a predetermined pedal position is reached. The analogue output can be delivered in a 0–5 V, 0–10 V, 0–20 mA or 4–20 mA version. The foot switch is available in single pedal version. Two and three pedal versions on request.



Dimension drawing 23 see page 37

Ordering Instructions for foot switch with analogue output:

Single pedal foot switch F1			
Article number	Designation	Switching contacts	Special feature
6161500723	F1-AU0-5		
6161500724	F1-AU0-10		
6161500725	F1-AI0-20		
6161500726	F1-AI4-20		
6161000727	F1- AU0-5 UN		Prot. shroud UN
6161000728	F1- AU0-10 UN		Prot. shroud UN
6161000729	F1- AI0-20 UN		Prot. shroud UN
6161000730	F1- AI4-20 UN		Prot. shroud UN

Foot switches for potentially explosive atmospheres

BERNSTEIN offers you a wide range of single and double pedal foot switches designed to meet the exacting requirements of zone 1 and 2 potentially explosive atmospheres (other approvals on demand). The foot switches have factory fitted connection cables which are available in different lengths.



Dimension drawing 24 see page 38



Dimension drawing 25 see page 38

Ordering Instructions for foot switches in potentially explosive atmospheres:

Foot switches for potentially explosive atmospheres have "EX" in the article designation and can be delivered in one and two pedal versions.

Single pedal foot switch F1

Article number	Designation	Switching contacts	Special feature
6096198014	F1-SU1Z EX 5M	1NC / 1NO	5 m Connection cable
6096198015	F1-SU1Z EX 9M	1NC / 1NO	9 m Connection cable
6096197017	F1-SU1Z EX UN -2M-	1NC / 1NO	2 m Connection cable, Prot. shroud UN
6096197019	F1-SU1Z EX UN -5M-	1NC / 1NO	5 m Connection cable, Prot. shroud UN
6096197020	F1-SU1Z EX UN -9M-	1NC / 1NO	9 m Connection cable, Prot. shroud UN

Two pedal foot switch F2

Article number	Designation	Switching contacts		Special feature
		Pedal 1(left)	Pedal 2(right)	
6096198022	F2-SU1Z/SU1Z EX -2M-	1NC / 1NO	1NC / 1NO	2 m Connection cable
6096198024	F2-SU1Z/SU1Z EX -5M-	1NC / 1NO	1NC / 1NO	5 m Connection cable
6096197029	F2-SU1Z/SU1Z EX UN -5M-	1NC / 1NO	1NC / 1NO	5 m Connect. cable, Prot. shroud UN
6096197030	F2-SU1Z/SU1Z EX UN -9M-	1NC / 1NO	1NC / 1NO	9 m Connect. cable, Prot. shroud UN

Technical data

Electrical data		
Rated insulation voltage	U_i	400 V AC 250 V AC (in type designation "ZS", "EX")
Rated impulse strength	U_{imp}	4 kV * 2,5 kV (in type designation "C", "ZS", "EX") *
Conventional thermal current	I_{the}	10 A 5 A (in type designation "ZS", "EX")
Utilisation category		AC-15, U_e / I_e 240 V / 3 A AC-15, U_e / I_e 240 V / 1,5 A (in type designation "ZS")
Positive opening		according to IEC/EN 60947-5-1, Addendum K (when reaching the pedal stop)
Overvoltage category (switch-in contact with enabling function)		III (according to IEC 60664-1)
Protection class		I

* does not apply to "MI" and "MI RG" in article designation

Mechanical data	
Enclosure	Cast aluminium (powder-coated)
Cover, Protective shroud UN	Cast aluminium (powder-coated)
Foot pedal	Thermoplastic
Operating temperature (with no icing / no condensation)	-30°C to +80°C (-20°C to +65°C in type designation "EX")
Storage temperature	-30°C bis +80°C (-20°C to +65°C in type designation "EX")
Mechanical service life	> 1 x 10 ⁶ switching cycles when using switches with potentiometer 5 x 10 ⁴
Switching frequency	50 min ⁻¹ when using switches with potentiometer 20 min ⁻¹
Type of connection	Screw connections (M3,5)
Conductor cross sections	Single-wire 0,5 – 1,5 mm ² or stranded wire with ferrule 0,5 – 1,5 mm ²
Cable entry	M20 x 1,5
Weight with cover	F1 ≈ 0,6 kg, F2 ≈ 1,7 kg, F3 ≈ 3,0 kg
Weight with protective shroud UN	F1 ≈ 1,5 kg, F2 ≈ 2,6 kg, F3 ≈ 5,4 kg
Protection class	Protection class depends on type. Standard is IP 65.

Standard values for safety technology	
B10d	20 x 10 ⁶
	6 x 10 ⁶ Restrictions in article designation "C" *
	2 x 10 ⁶ Restrictions in article designation "D" *
	4 x 10 ⁶ Restrictions in article designation "EX" *
	1 x 10 ⁵ Restrictions in article designation "ZS" *

* Once a restriction exists, the lowest value needs to be applied.

This technical data is generic to our standard foot switch range, please refer to individual technical data sheets for exact product information as the technical data above may vary.

Standards
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1
VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1

Approvals*
CCSAUS A300, Q300 (same polarity)
cULus B300 (in type designation "ZS")
DGUV (Only switches that have an appropriate label.)

* Approvals depend on type.
More information can be found in the data sheet.

BERNSTEIN

Plastic foot switch KFMini

Foot switches with plastic housing

With their strikingly modern design, the KFMini series are an ideal complement to our existing range of metal body foot switches. Further details available upon request.



Technical data

- Enclosure: Thermoplastic (fibre glass-reinforced)
- Actuator element: Thermoplastic (fibre glass-reinforced)
- Ambient temperature: -20 °C to +80 °C
- Protection class: IP 65

Product features

- Multi pedal version possible
- Different coloured pedals (Black, Grey, Blue, Yellow, Red)

Other colours on request.

Accessories

- 2 m connection cable

Single pedal foot switch F1

Article number	Designation	Switching contacts	Pedal colours
6069100004	KFM1-SU1 SW	1NC / 1NO	black
6069100005	KFM1-SU2 SW	2NC / 2NO	black
6069100008	KFM1-SU1 RT	1NC / 1NO	red
6069100009	KFM1-SU1 BL	1NC / 1NO	blue
6069100010	KFM1-SU1 GE	1NC / 1NO	yellow
6069100012	KFM1-SU1 GR	1NC / 1NO	grey

Double-pedal foot switch F2

Article number	Designation	Switching contacts		Pedal colours
		Pedal 1 (left)	Pedal 2 (right)	
6069200006	KFM2-SU1/SU1 SW	1NC / 1NO	1NC / 1NO	black
6069200007	KFM2-SU2/SU2 SW	2NC / 2NO	2NC / 2NO	black
6069200011	KFM2-SU1/SU1 GE BL	1NC / 1NO	1NC / 1NO	yellow / blue

Foot switches for use in Medical Technology

BERNSTEIN offers two other series of foot switches that make an ideal complement to our standard range of foot switches. The Foot-Operated Terminal FBT and the Medical Foot-Operated Switches (MF). This is only a brief overview of the two series, detailed product information are available upon request.



Overview of product benefits FBT

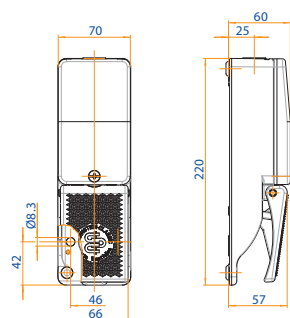
- Modular pedal or joypad attachments
- Bar as footrest or for changing position
- Adjustable foot heights ensure the ideal ergonomic position
- High mechanical durability
- 2-level switching possible
- Analogue or digital output signals

Overview of product benefits MF

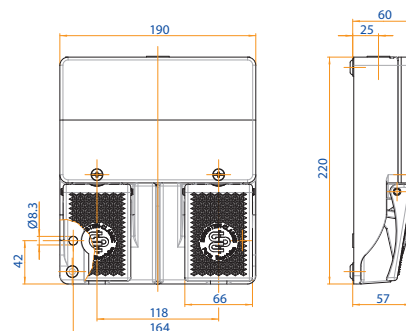
- Ergonomically optimises, elegant design
- Easy to clean
- Radial cable entry for effective cable protection
- Analogue or digital output signals
- Protected, internal cover seal
- Customized modular design

Dimensioned drawings

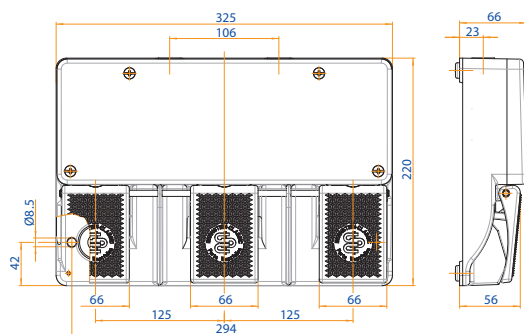
1) Standard Foot switch F1



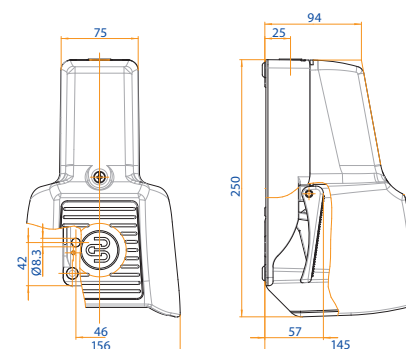
2) Standard Foot switch F2



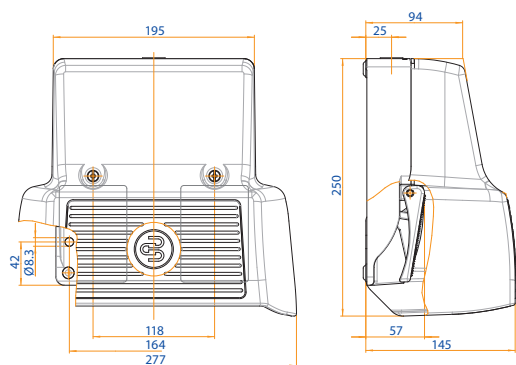
3) Standard Foot switch F3



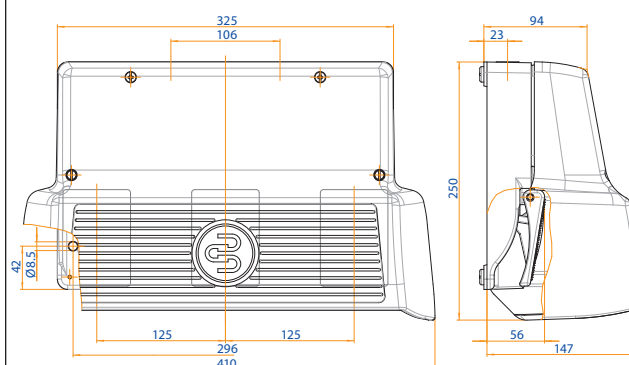
4) Foot switch with protective shroud F1

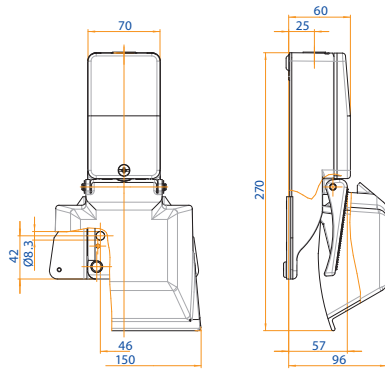
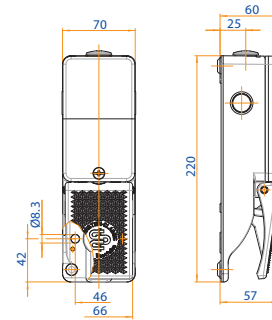
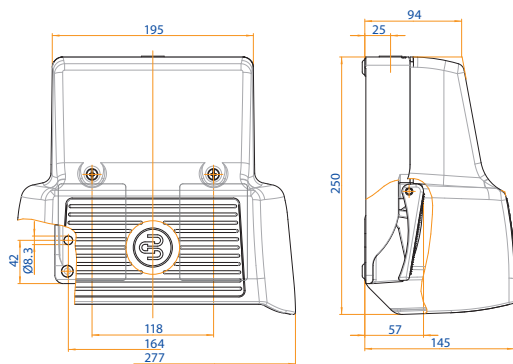
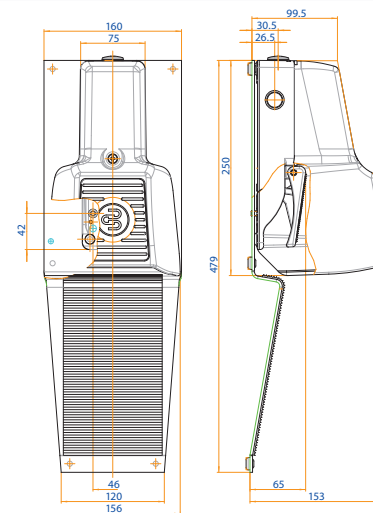
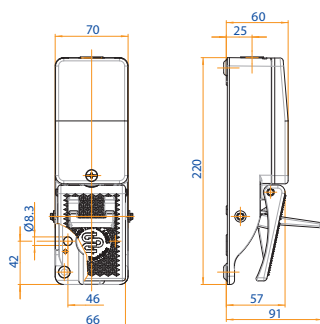
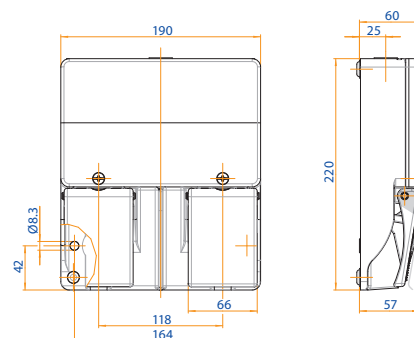


5) Foot switch with protective shroud F2



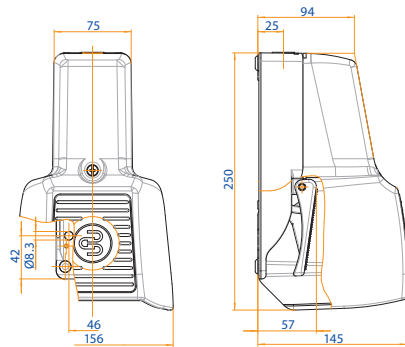
6) Foot switch with protective shroud F3



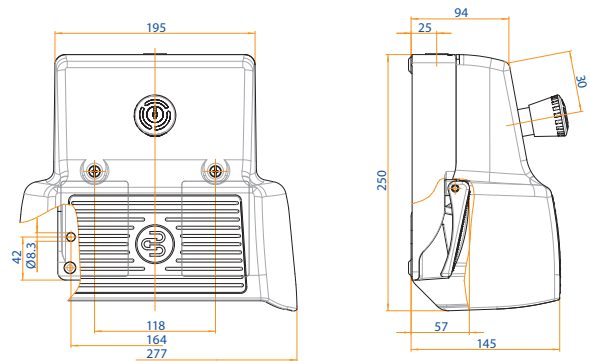
7) Foot switch with protective shroud F1

8) Foot switch with bistable switching function F1

9) Foot switch with bistable switching function F2

10) Foot switch with footrest F1

11) Foot switch with pedal lock F1

12) Foot switch with hinged pedal protection F2


Dimensioned drawings

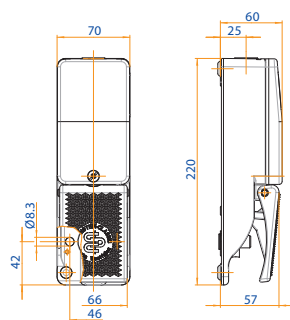
13) Foot switch with contactor F1



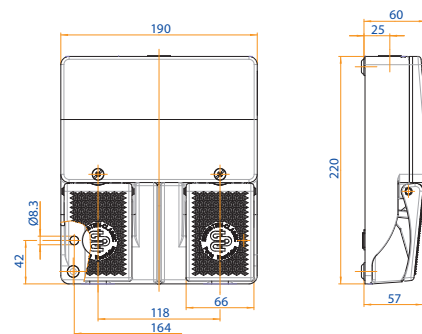
14) Foot switch with Emergency Stop button F2



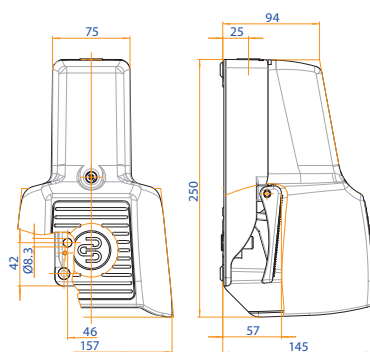
15) First approved enable foot switch F1 by DGUV



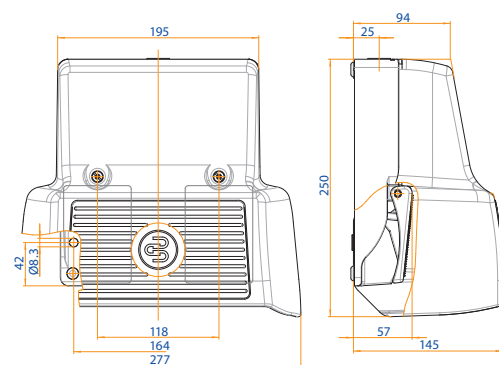
16) First approved enable foot switch F2 by DGUV



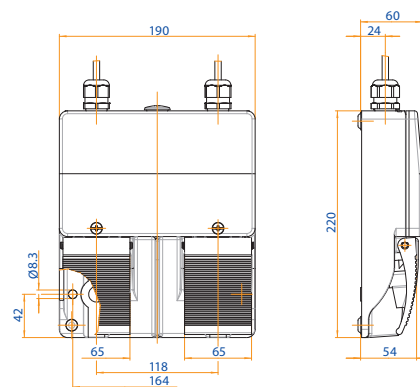
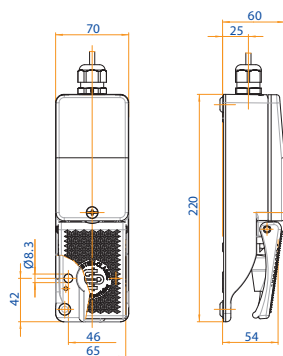
17) Foot switch with enabling function F1



18) Foot switch with enabling function F2



24) Foot switch for potentially explosive atmospheres EX F1 25) Foot switch for potentially explosive atmospheres EX F2



Notes

Checklist for assembled foot switches



Customer	Customer No.	Telephone
Address		Telefax
Contact person	Department	
<input type="checkbox"/> Pricing enquiry	Target price	
<input type="checkbox"/> Sample	Annual requirement	
<input type="checkbox"/> Order	Delivery date	

Application of the foot switch (brief application description):

1 Variation of customizing



☐ BERNSTEIN switch + cable + open end



☐ BERNSTEIN switch + cable + connector

2 Foot switch

Type of switch: _____

Article number: _____

Contact assignment / Internal wiring:

Connection conductor cross-sections: from 0,5 to 1,5 mm²

☐ Cable gland ☐ plastic ☐ metal

☐ Clamping glands: plastic

3 Cable

Cable type / No. conduct.	4 (3+PE)	5 (4+PE)	6 (5+PE)	7 (6+PE)	8 (7+PE)	9 (8+PE)	10 (9+PE)
Standard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EMV compliant (CY)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steel wire braiding (SY)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UL approval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cable length in m: _____

☐ Other cables Manufacturer: _____

Article No.: _____

4 Industrial connectors Standard Harting, other manufacturers possible on request!

Size	3A	10A
Inserts	Pin	Pin
No. of contacts	3+PE	10+PE
	<input type="checkbox"/> 09200032611	<input type="checkbox"/> 09200102612
	4+PE	
	<input type="checkbox"/> 09200102612	
Hood, to cable entry	<input type="checkbox"/> 19200031440	<input type="checkbox"/> 19200101440

☐ Other connectors Manufacturer: _____

Article No.: _____

5 Remarks



**Switch systems –
Economy meets safety**



**Sensor systems –
Compact intelligence**



**Enclosure systems –
Function and design**

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