

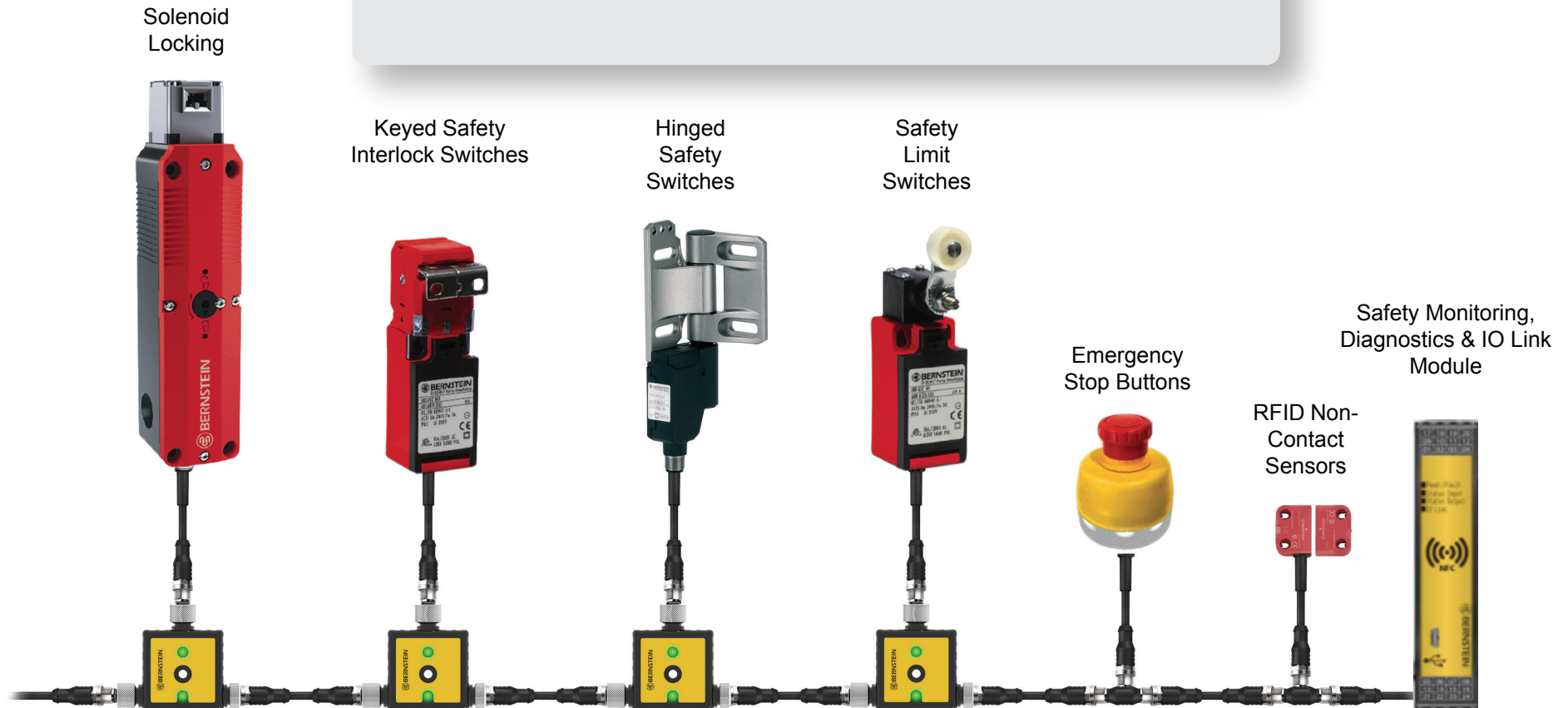
SMART Safety System



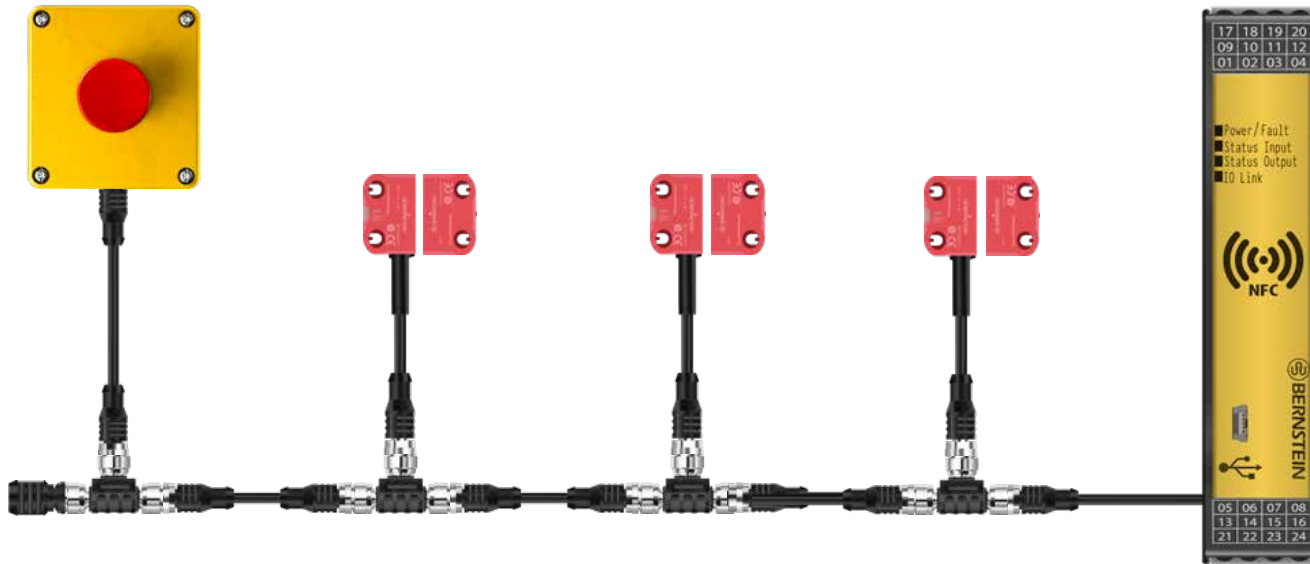
Plug-in Series Safety with OSSD Outputs IO-Link Compatible; PLC & NFC Diagnostics

The SMART Safety System

offers plug in convenience allowing up to 32 switches to be run in series. The system features redundant cascading OSSD outputs which eliminates the possibility of fault masking (TR24119) and offers superior diagnostics and communication via IO-Link, NFC or PLC.



Smart Safety System for Industry 4.0



Innovative

- New innovative Daisy Chain Diagnostics (DCD)
- Retrieving the diagnostic information with an Android Smartphone via NFC Interface or per USB port
- Data transmission via IO-Link interface
- Simple and specific maintenance thanks to prefailure monitoring
- Cost reduction through reduced machine downtime
- Support of an energy-optimized application (Voltage level is known and can be optimised at any

The SMART Safety System

Complete safety system with SMART diagnostic

Based on the SRF safety sensor, BERNSTEIN AG is expanding its product portfolio into a Smart Safety System. The various possible combinations of the products enable a wide range of solutions to safeguard a machine.

SRF | Emergency-stop SEU | Safety controller SCR DI

The SRF (Safety RFID) is a non-contact safety sensor to monitor movable guards such as flaps, doors and protective hoods. The small sensor protects operators from injury by switching off machines and by preventing them from being switched on again as long as the guard is not properly closed.

The Safety Emergency Unit (SEU) – the electronic emergency stop – can be easily integrated into the existing SRF safety chain thanks to the M12 connection. The requirement of the Machinery Directive, according to which every machine must be equipped with an emergency stop, is thus easily met. The problem of fault masking also no longer exists thanks to the electronics used.

The safety relay (SCR DI) combines three devices in one: It is a safety controller for the OSSD outputs of the sensor chain (SRF and SEU), a diagnostic module and an IO-Link gateway. It can safely monitor a series connection consisting of SRF and/or SEU and provides the diagnostic data.

With the integrated diagnostic channel, all (non-safety) relevant status information of the connected sensors (SRF-5) and emergency stop devices (SEU) is transmitted to the machine control via a diagnostic device or the safe controller SCR DI – even in a series connection. In addition, the SCR DI provides its own diagnostic data. Three redundant, safe relays allow direct switching of loads with up to 6 A per enabling path.

The entire system provides a wide range of data that enables simple and cost-saving predictive maintenance from early fault detection. These are made available via the DCD system, this transmits data to the controller, or alternatively displays it on a smartphone. In this way, a potentially very costly system shutdown can be avoided.

Smart Safety System for DCD Diagnostic

The Daisy Chain Diagnostic System (DCD) provides a wealth of information to make the machines more efficient by avoiding downtime.

The DCD system is supported by the sensors (SRF-5), the emergency stop (SEU) and the safety relay (SCR DI). The data of each device are collected in the SCR DI (or standalone diagnostic device) and can be sent via ...

- IO-Link to a control system
- USB to a laptop
- NFC to an Android smartphone

Depending on the device, the data listed on the right is available

Information	Sensors SRF-5	Emergency stop and Connection box SEU	SCR DI
Actuator detected	x		
Falscher Betätiger	x		
Actuator code not taught in	x		
Actuator at the edge of the detection range	x		
Safety input 1	x	x	x
Safety input 2	x	x	x
Safety output 1	x	x	
Safety output 2	x	x	
Safety contact input 1		x	
Safety contact input 2		x	
Local reset expected	x	x	x
Operating voltage warning	x	x	
Operating voltage 24 V	x	x	x
Status Safe relay output			x
Status internal feedback loop			x
Status external feedback loop			x
Sensor functions	x		x
Number of remaining actuator teach-in operations	x		
Received actuator code	x		
Saved actuator code	x		
Time Actuator in detection limit	x		
Output fault Switch-off time	x	x	x
Operating voltage warning	x	x	x
Device temperature	x	x	
Current supply voltage	x	x	x
Actuator distance	x		
Switching cycles internal relay			x
Switching cycles relay output			x
Order number of the SCR DI			x

All the diagnostic information are not safety-relevant!

Smart Safety System for DCD Diagnostic



In order to simplify the assignment of information, it is possible to permanently assign a name and descriptive text to each device, safety chain and machine, making it easier for the user to identify the corresponding device.

In addition, there is a fault memory that stores typical fault data to simplify the search.



To download
the necessary
software.

Diagnostic data of the fault memory

here at the example of a SRF-5

Information	Meaning
Operating voltage 24 V	Operating voltage outside specification (24 V +/- 20 %)
Wrong actuator	Actuator code OK/ Actuator code not OK
Actuator at the edge of the detection area	Actuator distance OK / actuator at the edge of the detection area
Status safety output 1	On / Off
Status safety output 2	On / Off

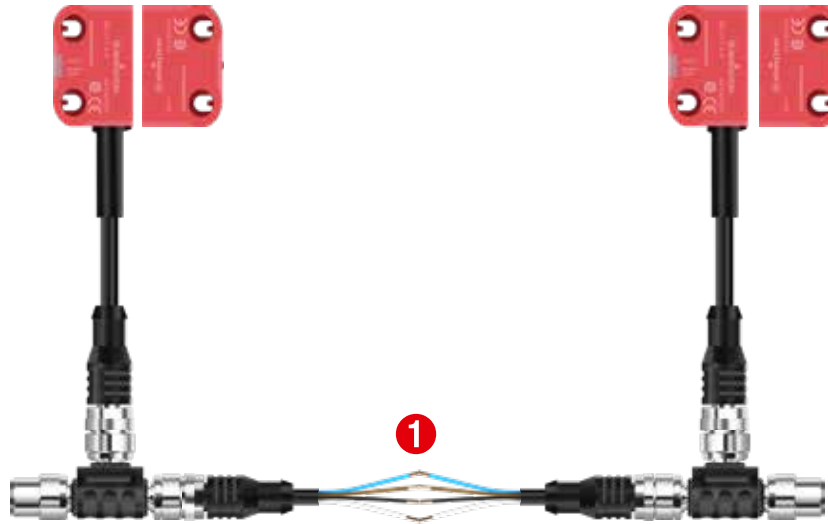
The error messages are stored in the diagnostics module using a time stamp and can be retrieved via all interfaces if needed. Thanks to the NFC function, this information can be read even if there is no voltage on the diagnostic module. This unique feature allows efficient troubleshooting and accelerates restart of defective machines.

Smart Safety System

SRF RFID Non-Contact Safety Switches

Benefits and features

- **Cost-saving** thanks to a four-wire unshielded standard connection cable from sensor to sensor ①
- **Compact and flexible** in application thanks to small design
- **Safe up to PL e** even in series connection, with high defeat protection (according to ISO 14119)



Coding types

- **Low coding level:**
Sensor accepts any SRF actuator; no teach-in procedure.
- **High coding level:**
Sensor accepts taught-in SRF actuators only; an SRF actuators can be taught-in up to 12 times.
- **Unique coding:**
An SRF actuator can only be taught-in once.

Diagnostics (not safety related)

- **PNP diagnostics:**
Signalling contact as PNP signal indicating whether the safety guard is closed.
- **DCD System:**
Detailed diagnostic system DCD that submits a complete status image of a sensor, even in series connection.

Reset function

Local reset of the sensor to enable restart of the machine.

Fault tolerant outputs

The fault tolerant outputs prevent an unexpected machine stop and allow to run down the machine in a controlled manner.

This is how it works:

If an error is detected at one output, the sensor indicates this with a flash code – whilst simultaneously transmitting the information via the DCD system. After 20 minutes, the second still intact output, will switch off.

Intelligent sensor inputs

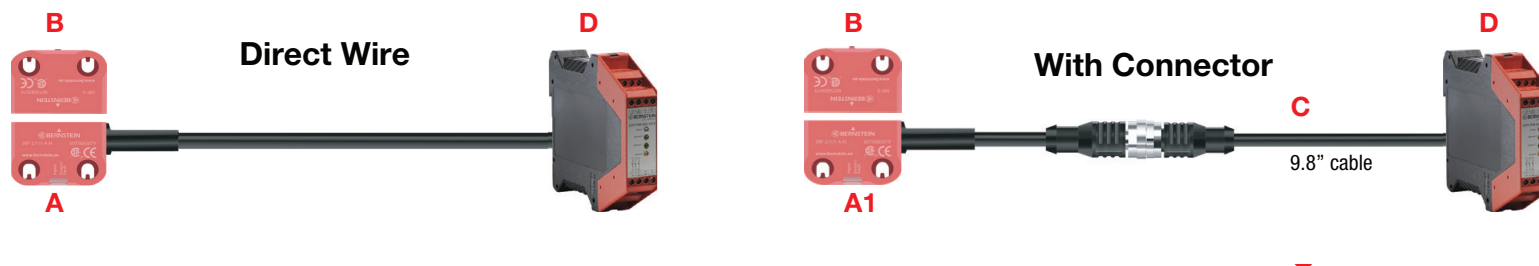
The status of the safety inputs is checked for plausibility and prevents the system from being switched on again in the event of a fault. This makes it possible to integrate mechanical contacts into the series connection, taking the TR 24119 into account.

Smart Safety System

SRF RFID Non-Contact Safety Switches

For Single Door Applications
with PNP Diagnostics

Single Installation



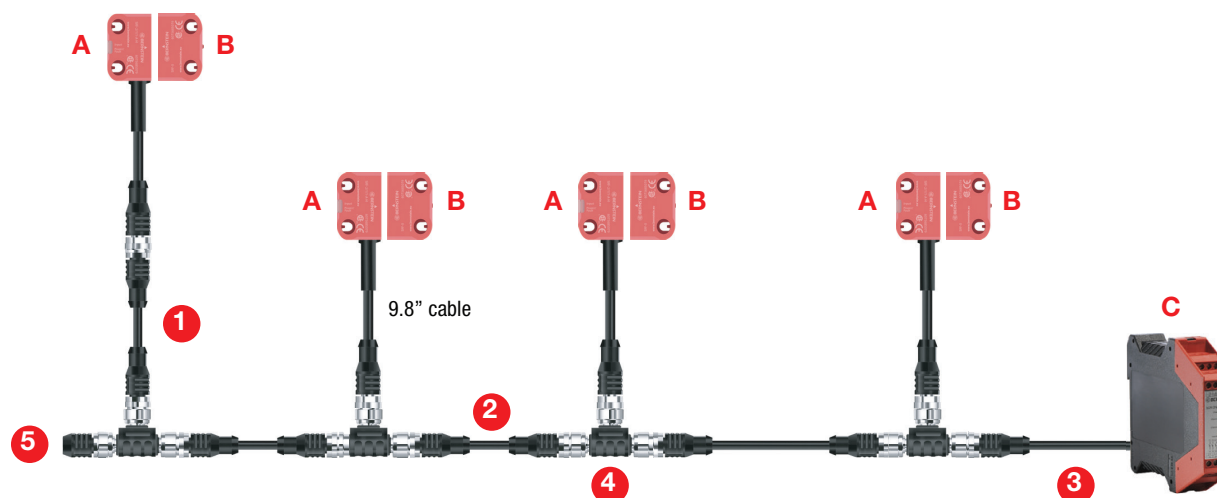
Switches (with 9.8" cable & M12 connector)							
Position	Part Number	Description	Coding			Diagnostics PNP	Cable Termination
			Low	High	Unique		
A	607.5685.118	SRF-2/1/1-A-L	X			X	Open Ended - 6.5'
A	607.5685.079	SRF-2/1/1-A-H		X		X	Open Ended - 6.5'
A	607.5685.117	SRF-2/1/1-A-U			X	X	Open Ended - 6.5'
A1	607.5685.121	SRF-2/1/1-E-L	X			X	9.8" Cable to M12
A1	607.5685.120	SRF-2/1/1-E-H		X		X	9.8" Cable to M12
A1	607.5685.119	SRF-2/1/1-E-U			X	X	9.8" Cable to M12
Actuator (for all coding levels - sold separately)							
B	607.5687.078	SRF-0					
Accessories							
Position	Part Number	Description	Type				
C	607.5689.092	SFW-M12B5/AW-2PU	Sensor Extension Cable Female to Open 5 Pin 2M (6.5')				
C	607.5689.093	SFW-M12B5/AW-5PU	Sensor Extension Cable Female to Open 5 Pin 5M (16.4')				
D	607.5111.020	SCR-ON4-W22-3.6-S	Safety Controller Relay				

Smart Safety System

SRF RFID Non-Contact Safety Switches

For Series Applications
with PNP Diagnostics

Series Installation



Switches (with 9.8" cable & M12 connector)							
Position	Part Number	Description	Coding			Diagnostics	Cable Length
			Low	High	Unique	PNP	
A A A	607.5685.096	SRF-4/1/1-E-L	X			X	9.8"
B	607.5685.095	SRF-4/1/1-E-H		X		X	9.8"
	607.5685.094	SRF-4/1/1-E-U			X	X	9.8"
Accessories (for all coding levels - sold separately)							
1	607.5687.078	SRF-0					
Accessories							
2	Part Number	Description	Type				
3	607.5689.085	S1W-M12A8/8W/BW-1PU	Sensor Extension Cable Male to Female 8 Pin 1M (3.2')				
3	607.5689.086	S1W-M12A8/8W/BW-2PU	Sensor Extension Cable Male to Female 8 Pin 2M (3.2')				
4	607.5689.087	S1W-M12C4/AW-2PU	Series Line Extension Cable Male to Female 4 Pin 2M (3.2')				
5	607.5689.088	S1W-M12C4/AW-5PU	Series Line Extension Cable Male to Female 4 Pin 5M (16.4')				
C	607.5689.089	S1W-M12C4/AW-10PU	Series Line Extension Cable Male to Female 4 Pin 10M (16.4')				
	607.5689.090	SFW-M12C4/AW-0.5PU	Controller Connection Cable Female to Open 4 Pin .5M (1.6')				
	607.5689.091	SFW-M12C4/AW-2PU	Controller Connection Cable Female to Open 4 Pin 2M (3.2')				
	607.5989.082	ATS-M12/4-M12/8	T Adapter at end of switch				
	607.5689.084	AEP-M12/4	End of Series Line Terminator				
	607.5689.127	AT-CLIP-M12	M12 Mounting Clip for T Adapter				
	607.5111.020	SCR-ON4-W22-3.6-S	Safety Controller Relay				

Smart Safety System

SRF RFID Non-Contact Safety Switches

For Series Applications
with DCD Diagnostics

Series Installation with DCD (Daisy Chain Diagnostics) for I/O Link (Serial Communication Protocol) & NFC (Near Field Communication)



Switches (with 9.8" cable & M12 connector)								
Position	Part Number	Description	Coding			Diagnostics		Cable Length
			Low	High	Unique	PNP	DCD	
A	607.5685.102	SRF-5/1/1-E-L	X				X	9.8"
A	607.5685.101	SRF-5/1/1-E-H		X			X	9.8"
A	607.5685.100	SRF-5/1/1-E-U			X		X	9.8"
Actuator (for all coding levels - sold separately)								
B	607.5687.078	SRF-0						
Accessories								
Position	Part Number	Description	Notes					
1	607.5689.085	S1W-M12A8/8W/BW-1PU	Sensor Extension Cable Male to Female 8 Pin 1M (3.2')					
1	607.5689.086	S1W-M12A8/8W/BW-2PU	Sensor Extension Cable Male to Female 8 Pin 2M (3.2')					
2	607.5689.087	S1W-M12C4/AW-2PU	Series Line Extension Cable Male to Female 4 Pin 2M (3.2')					
2	607.5689.088	S1W-M12C4/AW-5PU	Series Line Extension Cable Male to Female 4 Pin 5M (16.4')					
2	607.5689.089	S1W-M12C4/AW-10PU	Series Line Extension Cable Male to Female 4 Pin 10M (16.4')					
3	607.5689.090	SFW-M12C4/AW-0.5PU	Controller Connection Cable Female to Open 4 Pin .5M (1.6')					
3	607.5689.091	SFW-M12C4/AW-2PU	Controller Connection Cable Female to Open 4 Pin 2M (3.2')					
4	607.5989.082	ATS-M12/4-M12/8	T Adapter at end of switch					
6	607.5689.084	AEP-M12/4	End of String Terminator					
-	607.5689.127	AT-CLIP-M12	M12 Mounting Clip for T Adapter					
C	607.5111.020	SCR-ON4-W22-3.6-S	Safety Controller Relay					
D	607.5689.126	SRF DI-F 0/2	Field Module for NFC Communication					
E	607.5619.122	SRF DI-C-0/1-T	Diagnostic Module with I/O Link + NFC + USB					

Smart Safety System

SRF RFID Non-Contact Safety Switches

Technical Information

Electrical data

- Rated operational voltage U_e : 24V DC
- Output current of the signal output I_e : 10 mA
- Output current of the safety outputs I_e : 100 mA

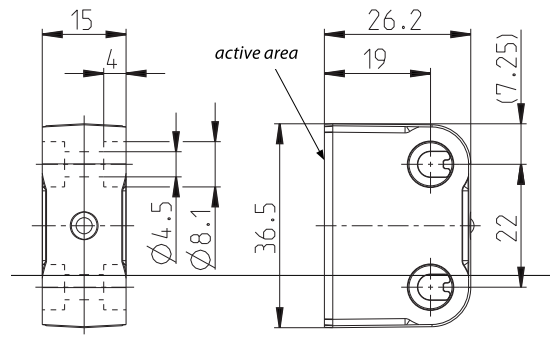
Mechanical data

- Enclosure: PA66 + PA6, red, self-extinguishing
- Connection cable: PUR
- Mounting holes: $\varnothing 4,5$ (für M4 screws)
- Displays: 1 \times LED red/green operating status
1 \times LED yellow actuation status
- Ambient temperature: -25 °C to +70 °C
- Protection class: IP69

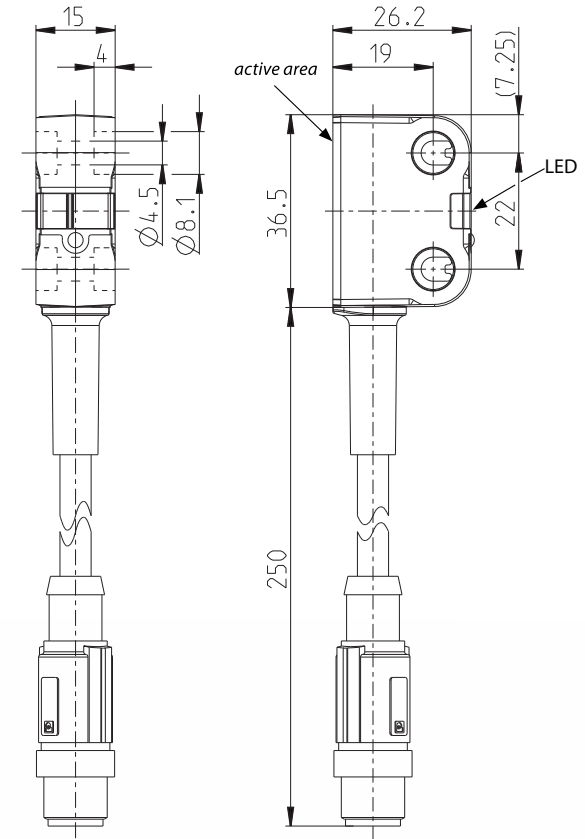
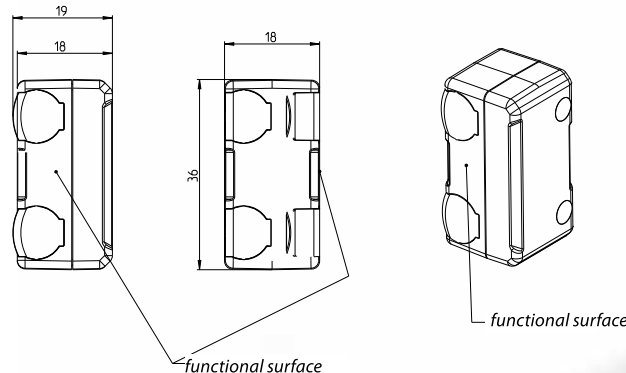
Safety data

- PL e / Cat. 4 (according to EN ISO 13849-1)
- SIL CL 3 (according to DIN EN 62061)
- $PFH_D = 6 \times 10^{-9}$ 1/h
- Mission time T_M : 20 years
- Switching distance
 - Rated operating distance S_n : 13 mm
 - Assured switching distance – On S_{ao} : 10 mm
 - Assured switching distance – Off S_{ar} : 25 mm
 - Hysteresis: 2 mm
- Switch-off delay t_a : max. 100 ms + 7 ms/add. sensor
- Ready delay t_r : max. 2 s

SRF-0



SRF-0-18



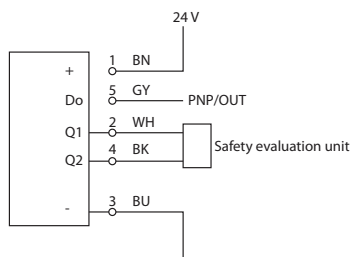
Smart Safety System

SRF RFID Non-Contact Safety Switches

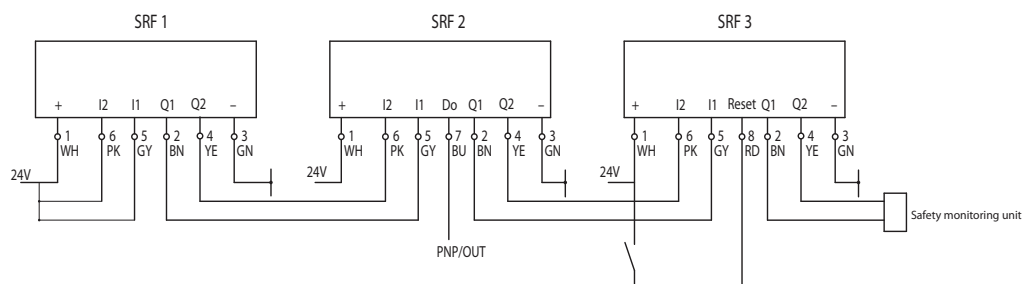
Additional Technical Information

Connection Diagrams

Single Connection



Series Connection



Call Altech for versions with local reset

Technical Information

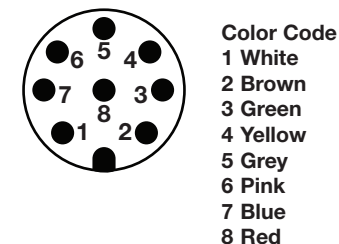
Electrical Data		Outputs Q1,Q2	
Rated supply voltage (Ue)	24 V (+25 %, -20 %)	Voltage level	to Type 3 EN 61131-2
Polarity	Reverse polarity protection	Switching element function	PNP NO
Rated isolation voltage (Ui)	75 V DC	Rated operating current (Ie)	100 mA
Rated impulse withstand (Uimp)	500 V	Leakage current (Ir)	≤ 1 mA DC
Rated conditional short-circuit current	100 A	Switching elements	Sustained short-circuit and overload protection
No-load current (Io)	≤ 50 mA	Voltage drop (Ud)	≤ 3 V
Transponder frequency	125 kHz	Type of short circuit protection	thermal / digital (clocking)
Repeatability (R)	0,1 x Sn	Utilization category	DC-13
Switching frequency	≤ 1 Hz	Output PNP/OUT	
Switch-off delay max (ta)	100 ms+7 ms x following SRF	Rated operating current (Ie)	10 mA
Time (tv)	max. 2 s	Switching elements	Sustained short-circuit and overload protection
EMC	to EN IEC 60947-5-3	Voltage drop (Ud)	≤ 3 V
	& EN 61326-3-1	Type of short circuit protection	current limited
Sensing distances (Only in conjunction with actuator SRF-0)		Mechanical Data	
Rated sensing distance (Sn)	Typical - 13 mm	Enclosure	PA66 + PA6, red
Assured sensing distance - ON (Sao)	Minimum - 10 mm	Tension relief	TPE black
Hysteresis (H)	Typical - 2 mm	Mounting	2 holes Ø 4,5 (for M4 screws)
Assured sensing distance - OFF (Sar)	Maximum - 25 mm	Indication	1xLED red/green operating state; 1xLED yellow actuating state
Safety data			
Up to PL (according to EN ISO 13849-1)	PL e	Shock and Vibration	according to EN IEC 60947-5-2
Category	4	Ambient temperature	-25 °C - +70 °C
PFHd (according to DIN EN 62061)	6 x 10 ⁻⁹ 1/h	Storage temperature	-25 °C - +70 °C
SIL CL	3	Maximum relative humidity	93 % at 40 °C without condensation
Service life	20 years	Altitude	≤ 2000 m NHN
		Protection type	IP69
		Protection class	III (according to EN IEC 61558)

Connector Types

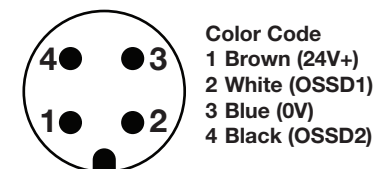
Single Connection From Sensor to Controller



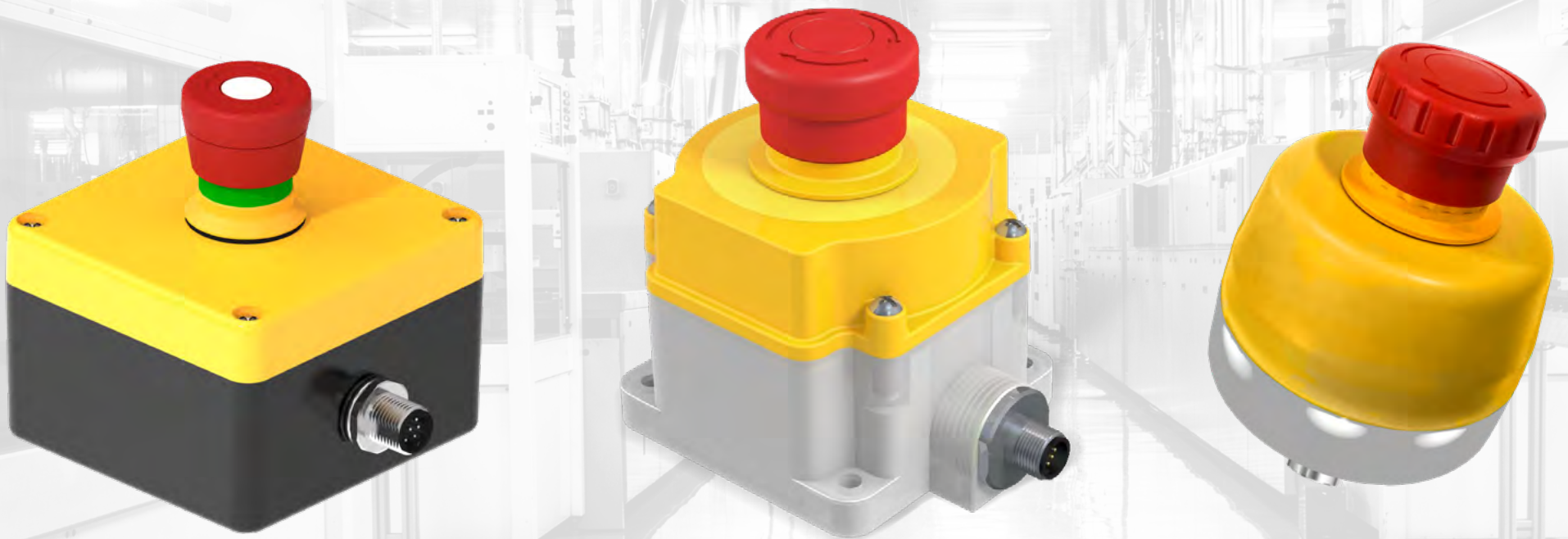
Series Connection From Sensor to Series Line



Series Connection Series Main Line

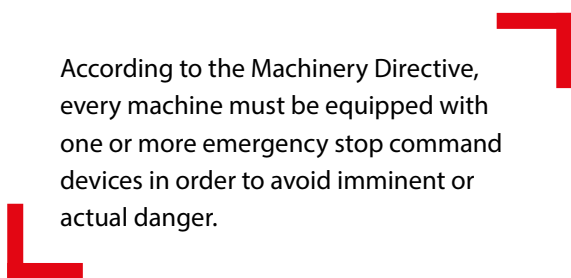


Emergency stop devices

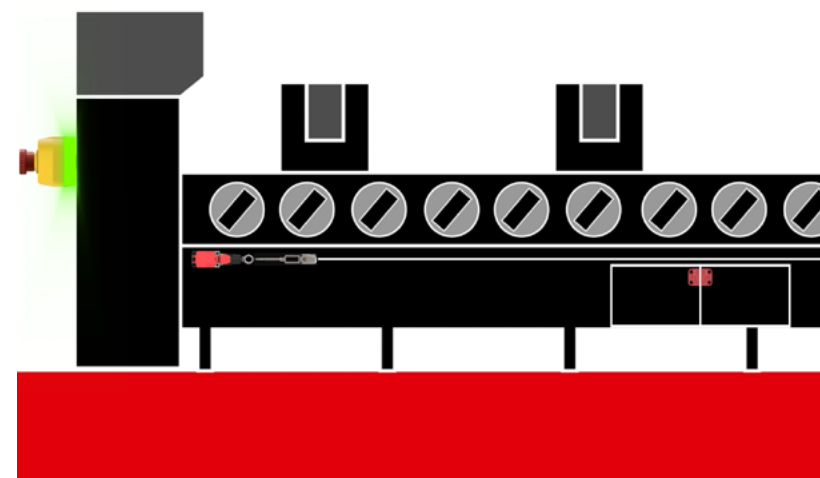


For switching off in dangerous situations

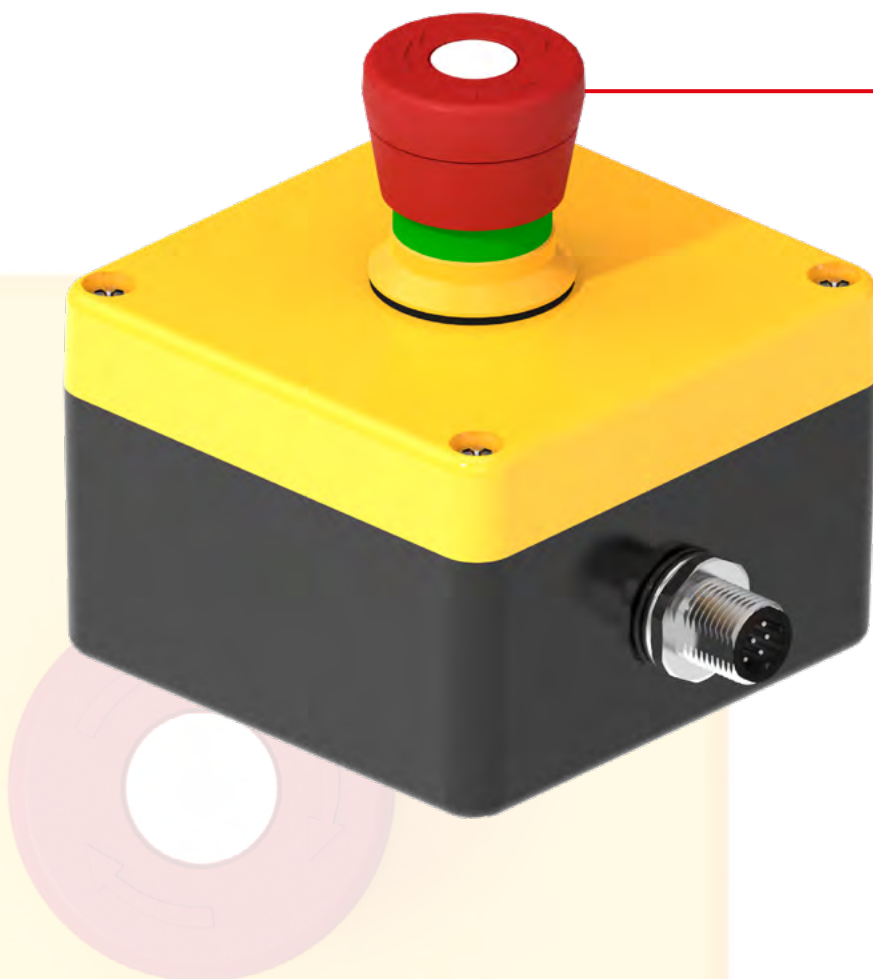
In modern industry, man and machine work closely alongside and with each other. Above all, the safety of the employees must be guaranteed at all times. The integrity of the plant and the material are also important criteria, however. For this reason, every system must be equipped with an emergency stop in accordance with the Machinery Directive. BERNSTEIN offers the right emergency stop solution and emergency stop relay for every complexity, size and environment of your system to prevent injury to people and damage to machines and materials in an emergency.

A red L-shaped graphic element, consisting of two perpendicular lines of equal length, positioned to the left of the text.

According to the Machinery Directive, every machine must be equipped with one or more emergency stop command devices in order to avoid imminent or actual danger.



Emergency stop SEU 2 (with OSSD output)



MANY BENEFITS AT A GLANCE

- Simple integration of the emergency stop into the sensor chain via M12 plug connection
- Diagnostic information of each emergency stop device available
- Identification of whether the switch-off signal was triggered by the emergency stop or the door monitoring system
- Monitoring of compliance with test cycles for emergency stop possible
- TR 24119 (error masking) does not have to be taken into account
- Saving of a safe input or safety relay

Technical data

Electrical data

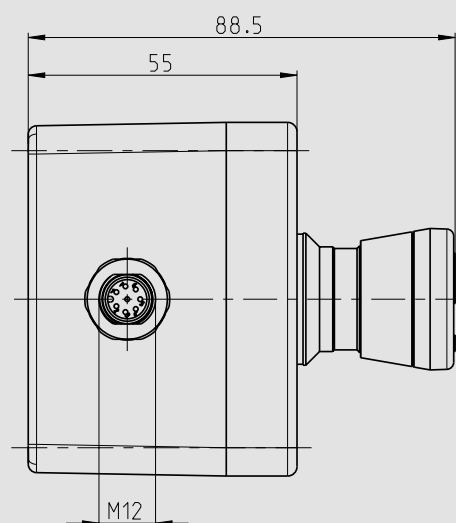
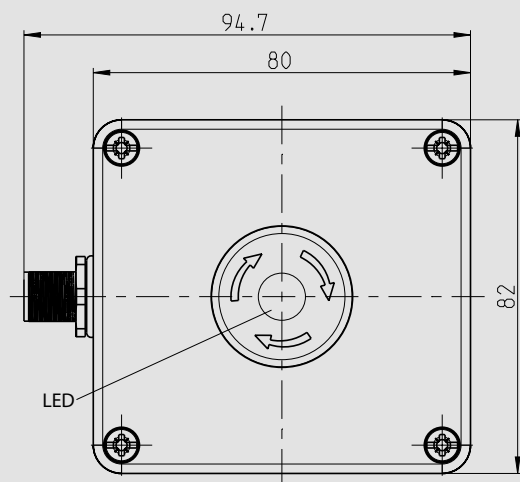
Rated operating voltage	U_e	24 V DC
Output current per signalling output	I_e	10 mA
Output current of the safety outputs (OSSD)	I_e	100 mA

Mechanical data

Enclosure material	Polycarbonate
Ambient temperature	-25°C to +70°C
Protection class	IP65

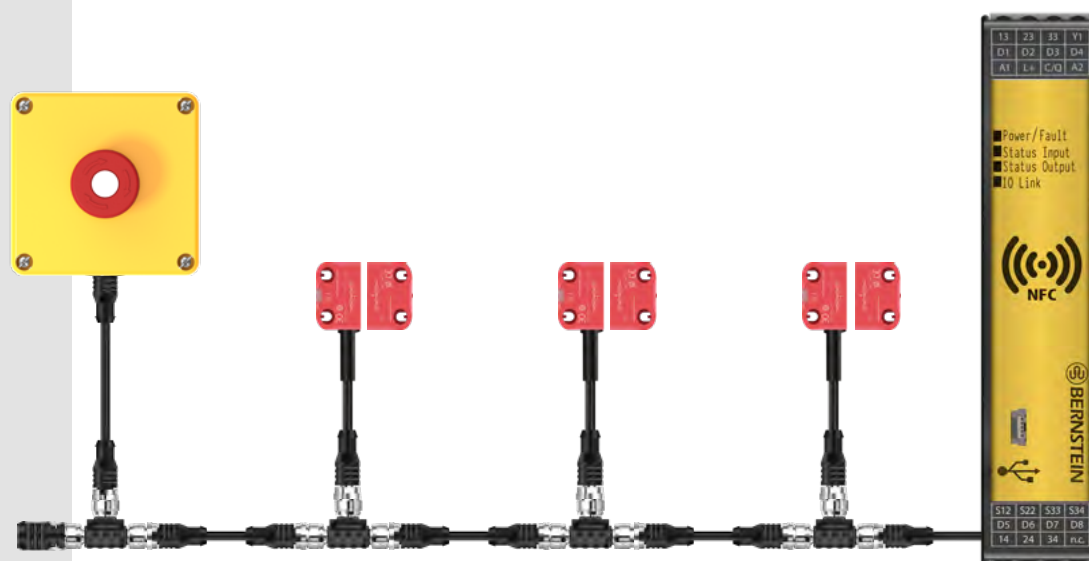
ID for safety engineering

up to PL e/Cat. 4 (according to EN ISO 13849-1)
up to SIL CL 3 (according to DIN EN 62061)

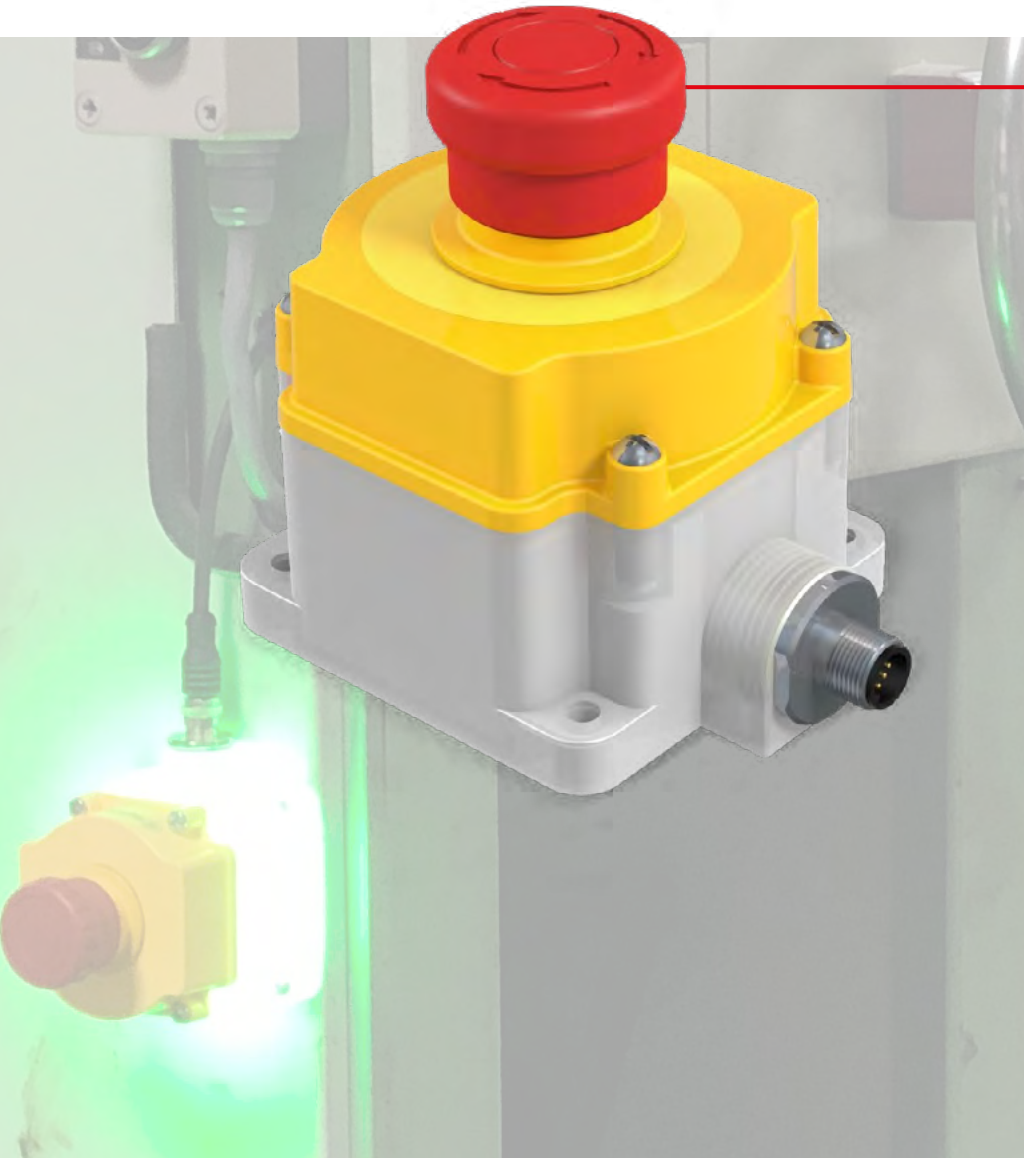


Product selection

Article number	Designation	Description
6075689138	SEU-2/0-P80-C	Emergency Stop Switch



Illuminated emergency stop SEU 3 (with OSSD output)



MANY BENEFITS AT A GLANCE

- Highly visible status display thanks to large LED display
- Full diagnostic capabilities thanks to patented BERNSTEIN DCD technology
- Easy wiring thanks to integrated M12 connector

Technical data

Electrical data

Rated operating voltage U_e 24 V DC

Mechanical data

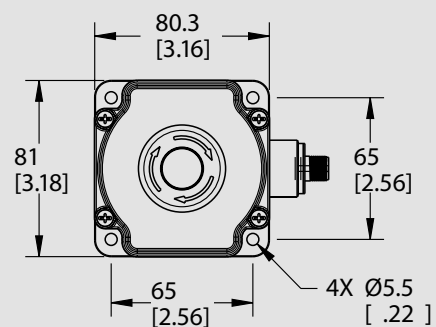
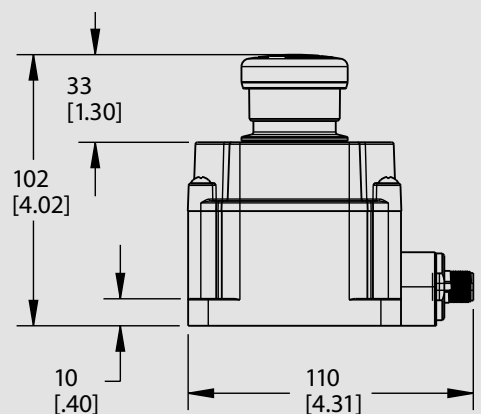
Material enclosure/push button Polycarbonate/Polyamide

Ambient temperature -25°C to $+50^{\circ}\text{C}$

Protection class IP65/with WDC IP67/IP69 (EN 60529)

ID for safety engineering

up to PL e/Cat. 4 and SIL CL 3



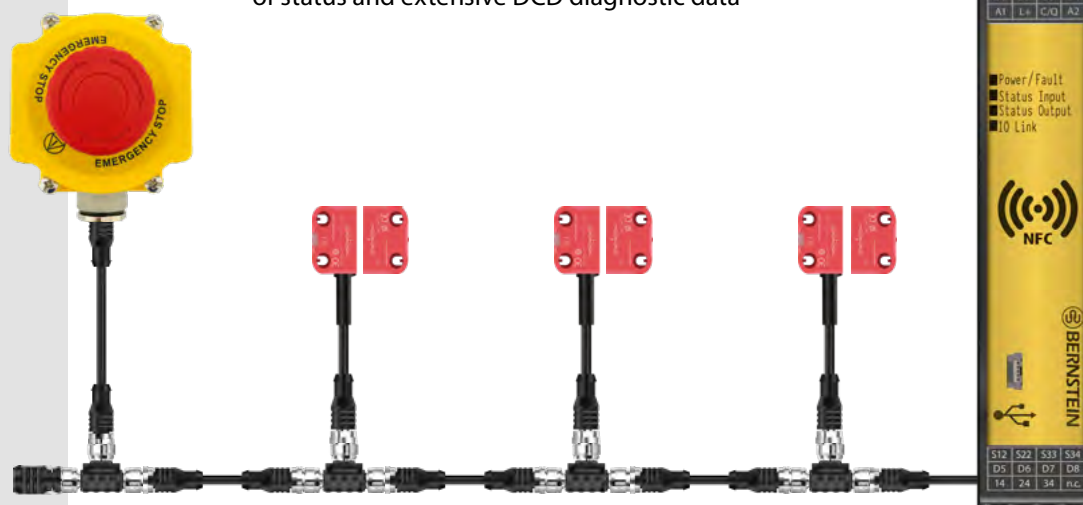
Product selection

Article number	Designation	Reset function	Illumination colour *
6075689169	SEU-3/0/3-P81-C	No	Yellow/Red
6075689170	SEU-3/0/1-P81-C	No	Off/Red
6075689171 ¹	SEU-3/0/2-P81-C ¹	No	Green/Red
6075689175	SEU-3/3/3-P81-C	Yes	Yellow/Red
6075689176	SEU-3/3/1-P81-C	Yes	Off/Red
6075689177 ¹	SEU-3/3/2-P81-C ¹	Yes	Green/Red

* The first colour indicates the unactuated emergency stop and the second colour the actuated emergency stop.
¹ Goods in stock: Article immediately available



- Reduction of downtime thanks to easy identification of status and extensive DCD diagnostic data



Illuminated emergency stop SEU 4 (with OSSD output)



MANY BENEFITS AT A GLANCE

- Highly visible status display thanks to large LED display
- Full diagnostic capabilities thanks to patented BERNSTEIN DCD technology
- Easy wiring thanks to integrated M12 connector

Technical data

Electrical data

Rated operating voltage U_e 24 V DC

Mechanical data

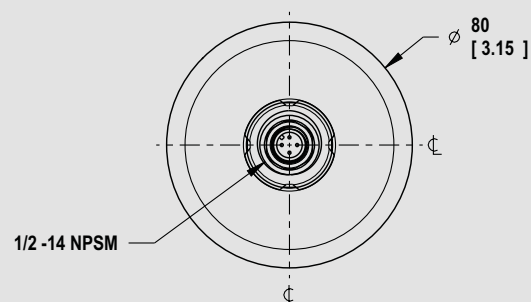
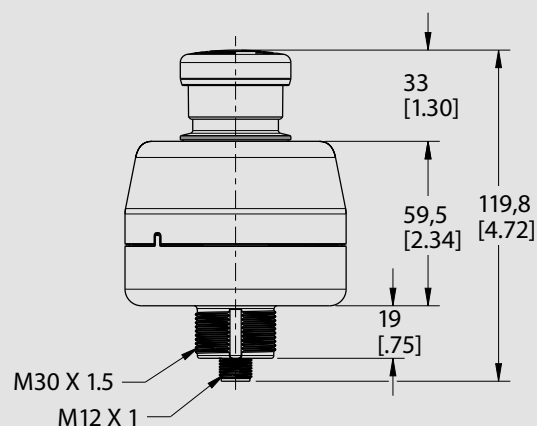
Material enclosure/push button Polycarbonate/Polyamide

Ambient temperature -25°C to $+50^{\circ}\text{C}$

Protection class IP65/with WDC IP67/IP69 (EN 60529)

ID for safety engineering

up to PL e/Cat. 4 and SIL CL 3



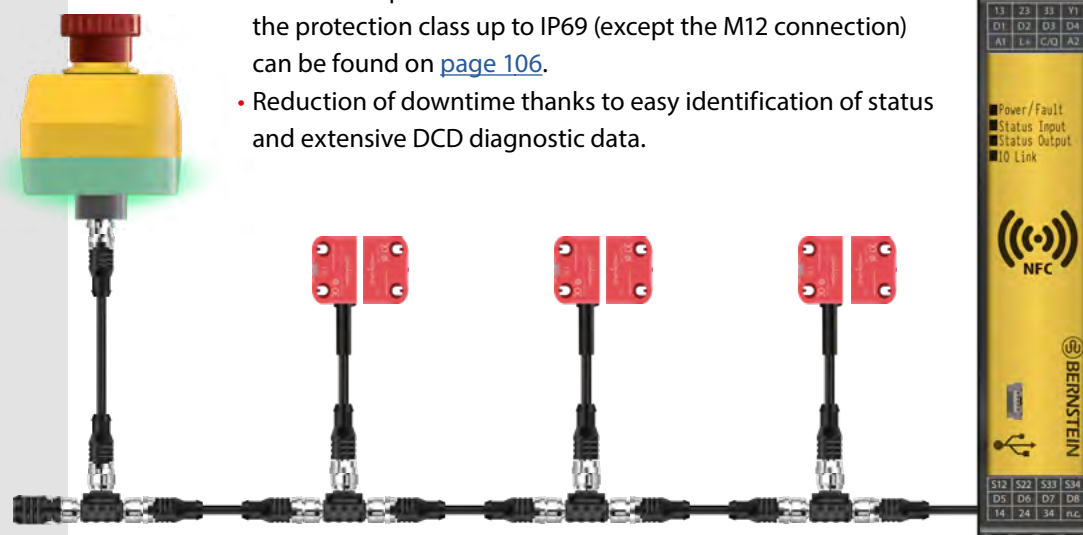
Product selection

Article number	Designation	Reset function	Illumination colour *
6075689166	SEU-4/0/3-P86-C	No	Yellow/Red
6075689167	SEU-4/0/1-P86-C	No	Off/Red
6075689168 ¹	SEU-4/0/2-P86-C ¹	No	Green/Red
6075689172	SEU-4/3/3-P86-C	Yes	Yellow/Red
6075689173	SEU-4/3/1-P86-C	Yes	Off/Red
6075689174 ¹	SEU-4/3/2-P86-C ¹	Yes	Green/Red

* The first colour indicates the unactuated emergency stop and the second colour the actuated emergency stop.
¹ Goods in stock: Article immediately available



- The silicone protective cover "Washdown Cover" to increase the protection class up to IP69 (except the M12 connection) can be found on [page 106](#).
- Reduction of downtime thanks to easy identification of status and extensive DCD diagnostic data.



Accessories
SEU



Mounting bracket and silicone protective cover

Article number	Designation	Description
6075689178 ¹	SEU-MB1H ¹	Emergency stop mounting bracket, metal, black
6075689179 ¹	SEU-MB1H-S ¹	Emergency stop mounting bracket, stainless steel
6075689182 ¹	SEU-WDC ¹	Silicone protective cover IP67/69 for SEU-4

1 Goods in stock: Article immediately available



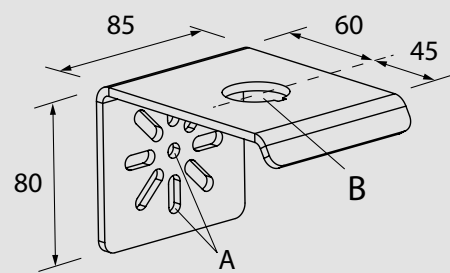
Mounting bracket,
Metal, black



Mounting bracket,
Stainless steel



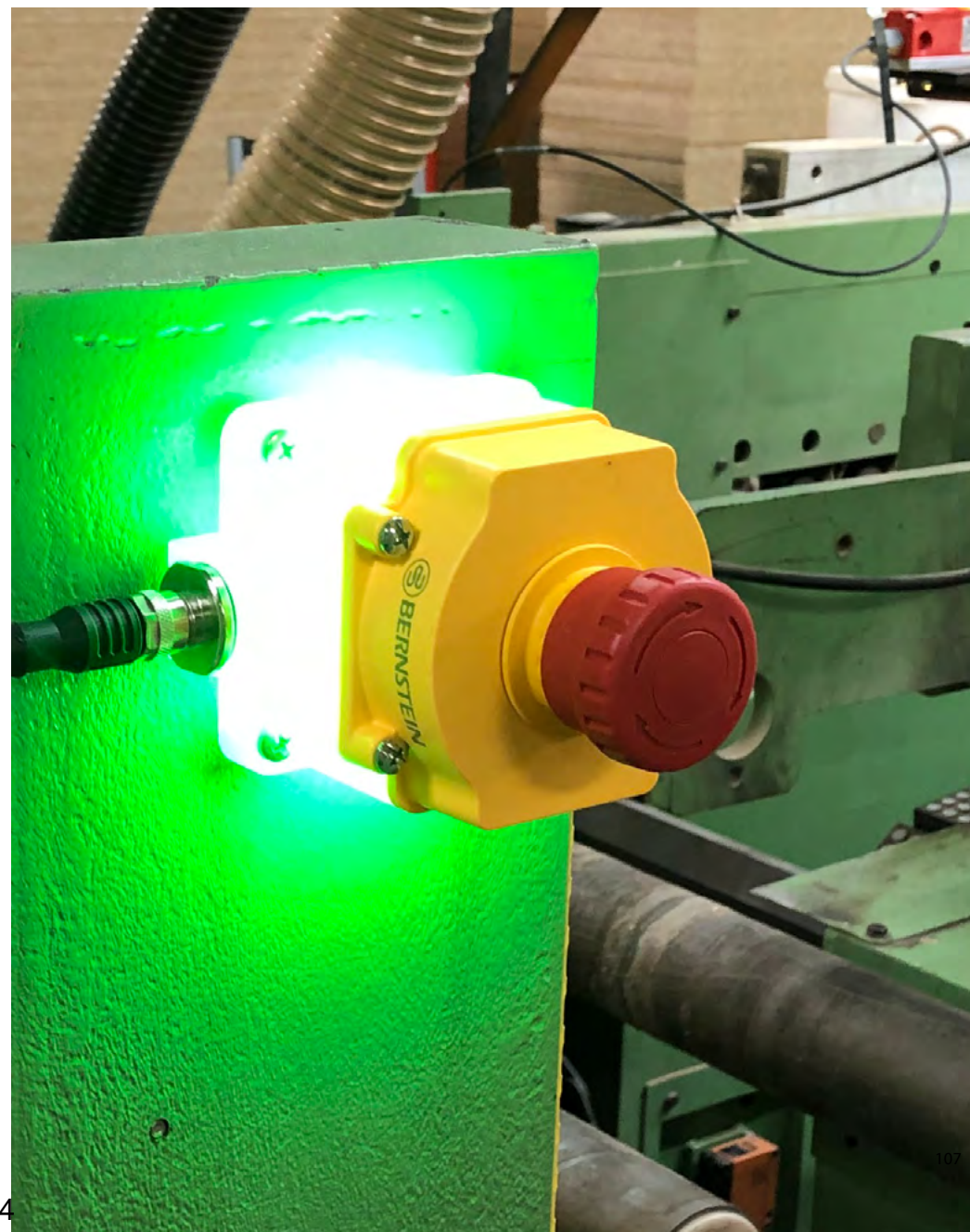
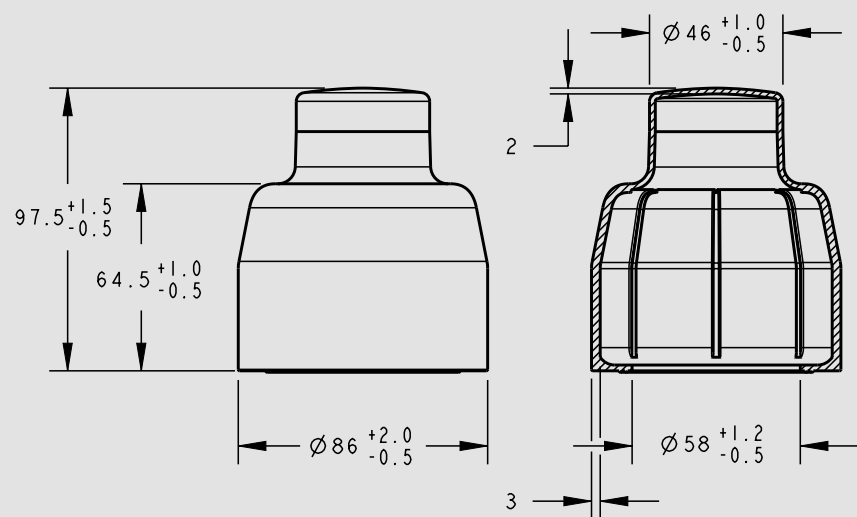
Silicone protective cover
SEU-WDC



Mounting bracket

SEU-MB1H ...

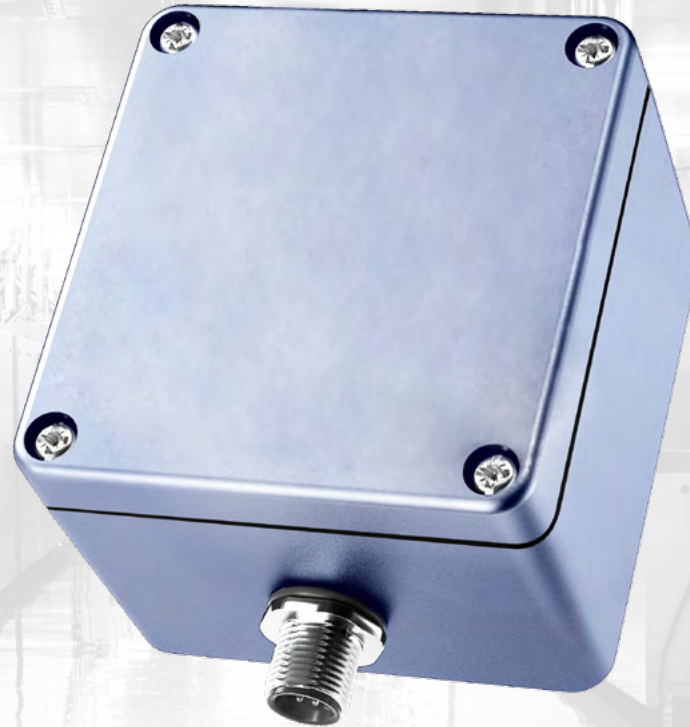
Dimensions: A= Ø 7mm, B= Ø 30 mm



DCD Interfaces



Page 110



Page 112

For the integration of mechanical switches in a series connection

The connection interfaces are used to integrate mechanical switches, such as common emergency stop switches, in a series connection with SRF sensors or SEU emergency stop devices.

Furthermore, DCD diagnostic information is also provided for the connected switch and offers the advantage of fast fault detection and “predictive maintenance” for the mechanical switch as well.

Furthermore, when using the connection interfaces, even in the case of several mechanical switches in a series connection, the problem of error masking ([see page 8](#)) is solved and does not need to be considered further.



The smart T-adapter



MANY BENEFITS AT A GLANCE

- Saving of components
- Possible series connection to reduce the number of safety relays
- Diagnostic data is provided, enabling rapid commissioning and troubleshooting
- Significantly smaller and thus well suited for concealed installation
- Standard T-adapter not required

Technical data

Electrical data

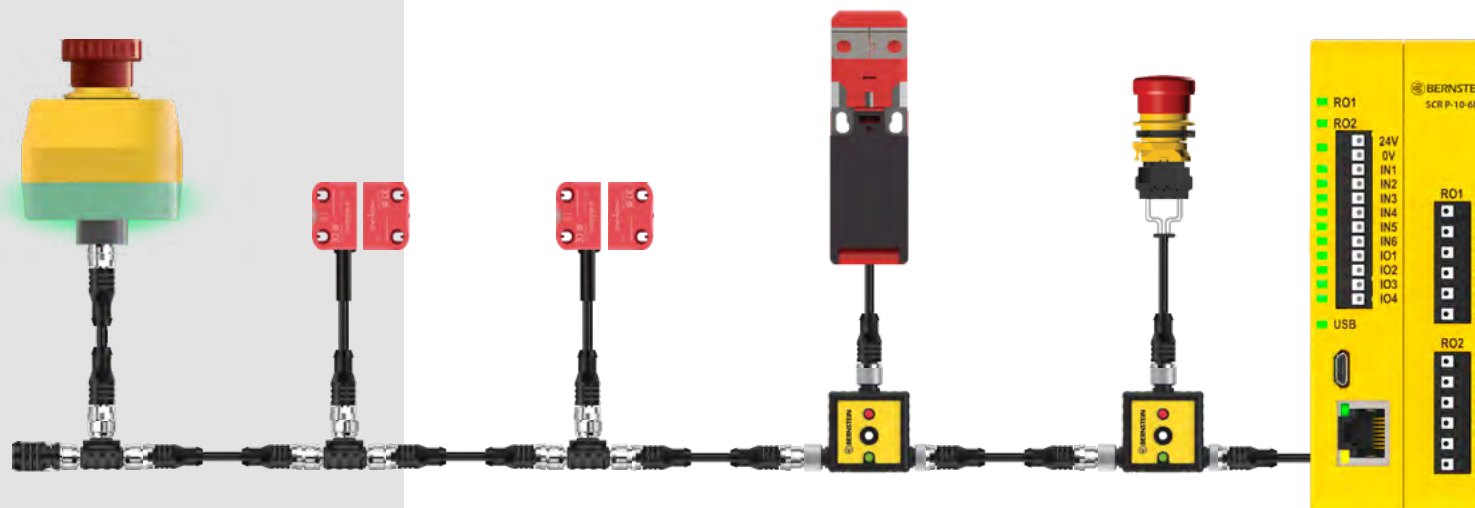
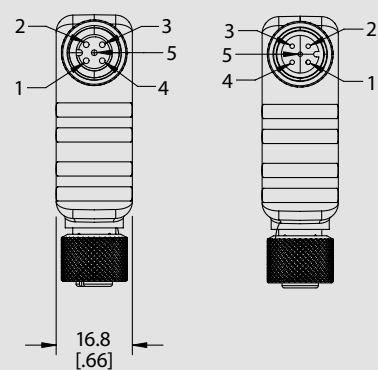
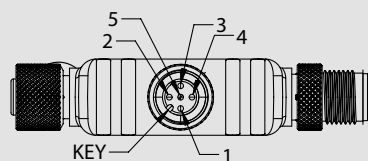
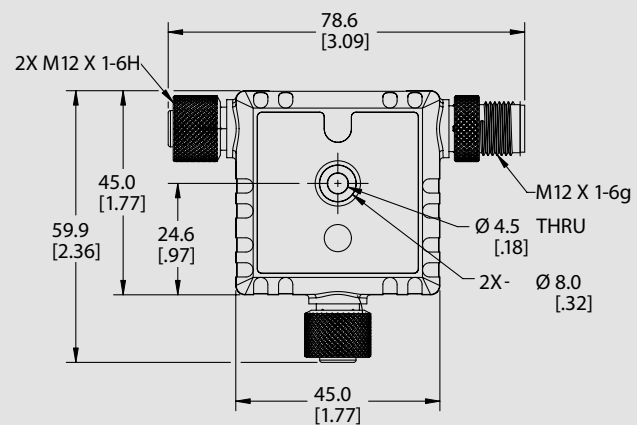
Rated operating voltage	U_e	24 V DC
Output current of the safety outputs	I_e	100 mA

Mechanical data

Enclosure material	polyvinyl chloride (PVC), black
Ambient temperature	-25°C to + 55°C
Protection class	IP67

ID for safety engineering

up to PL e/Cat. 4 (according to EN ISO 13849-1)
up to SIL CL 3 (according to DIN EN 62061)
PFHD = 6.56×10^{-9} 1/h
Service life: 20 years



Product selection

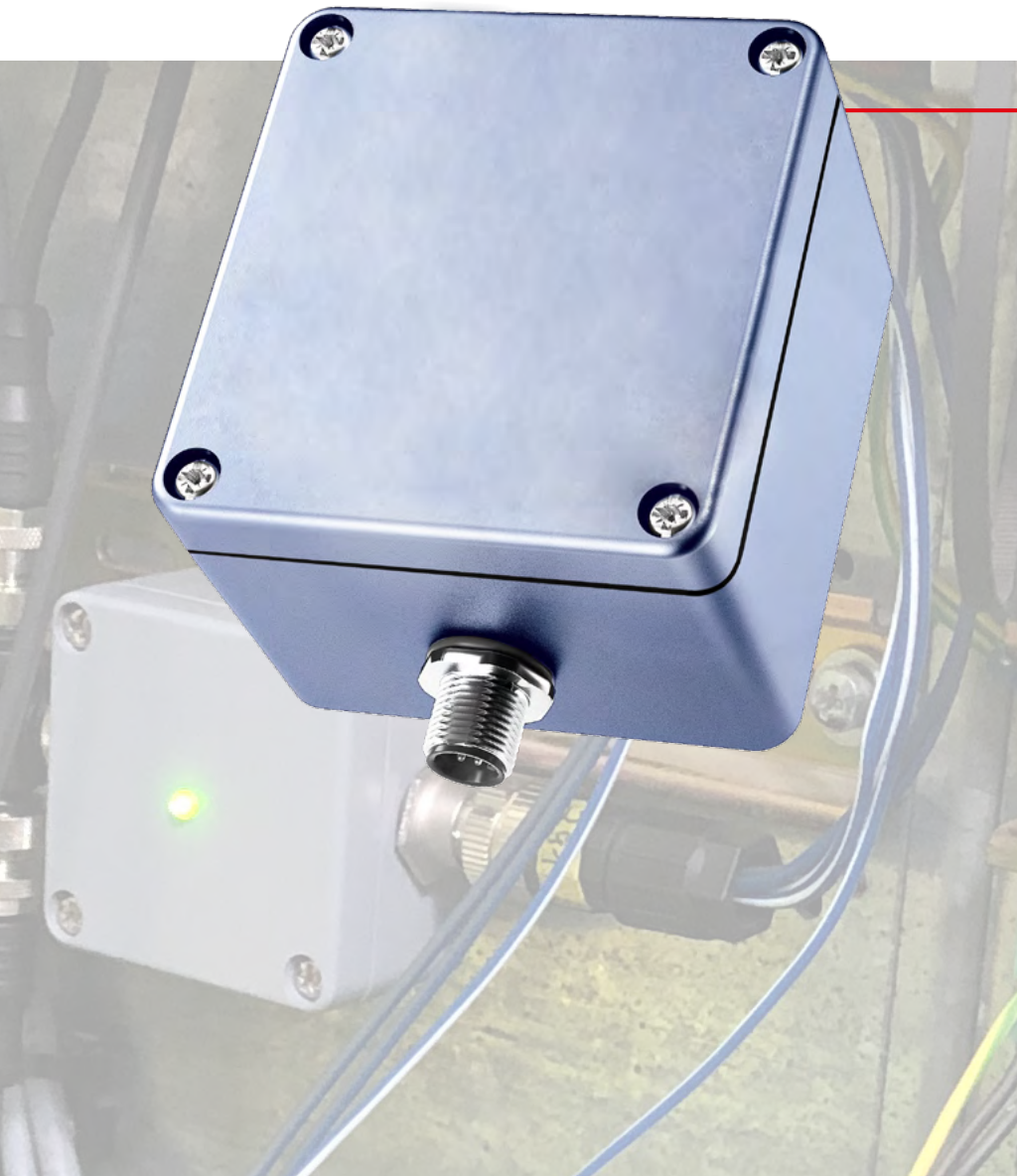
Article number	Designation	Connection for input devices					
		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Display
6075689191	SEU-1/0-T45-C-X-AB	CH1a	CH1b	-	CH2a	CH2b	Green/Red



Optionen

- You will find single-ended and double-ended cordsets under accessories ([from page 148](#))

The connection box SEU 1



MANY BENEFITS AT A GLANCE

- Easy integration of electromechanical safety switches into the sensor chain via the connection box via M12 plug connection
- Diagnostic information of each connected safety switch available
- Saving of a safe input or a safety relay by integration into the sensor chain

Technical data

Electrical data

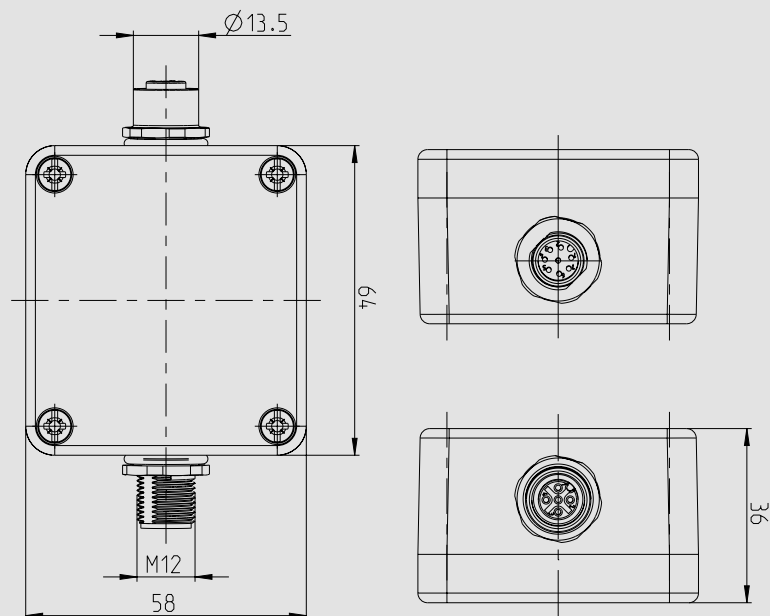
Rated operating voltage	U_e	24 V DC
Output current per message output	I_e	10 mA
Output current of the safety outputs	I_e	100 mA

Mechanical data

Enclosure material:	Die-cast aluminium
Ambient temperature	-25°C to +70°C
Protection class	IP67

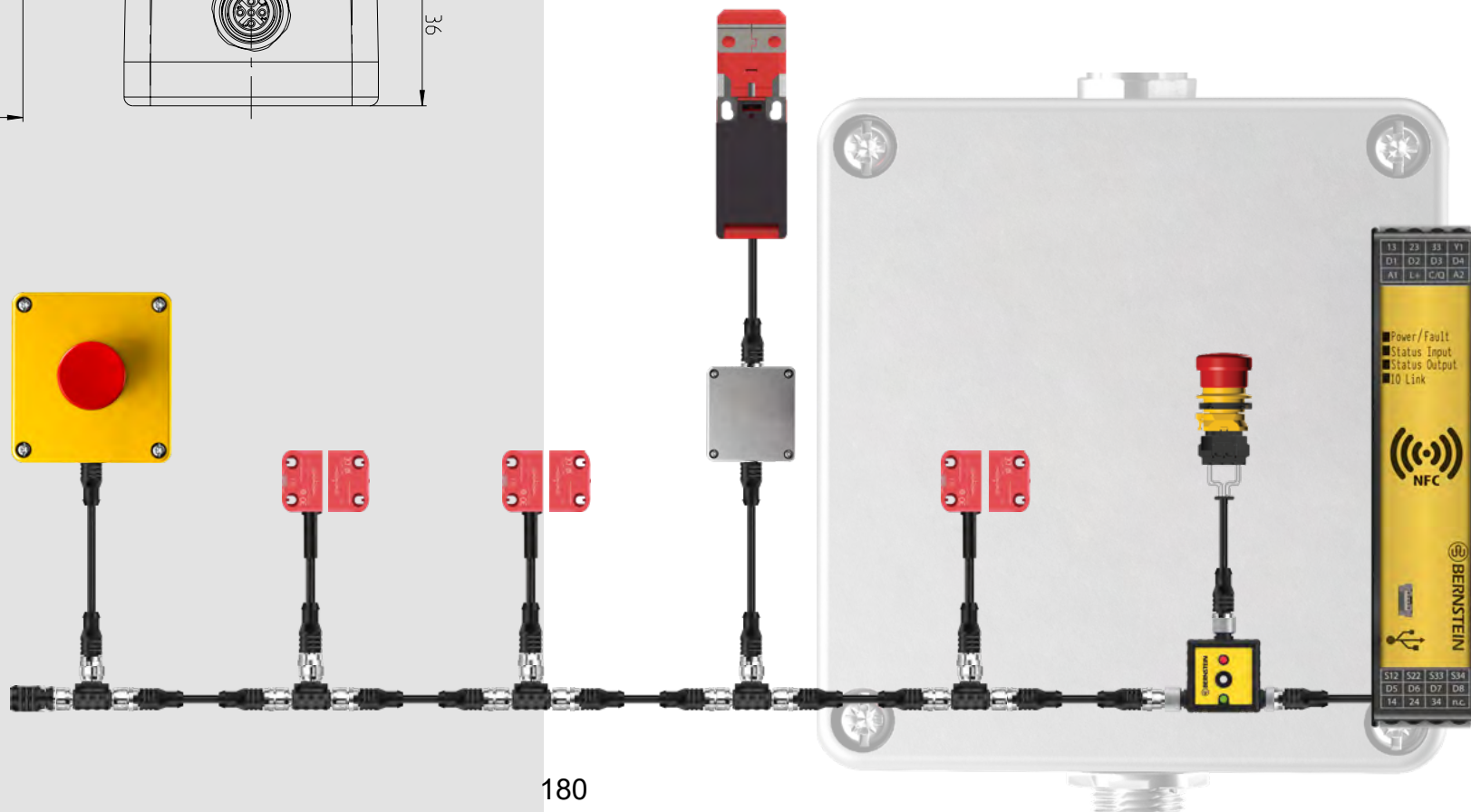
ID for safety engineering

up to PL e/Cat. 4 (according to EN ISO 13849-1)
up to SIL CL 3 (according to DIN EN 62061)



Product selection

Article number	Designation	Description
6075689137	SEU-1/0-M64-C	Connection box
6075689163	SEU-1/0-M64-C	Connection box with LED display



Smart Safety System

Simple Safety Relay for OSSD

SCR-0N4

OSSD Safety Relay

Simple safety, without diagnostics
Basic safety relay for monitoring
two OSSD inputs, manual or auto
restart with 3 N/C Output Contacts



Part Number - 607.5111.020

Description - SCR-ON4-W22-3.6-S

A1, A2 connection operation voltage
13-14, 23-24, 33-34 safety circuits (N.O.)
Y1-Y2 START-button
S12, S22 inputs for the ESPE outputs
BR1-BR2 bridge over BR1 and BR2 enables automatic START
.

Electrical Data

Supply voltage	U_e	24 V DC
Voltage range		0,9 ... 1,1 U_e
Power consumption appr.		2,5 W
Inrush current S12, S22		390 mA
Permanent current S12, S22		20 mA

Conductor data

conductor connection	2 x 2,5 mm ² solid wire 2 x 1,0 mm ² strand with wire end ferrule DIN VDE 46228
Max. conductor length (input circuit)	100 m each conductor
Conductor cross-section	2 x 1,5 mm ²
Capacity	150 nF/km
Resistance	11,7 Ohm/km

Contact data

Contact configuration	3 N.O. contacts
Contact type	Relay forcibly guided contacts
Contact material	AgSnO ₂ flash gold or comparable material
Switching voltage	24 V DC
Switching current	max. 6 A over 3 contacts
Utilization category	AC 15, U_e/I_e 230 / 240 V / 3 A DC 13, U_e/I_e 24 V / 2,5 A
Max. switching capacity	1500 VA (ohms load)
Mechanical life	10 ⁷ operations
Electrical life	10 ⁵ operations (DC 24V/2A)
Creepage and clearance distances (DIN VDE 0160)	at pollution grade 2 Basis insulation: voltage category 3 Protective separation: voltage category 2
Contact protection	6,3 A brisk or 4 A inert DIN VDE 0660 part 200
Voltage on S11	24 V DC
Delay on deenergisation K1	< 30 ms

Mechanical data

Enclosure material	Polyamide PA 6.6
Dimensions (W x H x D) in mm	22,5 x 114,5 x 99
Mounting	Click-fastening for DIN-Rail

Smart Safety System Safety Relay with I/O Link, NFC and USB 2.0

OSSD Safety/ Diagnostics Relay

Safety with diagnostics including
interface to I/O Link, Near Field
Communication and USB 2.0



Features

- Safety monitoring, diagnostics and IO-Link communication in one device
- Saves space in the control cabinet thanks to slim design
- Provides all relevant information of each device in the chain and delivers available data
- Permanent exchange of all data
- Three enabling paths
- Category 4 / PL e according to EN ISO 13849-1
- Safety monitoring module for OSSD signals
- Simple and fast retrieval of diagnostic information via smartphone with NFC
- Time and cost savings during commissioning, maintenance and troubleshooting
- Transmission of DCD diagnostic data via IO-Link
- Three devices combined in one:
 - Diagnostic device
 - Safety controller
 - IO-Link device

AC 15: 230 V / 5 A
DC 13: 24 V / 5 A
3 N.O.
Output function: Series connection of 2 forcibly guided relays
Contact rating: 5 A / 250 V AC, 2 A / 250 V DC, 2 μm Au

		Enabling paths	Interfaces Signalling contact Feedback loop	Digital outputs	Automatic/ manual reset	IO-link	NFC	USB 2.0
6075113139	SCR DI-1/0/3-T	3	1	-	Auto/button	x	-	-
6075113140	SCR DI-1/8/3-T	3	1	8	Auto/button	x	-	-
6075113141	SCR DI-1/0/1-T	3	1	-	Auto/button	x	x	x

Smart Safety System

Diagnostics Only Modules



Cabinet module

- Rated operational voltage U_e : 24 V DC
- IO-Link protocol: V1.1
- Output current per signal output I_e : 50 mA
- Ambient temperature: 0 °C bis +60 °C
- Protection class: IP20



Field module

- Rated operational voltage U_e : 24 V DC
- IO-Link protocol: V1.1
- Ambient temperature: -25 °C to +70 °C
- Protection class: IP69

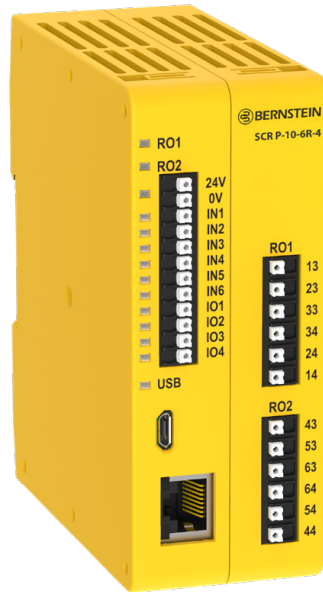


Article number	Designation	Enclosures	Number of diagnostic circuits	Digital outputs	Interfaces		
					IO-Link	NFC	USB 2.0
6075619122	SRF DI-C-0/1-T	DIN rail housing 22.5 mm	1	-	x	x	x
6075619123	SRF DI-C-8/1-T	DIN rail housing 22.5 mm	1	8	x	x	x
6075619124	SRF DI-C-16/1-T	DIN rail housing 22.5 mm	1	16	x	x	x
6075619125	SRF DI6-C-0/1-T	DIN rail housing 22.5 mm	6	-	x	x	x
6075689126	SRF DI-F-0/2-E0,25	Rectangular sensor enclosure (field device)	1	-	x	x	

Smart Safety System

Programmable Safety Controller

SCR-P



MANY ADVANTAGES AT A GLANCE

- Reduction of downtimes
- Reduce hardware costs
- Quick and simple configuration
- Testing the configuration in simulation mode
- Simple troubleshooting in live mode
- Configuration cloning via programming flash drive

VARIOUS APPLICATION POSSIBILITIES



HIGHLIGHTS

- Provision of DCD diagnostic data via selectable Ethernet protocols
- Two independent enabling paths
- Intuitive user interface
- Simple program creation via Drag & Drop
- Live and simulation mode



Smart Safety System

Programmable Safety Controller

SCR-P

Definitely the right solution.

Innovative all-rounder

The programmable safety controller of the SCR P series is a smart alternative to the classic safety relays. Due to its multitude of applications it can replace various safety relay modules. This saves not only costs but also time, wiring effort and space. Up to 5 possible safety circuits with a max. of PL e, thereof 2 circuits with innovative DCD diagnostics allow logical connections to distinctively shutdown certain parts of a machine. Extensive diagnostic information can be retrieved via the Ethernet interface.

Versatile I/O capabilities

The SCR P offers 10 safe inputs: 4 of them can be converted into non-safe outputs by software. A total of 4 inputs are available for the patented DCD diagnostic system. This allows up to 64 DCD devices can be connected. The two 2-channel relay outputs, each with a switching capacity of 6 amps, enable independent safety circuits to be implemented with just one controller.

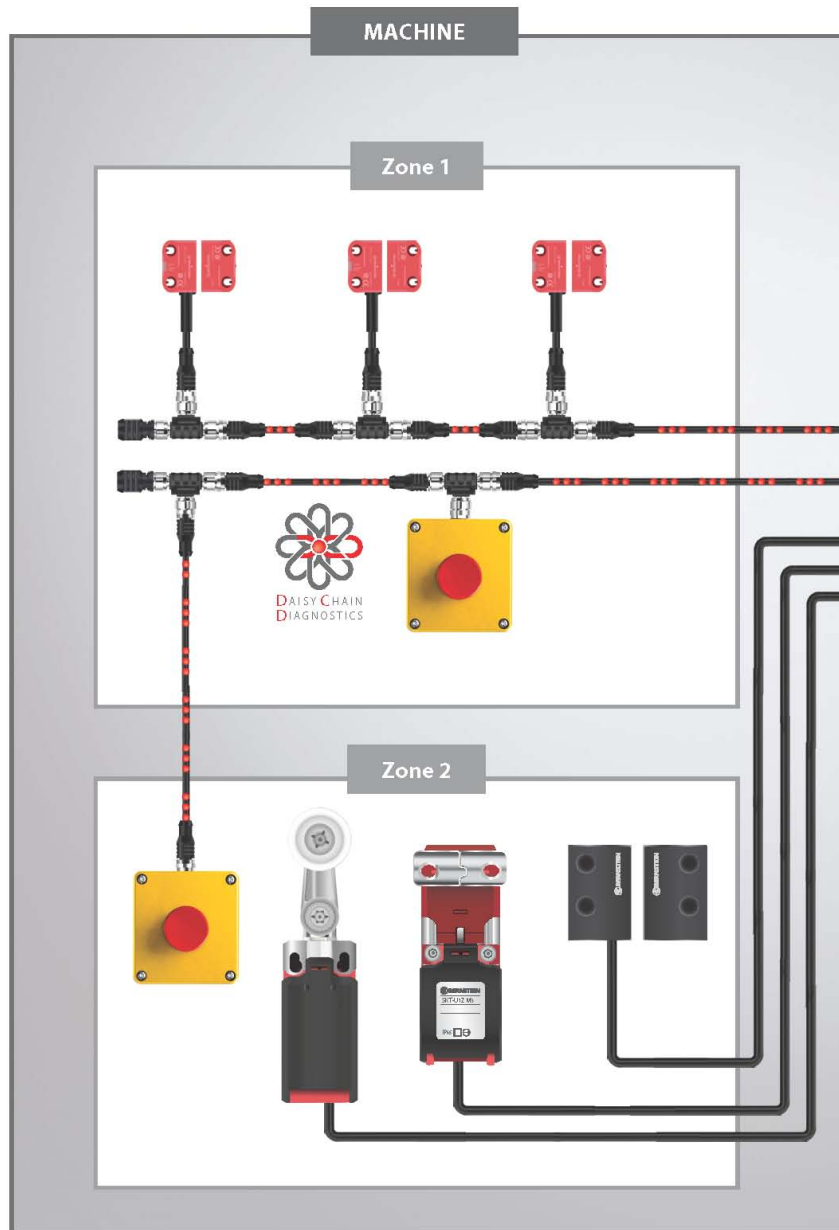
(Software with) Intuitive Look & Feel

The icon-based Drag & Drop user interface of the free programming software from BERNSTEIN simplifies the configuration of a safety function. The software automatically generates logic and circuit diagrams for the necessary documentation. Users can test configurations in simulation mode before implementation – thus reducing the risk of errors. In case wiring faults have occurred, they can be quickly identified in the live mode of the software.

Smart Safety System

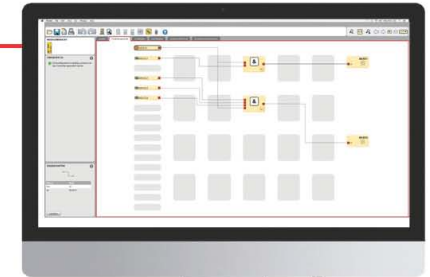
Programable Safety Controller

SCR-P



Easy to use

- Certified function blocks
- Intuitive program creation by Drag & Drop
- Automatic prevention of incorrect connections
- Integrated simulator for test configuration
- Free configuration software



DCD Diagnostics

The SCR P can be used to connect two DCD safety circuits with up to 32 BERNSTEIN SMART Safety devices each. With the aid of the DCD diagnostic system, each device in the chain transmits its diagnostic data. The SCR P receives this information and makes it available to the machine controller. This is done via a fieldbus protocol pre-configured in the software.



PROFI
NET

EtherNet/IP

Modbus

Four steps to PLC connection

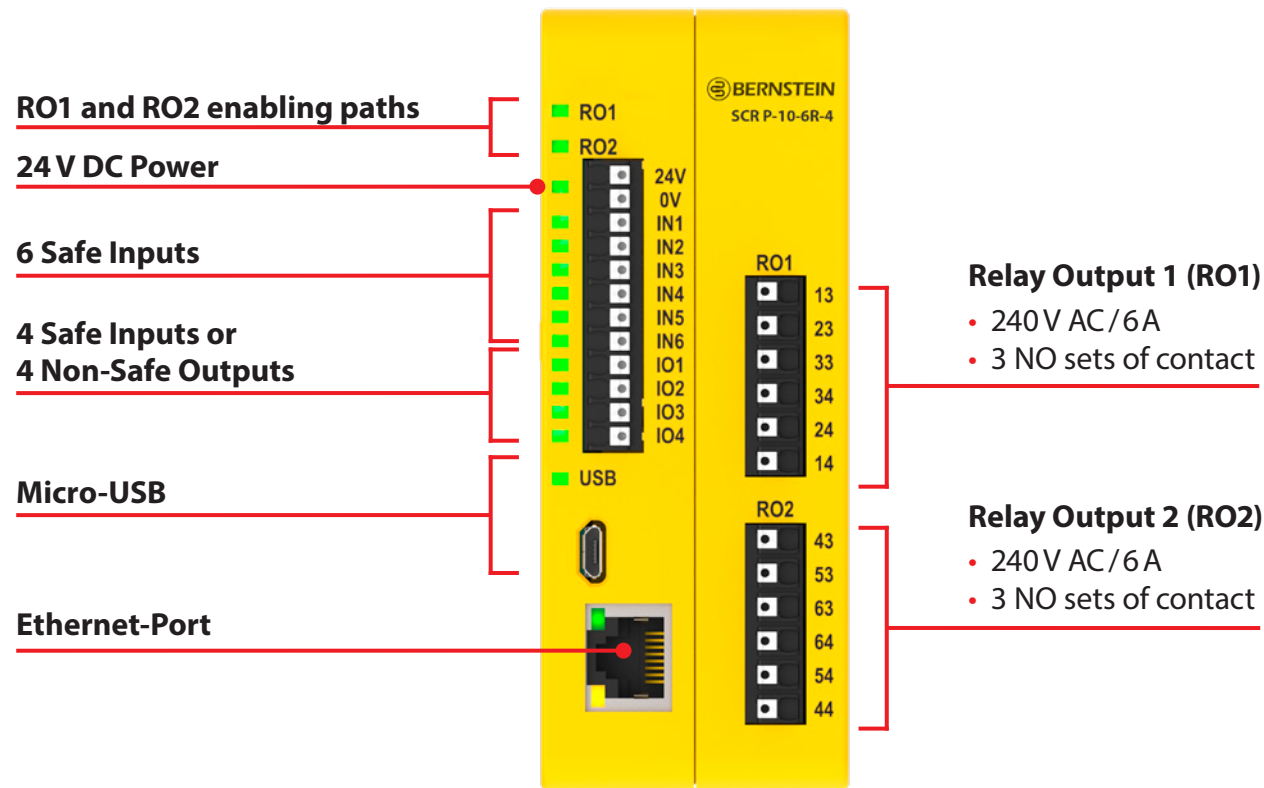
1. Create safety configuration
 2. Perform automatic interface configuration
 3. Establish hardware connection via selected fieldbus
 4. Integrate SCR P into the hardware configuration of the PLC using the device description file
- Ready! All information and diagnostic data are now available in the PLC.



Smart Safety System

Programable Safety Controller



SCR-P



Order

Product		
Article	Designation	Description
6075133159	SCR	Programmable

Accessoires

Product		
Article	Designation	Description
3991000251	USB-cable A/	
3991000252	Programming flash	
3991000250	USB-programming	