

machine safety

safety door monitoring

**SMART**

scalable

safe

emergency-stop device

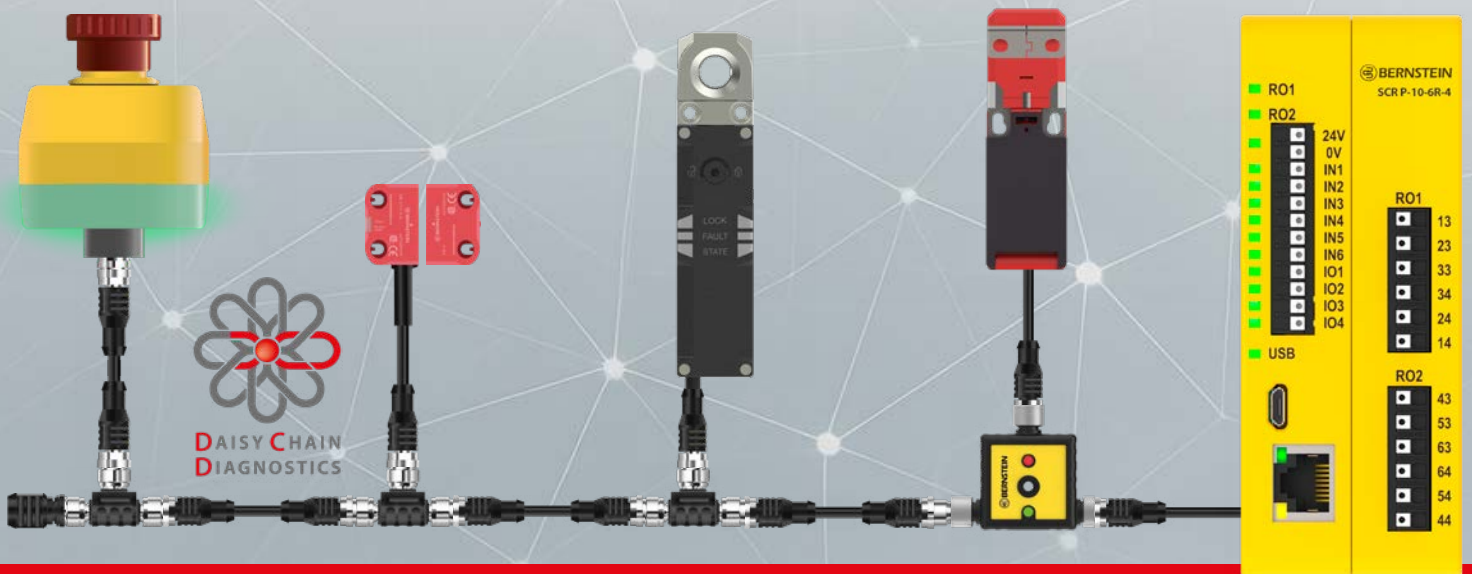
**guard locking**

control

series connection

mechanical

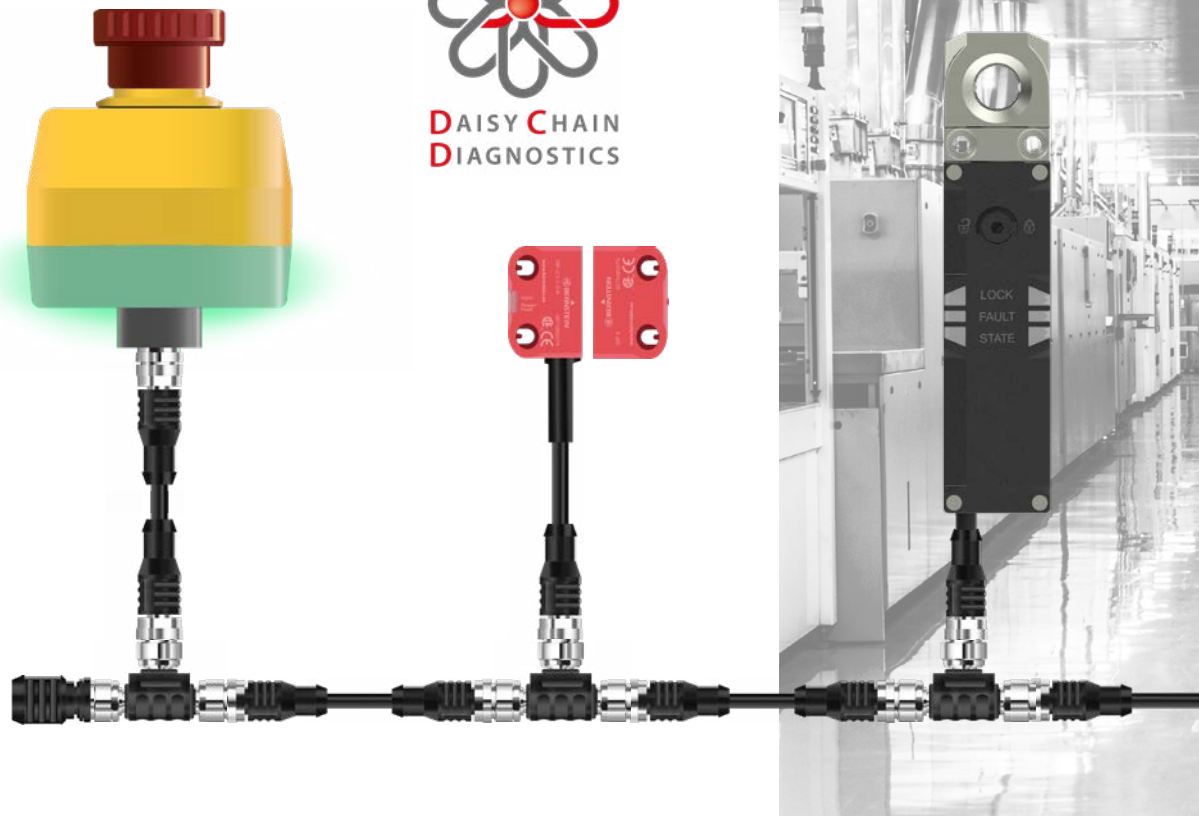
electronic



## **SMART Safety System**

Our solution for your machine safety

# Industry 4.0 in safety technology



## SMART Safety by BERNSTEIN

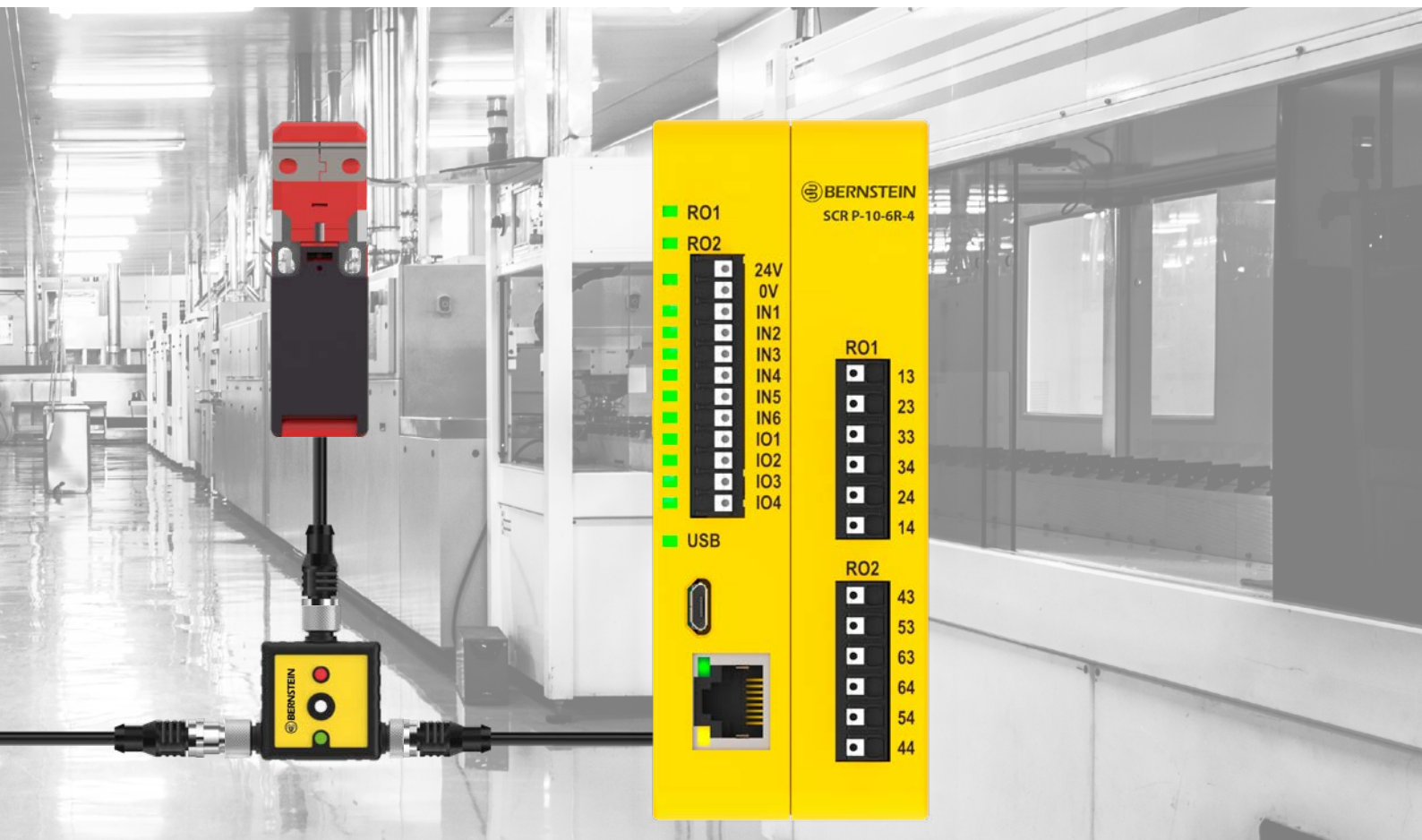
If a machine or system is equipped with BERNSTEIN **SRF safety sensors**, **SEU emergency stop switches** or **electronic safety lock switch SLO**, a series-switchable variant is very often selected in order to reduce the wiring effort and costs of the system. Together with the **SCR DI safety relays**, the **programmable SCR P variant**, or the **SCx safety controller**, BERNSTEIN provides the basis for a smart, complete system for safeguarding machines and systems: The SMART Safety System. During development, BERNSTEIN placed particular attention on the patented **DCD diagnostic system**, which provides comprehensive data of each connected unit.

BERNSTEIN has consistently developed this "SMART Safety System" and added further components.

In connection with the retrofit of older systems, for example, it is necessary to integrate the mechanical emergency stop devices that are often still present into the series connection. The **smart T-adapter** from BERNSTEIN solves this dilemma: it enables series connection to reduce the number of safety relays without having to comply with fault masking of DIN EN ISO14119. By the way, it also makes the mechanical emergency stop switch DCD-capable.

We see ourselves as a solution provider and provide you with scalable electronic security solutions.

Contact us and ask your questions.  
We will be happy to advise you.



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# Diagnostic system DCD

The Daisy Chain Diagnostics system (DCD) provides a wide range of information that helps to increase the efficiency of machines and installations.

The DCD system is supported by the SLO guard locking, the sensors (SRF-5), the emergency stop devices, the connection boxes (SEU) an smart T-adapter as well as the safety relays SCR DI, SCR P and SCx. The data of each device is collected in the SCR DI, SCR P or in stand-alone diagnostic devices SRF DI. Depending on the device, different data are available. They can be output via different interfaces:

- IO-Link, profinet, ethernet/IP or Modbus/TCP and EtherCAT to a control unit
- USB to a laptop
- NFC to a smartphone



Information	Sensors SRF-5	Emergency stop and smart T-adapter	SLO	SCR DI
Actuator detected	x		x	
Incorrect actuator	x		x	
Actuator code not taught in	x			
Actuator at the edge of the detection range	x			
Safety input 1	x	x	x	x
Safety input 2	x	x	x	x
Safety output 1	x	x	x	
Safety output 2	x	x	x	
Safety contact input 1		x		
Safety contact input 2		x	x	
Guard locking control 1			x	
Guard locking control 2			x	
Local reset expected	x	x	x	x
Global reset expected			x	
Guard locking status			x	
Lockout Tagout			x	
Operating voltage warning	x	x	x	x
Operating voltage 24 V	x	x	x	x
Status Safe relay output				x
Status internal feedback loop				x
Status EDM				x
Sensor functions	x		x	x
Number of remaining actuator teach-in operations	x			
Received actuator code	x		x	
Saved actuator code	x		x	
Time Actuator in detection limit	x			
Output fault Switch-off time	x	x	x	x
Device temperature	x	x	x	
Current supply voltage	x	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!



Go to the download area of the SRF IODD as well as the SRF diagnosis as an app or PC software under the tab "Software".

## Diagnostic data of the fault memory

here at the example of a SRF-5

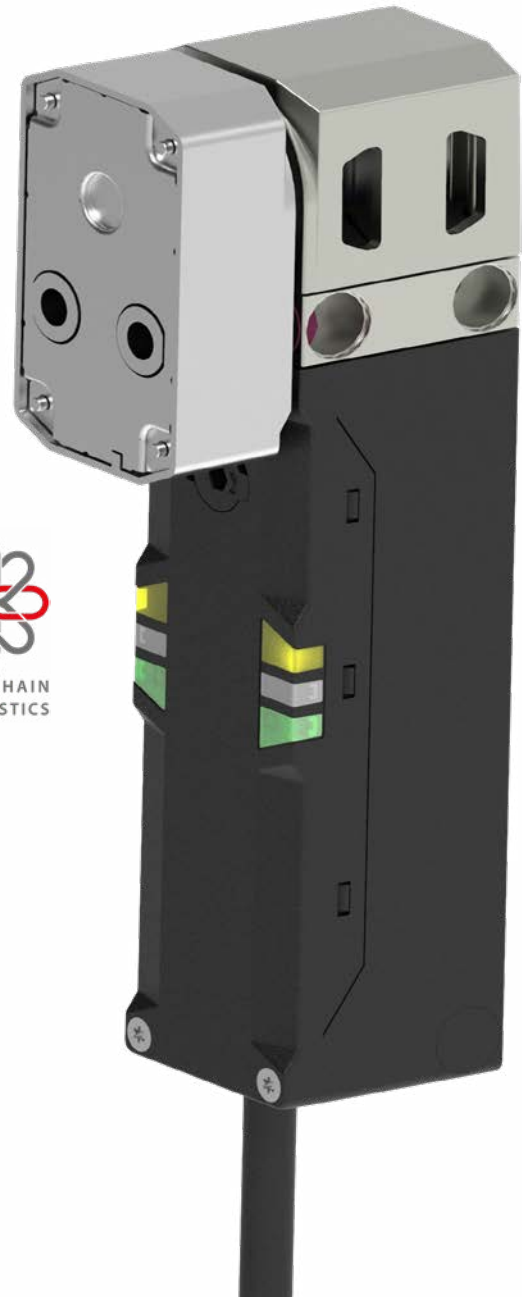
Information	Meaning
Operating voltage 24V	Operating voltage OK / Operating voltage out of specification (24V +/- 20%)
Incorrect actuator	Actuator code OK/ Actuator code not OK
Actuator at the edge of the detection area	Actuator distance OK / Actuator at the edge of the detection area
Status safety output 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.

# SLO safe guard locking with RFID and OSSD

## Locked safely – intelligently networked

The safe guard locking SLO (Safety Lock OSSD) reliably protects people before accessing hazardous machine areas with a dangerous overrun. It can be seamlessly integrated into modern safety architectures. Via Daisy Chain Diagnostics (DCD), the SLO provides extensive status information and also supports predictive maintenance concepts. In combination with further components of the SMART Safety System, a continuous, diagnostics-capable solution for industrial applications is created.



## PRODUCT-HIGHLIGHTS

- **Guard locking with locking force up to 3000 N**
  - provides reliable protection against hazards
- **Series connection of multiple devices possible**
  - reduces the need for safety inputs
- **Diagnostic-capable via Daisy Chain Diagnostics (DCD)**
  - seamless integration into the SMART Safety System
- **Supports predictive maintenance**
  - detects changes in condition in order to avoid downtime
- **Robust stainless-steel head**
  - withstands even demanding environments

## Bestelldaten SLO

Article number	Designation	Series Connection	Guard locking principle		Auxiliary outputs	Guard locking control		Coding level
			Spring-bistable Power to unlock	Magnet Power to lock		1-channel	2-channel	
6018300001	SLO-2/B2/3-L-E0,22	No	x		Door & guard locking		x	low
6018300002	SLO-2/B2/3-H-E0,22	No	x		Door & guard locking		x	high
6018300003	SLO-2/B2/3-U-E0,22	No	x		Door & guard locking		x	unique
6018300004	SLO-5/B2/0-L-E0,22	Yes	x		none		x	low
6018300005	SLO-5/B2/0-H-E0,22	Yes	x		none		x	high
6018300006	SLO-5/B2/0-U-E0,22	Yes	x		none		x	unique
6018300007	SLO-5/B1/1-L-E0,22	Yes	x		door	x		low
6018300008	SLO-5/B1/1-H-E0,22	Yes	x		door	x		high
6018300009	SLO-5/B1/1-U-E0,22	Yes	x		door	x		unique
6018300010	SLO-5/M1/1-L-E0,22	Yes		x	door	x		low
6018300011	SLO-5/M1/1-H-E0,22	Yes		x	door	x		high
6018300012	SLO-5/M1/1-U-E0,22	Yes		x	door	x		unique
6018301001	SLO-0	Associated actuator for all coding levels						

\* The actuators are not included in delivery – please order separately!

## Technical data

Available coding levels: low and high

The high-coded version is also available as a one-time teachable (unique) variant.

### Electrical data

- Rated operating voltage (U<sub>e</sub>): 24 V DC, reverse polarity protected, +25 %, -20 % (PELV / SELV power supply)
- Output current of the safety outputs I<sub>e</sub>: 250 mA
- Output current of the signalling outputs I<sub>e</sub>: 50 mA

### Mechanical data

- Housing: thermoplastic, glass fibre reinforced (UL 94-V0)
- Head mechanism: stainless steel / thermoplastic, glass fibre reinforced (UL 94-V0)
- Extraction force ≤ 20 N
- Guard locking principle (depending on version): bistable spring (power to unlock), magnet (power to lock)
- Guard locking force F<sub>zh</sub>: 3000 N (EN ISO 14119)
- Connection type: 22 cm pigtail with M12 connector

### Environmental data

- Ambient temperature: -20 °C ... +60 °C
- Degree of protection: IP66 / IP67 / IP69

### Safety-related data according to EN ISO 13849-1

#### Door monitoring

Category 4 up to PL e

#### Guard locking

- **Power to unlock**

Single-channel guard locking control: Category 2 up to PL d

Two-channel guard locking control: Category 3 up to PL e

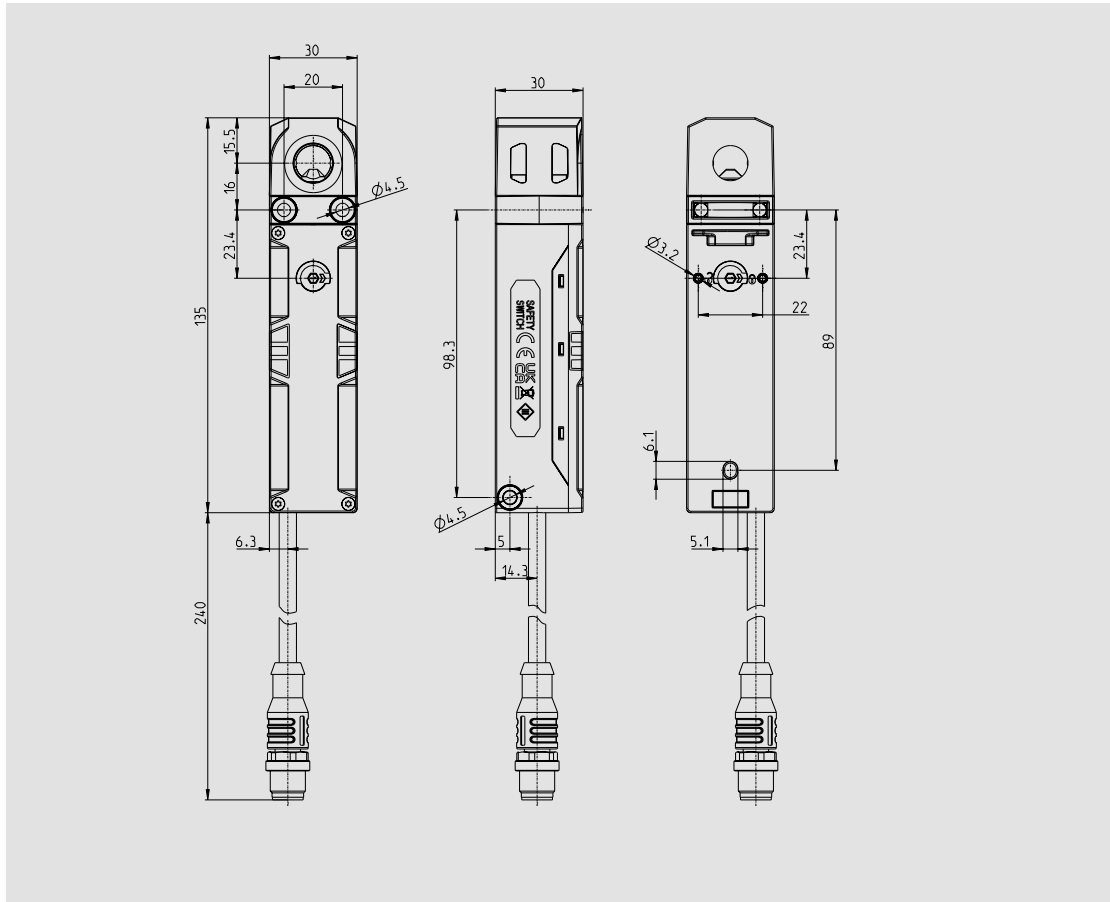
- **Power to lock**

Single-channel guard locking control: Category 2 up to PL d

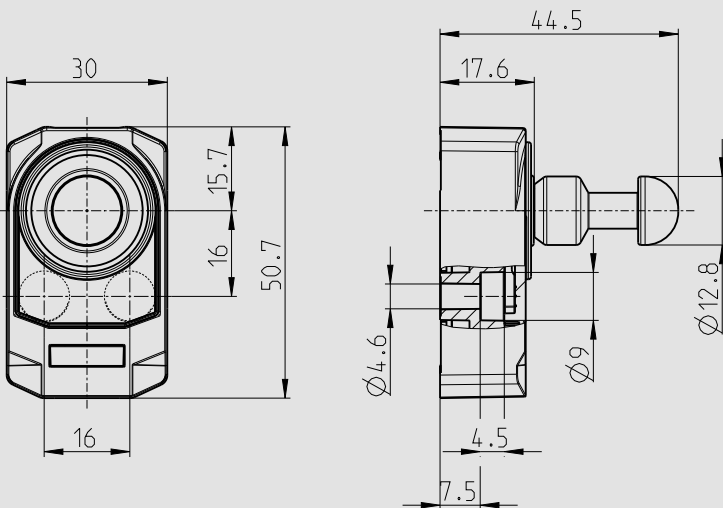


**Accessories on page 34**

# SLO safe guard locking with RFID and OSSD



Despite its compact design of only 30 × 30 × 135 mm, the SLO provides a guard locking force of 3000 N and degree of protection IP69.





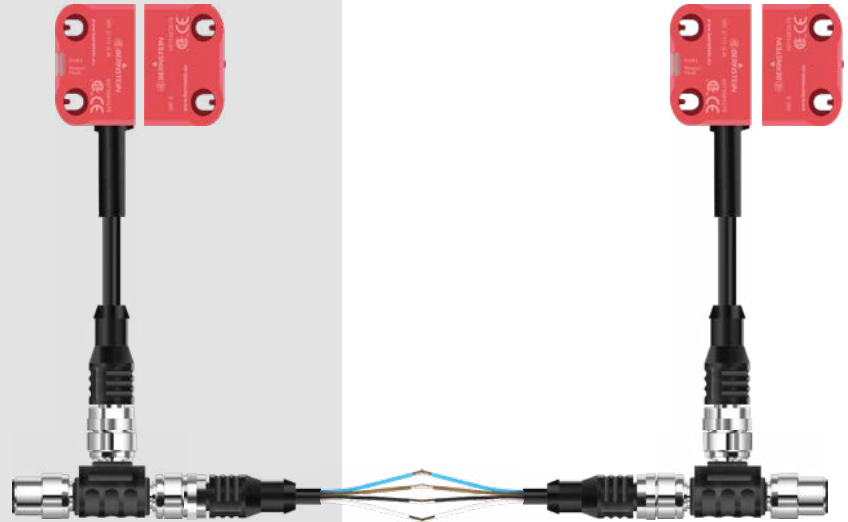
# The SRF

## Benefits and features



reddot award 2018  
winner

- **Cost-saving** thanks to a four-wire unshielded standard connection cable from sensor to sensor
- **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

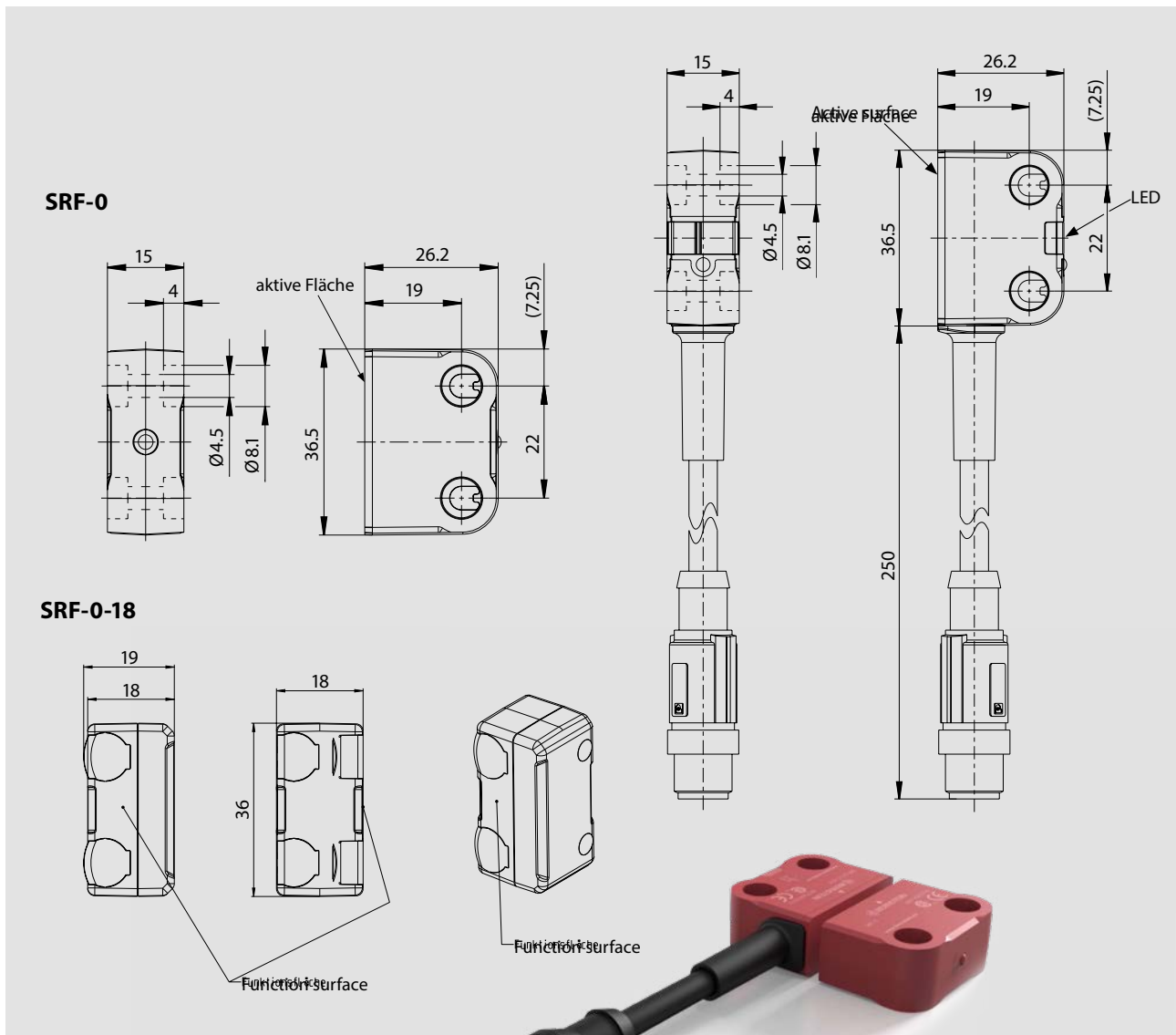
The fault tolerant outputs prevent an unexpected machine stop and allow to run down the machine in a controlled manner.

#### 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.



## Technical data

### Electrical data

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

### Mechanical data

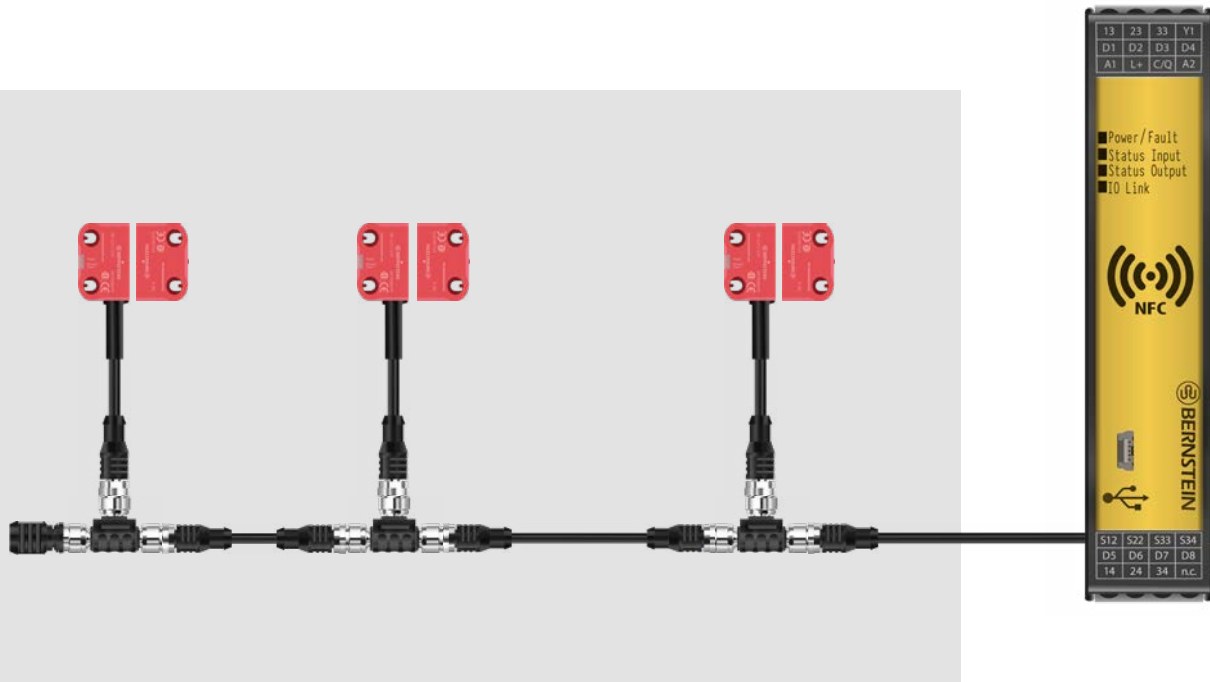
- Enclosure: PA66 + PA6, red, self-extinguishing
- Connection cable: PUR
- Mounting holes:  $\varnothing 4.5$  (for M4 screws)
- Displays: 1  $\times$  LED red/green operating status  
1  $\times$  LED yellow actuation status
- Ambient temperature:  $-25^\circ\text{C}$  bis  $+70^\circ\text{C}$
- Protection class: IP69

### Safety data

- PL e / Cat. 4 (according to EN ISO 13849-1)
- SIL CL 3 (according to DIN EN 62061)
- $\text{PFH}_D = 6 \times 10^{-9}$  1/h
- Mission time: 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  $t_v$ : max. 2 s

# SRF

## Series connection

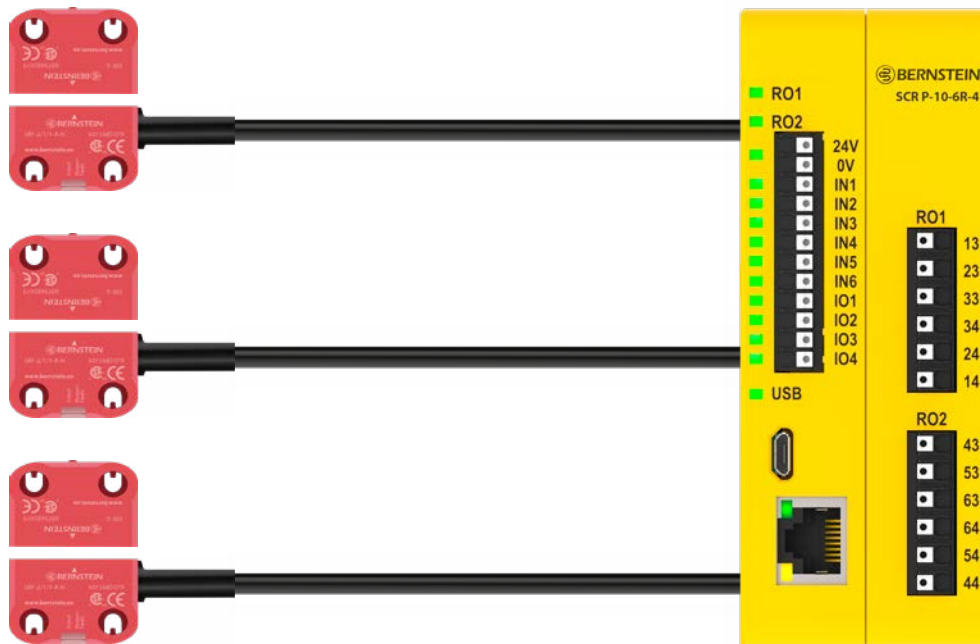


Designation	Article number	Unique coding level	High coding level	Low coding level	PNP diagnostics	Daisy Chain diagnostics (DCD)	Reset input	M12 8-pin connection with 25 cm cable	M8 8-pin connection with 25 cm cable
SRF-4/1/1-E0,25-U	6075685094	x				x		x	
SRF-4/1/1-E0,25-H	6075685095		x			x		x	
SRF-4/1/1-E0,25-L	6075685096			x		x		x	
SRF-4/2/1-E0,25-U	6075685097	x				x	x	x	
SRF-4/2/1-E0,25-H	6075685098		x			x	x	x	
SRF-4/2/1-E0,25-L	6075685099			x		x	x	x	
SRF-5/1/1-E0,25-U	6075685100	x				x		x	
SRF-5/1/1-E0,25-H	6075685101		x			x		x	
SRF-5/1/1-E0,25-L	6075685102			x		x		x	
SRF-5/2/1-E0,25-U	6075685080	x				x	x	x	
SRF-5/2/1-E0,25-H	6075685103		x			x	x	x	
SRF-5/2/1-E0,25-L	6075685104			x		x	x	x	
SRF-5/1/1-D0,25-H	6075685112		x			x			x
SRF-5/1/1-D0,25-L	6075685113			x		x			x
SRF-0	6075687078	Actuator SRF, suitable for all coding levels *							
SRF-0-18	6075687144	Actuator SRF (rectangular design), suitable for all coding levels *							

\* The actuators are not included in delivery – please order separately!

# SRF

## Single connection



Designation	Article number	Unique	High coding level	Low coding level	PNP diagnostics	M12 5-pin connection with 25 cm cable	2 m cable with open cable end	M8 8-pin connection with 25 cm cable
SRF-2/1/1-A2-U	6075685117	x			x		x	
SRF-2/1/1-A2-H	6075685079		x		x		x	
SRF-2/1/1-A2-L	6075685118			x	x		x	
SRF-2/1/1-E0,25-U	6075685119	x			x	x		
SRF-2/1/1-E0,25-H	6075685120		x		x	x		
SRF-2/1/1-E0,25-L	6075685121			x	x	x		
SRF-2/1/1-D0,25-H	6075685142		x		x			x
SRF-0	6075687078	Actuator SRF, suitable for all coding levels *						
SRF-0-18	6075687144	Actuator SRF (rectangular design), suitable for all coding levels *						

\* The actuators are not included in delivery – please order separately!

**Accessories and connection cable on page 34**

# The emergency stop switches SEU for direct integration into an SRF sensor chain

## Illuminated emergency stops SEU 3 and 4 Available in round or square design

In order to simply and intelligently implement the requirement of the Machinery Directive, that every machine has to be equipped with at least one Emergency Stop device, BERNSTEIN AG launches a new generation of emergency stop buttons offering modern and smart features perfectly suited for a variety of applications.



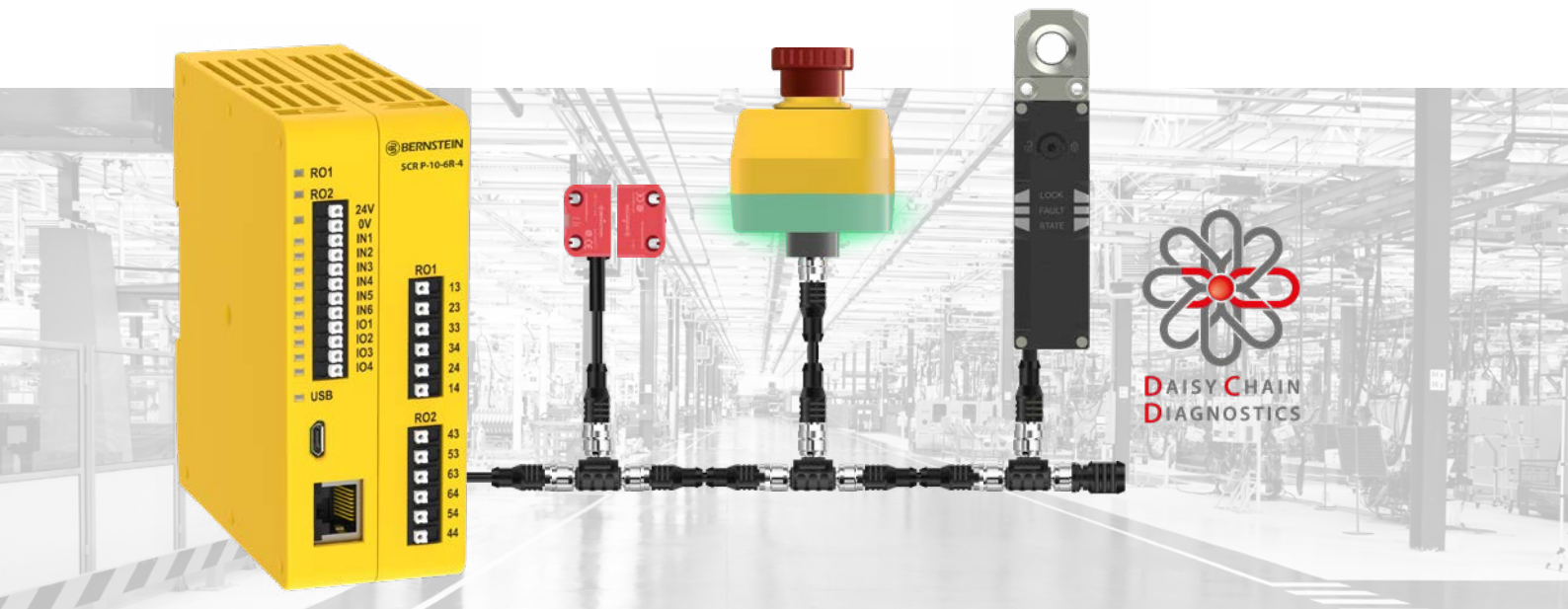
### PRODUCT HIGHLIGHTS

- **Current status clearly visible** through large LED display
- **Comprehensive diagnostic possibilities** thanks to patented BERNSTEIN DCD Technology
- **Reduction of downtimes** due to visible status display and extensive DCD diagnostic data
- **Simple wiring** thanks to integrated M12 connector
- **OPTIONAL Local reset function** maximises user safety

### Order data SEU – Illuminated E-Stop

Picture	Designation	Article number	Reset Function	Illumination colour *
	SEU-4/0/3-P86-C	<b>6075689166</b>	No	yellow/red
	SEU-4/0/1-P86-C	<b>6075689167</b>	No	off/red
	SEU-4/0/2-P86-C <sup>1</sup>	<b>6075689168<sup>1</sup></b>	No	green/red
	SEU-4/3/3-P86-C	<b>6075689172</b>	Yes	yellow/red
	SEU-4/3/1-P86-C	<b>6075689173</b>	Yes	off/red
	SEU-4/3/2-P86-C <sup>1</sup>	<b>6075689174<sup>1</sup></b>	Yes	green/red
	SEU-3/0/3-P81-C	<b>6075689169</b>	No	yellow/red
	SEU-3/0/1-P81-C	<b>6075689170</b>	No	off/red
	SEU-3/0/2-P81-C <sup>1</sup>	<b>6075689171<sup>1</sup></b>	No	green/red
	SEU-3/3/3-P81-C	<b>6075689175</b>	Yes	yellow/red
	SEU-3/3/1-P81-C	<b>6075689176</b>	Yes	off/red
	SEU-3/3/2-P81-C <sup>1</sup>	<b>6075689177<sup>1</sup></b>	Yes	green/red

\* First colour indicates released state, second colour indicates operated state  
<sup>1</sup> **In-stock items:** immediately available



## Technical Data



### Electrical data

- Rated operational voltage ( $U_e$ ): 24 V DC

### Mechanical data

- Housing/button material:  
Polycarbonate / Polyamide
- Ambient Temperature:  $-25^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- Protection class: IP65 / with WDC IP67 / IP69 (EN 60529)

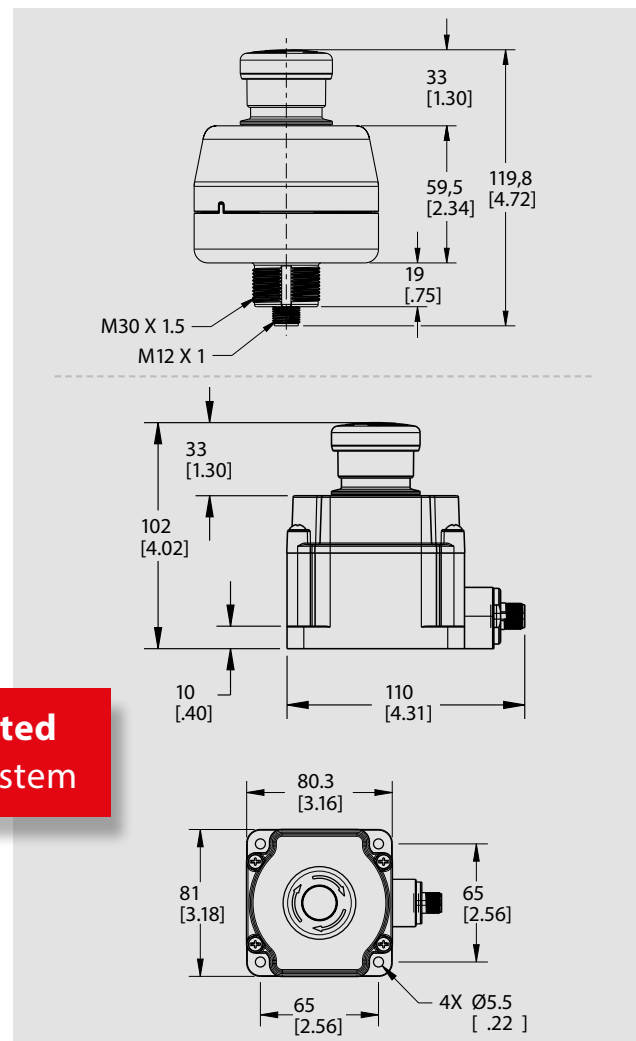
### Safety data

- Up to PL e / Cat.4 and SIL CL 3
- Certifications:  



**Simple. Perfect. Integrated**  
into the SMART Safety System

**Accessories on page 36**



# The emergency stop switches SEU for direct integration into an SRF sensor chain

## Emergency stop SEU 2


The emergency stop offers an optical status display via LED as well as the transmission of the device status via DCD diagnostic to the machine control system. To reset after activating simply rotate the button.

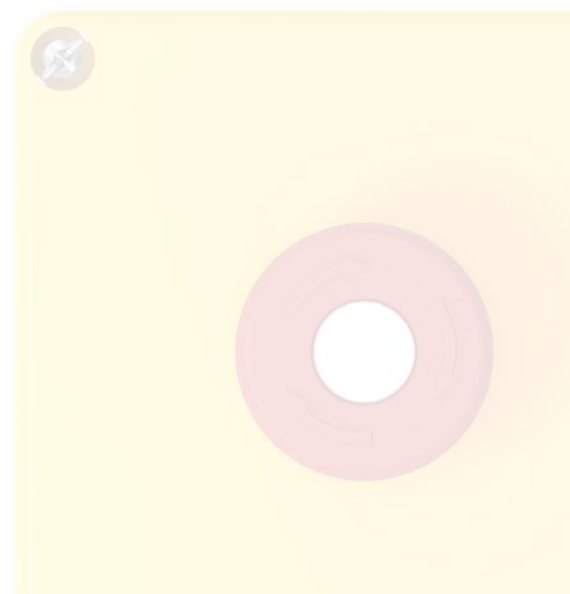


## PRODUCT HIGHLIGHTS

- **Simple integration** of the emergency stop into the sensor chain via M12 plug connection
- **Diagnostic information** of every emergency stop device available
- **Identification** of whether the switch-off signal is caused by the emergency stop or by a sensor
- **Monitoring of compliance with test cycles** for emergency stop simply possible
- **TR 24119 (fault masking)** doesn't have to be considered
- **Saves** an input of a fail-safe PLC or an entire safety relay

## Order data SEU 2

Picture	Designation	Article number	Description
	SEU-2/0-P80-C	<b>6075689138</b>	Emergency stop switch





# The smart T-adapter

## a particularly small connection box

The T-adapter and connection box have been combined into one device. The smart T-adapter is significantly smaller than the connection box and can therefore be easily installed in control cabinets and operating enclosures. In order to be able to quickly recognise the status of the smart T-adapter and the connected mechanical switch, clearly visible LEDs are also integrated on the front and back, which makes troubleshooting considerably faster.

### PRODUCT HIGHLIGHTS

- **Saving components**
- **Possible series connection** to reduce the number of safety relays
- **Diagnostic data is provided** to enable quick commissioning and troubleshooting
- **Significantly smaller** and therefore well suited for concealed installation
- **Standard T-adapter not needed**
- **Fast error detection** through LEDs



**Smaller.Smarter.**

### Order data T-adapter

Picture	Designation	Article number	Connection for input devices					Display
			Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	
	SEU-1/0-T45-C	6075689190	CH1a	CH1b	CH2a	CH2b	-	green / red
	SEU-1/0-T45-AB	6075689191	CH1a	CH1b	-	CH2a	CH2b	green / red



## Technical Data

### Electrical data

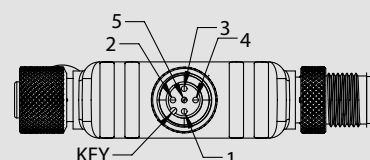
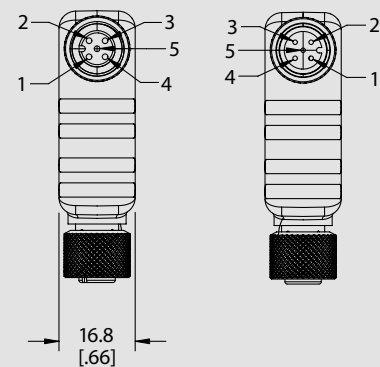
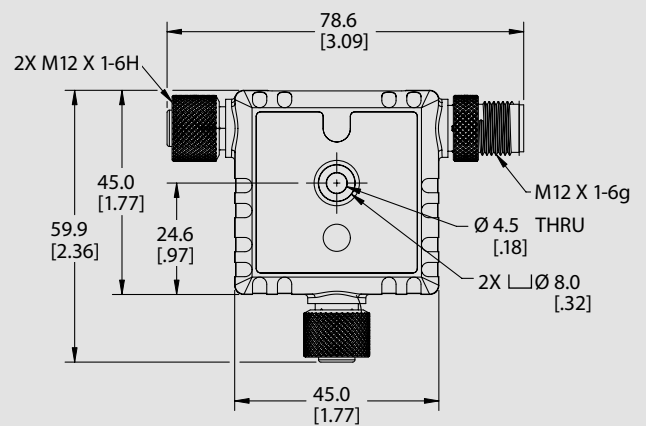
- Rated operational voltage  $U_e$ : 24 V DC
- Output current of the safety outputs  $I_e$ : 100 mA

### Mechanical data

- Housing material: polyvinyl chloride (PVC), black
- Ambient temperature:  $-25\text{ }^{\circ}\text{C}$  to  $+55\text{ }^{\circ}\text{C}$
- Protection class: IP67

### Safety data

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



# The connection box


With the SEU connection box, existing electromechanical safety switches, such as safety interlocks or emergency stop devices, can be integrated into the SRF safety chain with ease. In addition, mechanical switches with the connection box can be integrated into the sensor chain. The status data are also transmitted to the connection box via DCD diagnosis.

## PRODUCT HIGHLIGHTS

- **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



## Order data connection box

Picture	Designation	Article number	Description
	SEU-1/0-M64-C	6075689137	Connection box



# SCx with DCD diagnostics option

## Expandable safety controller for complex applications

The SCx Safety Controller completes the SMART Safety System for complete machine and system protection. You can add up to eight I/O expansion modules, use *Daisy Chain Diagnostics (DCD)* and exchange data via three different fieldbus protocols. This means that the SCx expandable safety controller can meet all the safety requirements of your machine. Programming is easy thanks to the intuitive, proven and free software.

### PRODUCT HIGHLIGHTS

- PC-configurable – Flexible and easy to use
- Network-compatible – Profinet, Modbus/TCP and EtherCat
- Safe devices to connect: Up to 394
- Safety inputs: Up to 154
- Independent safety outputs: Up to 68, 0.5 A to 6 A each
- Convertible safety inputs: Up to 40 (including 8 on the base unit)
- Daisy Chain Diagnostic (DCD) provides detailed status and diagnostic information
- Optional display provides local diagnostics for efficient troubleshooting
- Up to eight possible expansion I/O modules can be added



Basic module



Extension and communication modules



EtherCAT



Connection of up to 394 security devices possible

## Technical Data

### Electrical data

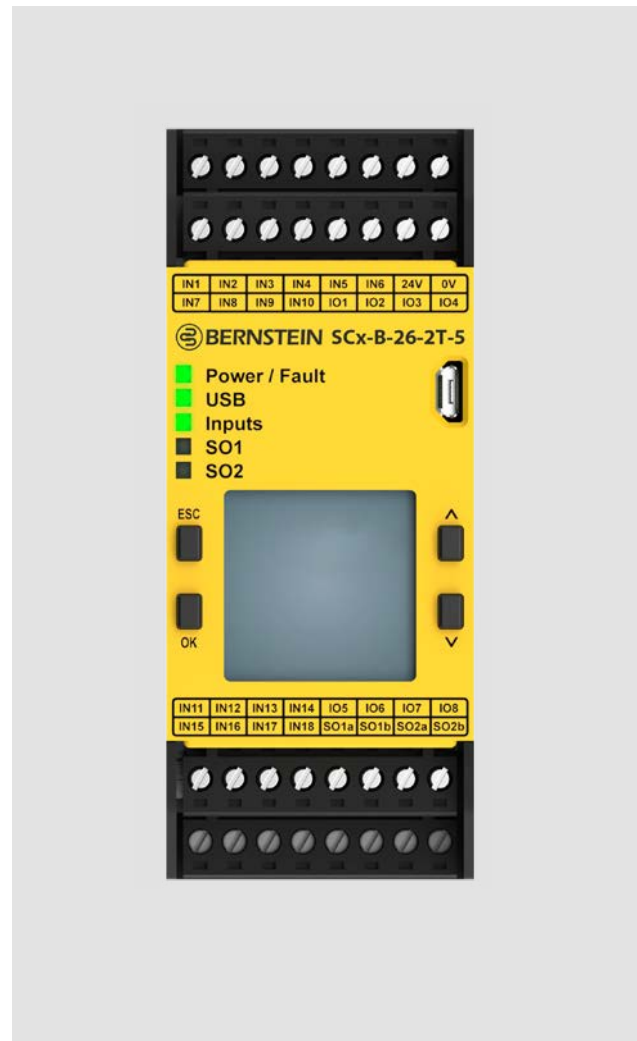
- Rated operational voltage ( $U_e$ ): 24 V DC

### Mechanical data






- Ambient temperature: 0°C bis +55°C
- Protection class: IP20

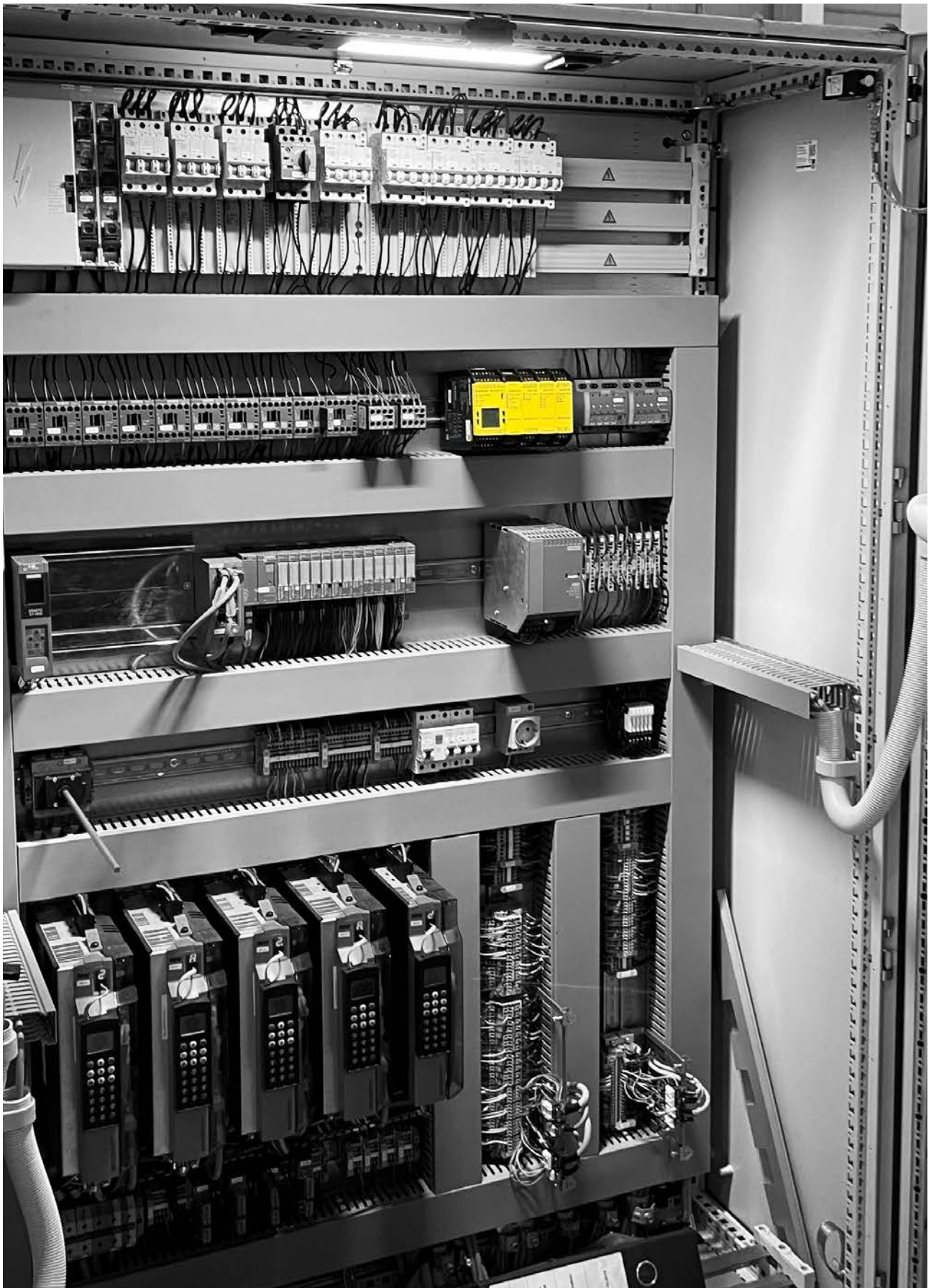
### Safety data

- Certifications:



## Order data SCx

Picture	Designation	Description	Article number	Industrial Ethernet	Safety Inputs/ of which configurable I/O	Independently controlled safe outputs	Max. Output current of the safety circuits
	SCx-B-26-2T-5	Base unit with LCD display	<b>6075731212</b>	<i>Profinet, Modbus/TCP</i>	26/8	2	0.5A PNP @24 V DC
	SCx-N-Cat	<i>EtherCat</i> Communication module	<b>6075774216</b>	<i>EtherCAT</i>	–	–	–
	SCx-I-16	16-fold safety input extension	<b>6075772218</b>	–	16/4	–	–
	SCx-O-2R	Safety relay output module	<b>6075773219</b>	–	–	2	6A, 2 NO, 1 NC aux
	SCx-O-4T	Safety module output module	<b>6075773222</b>	–	–	4	0.5A PNP @24 V DC

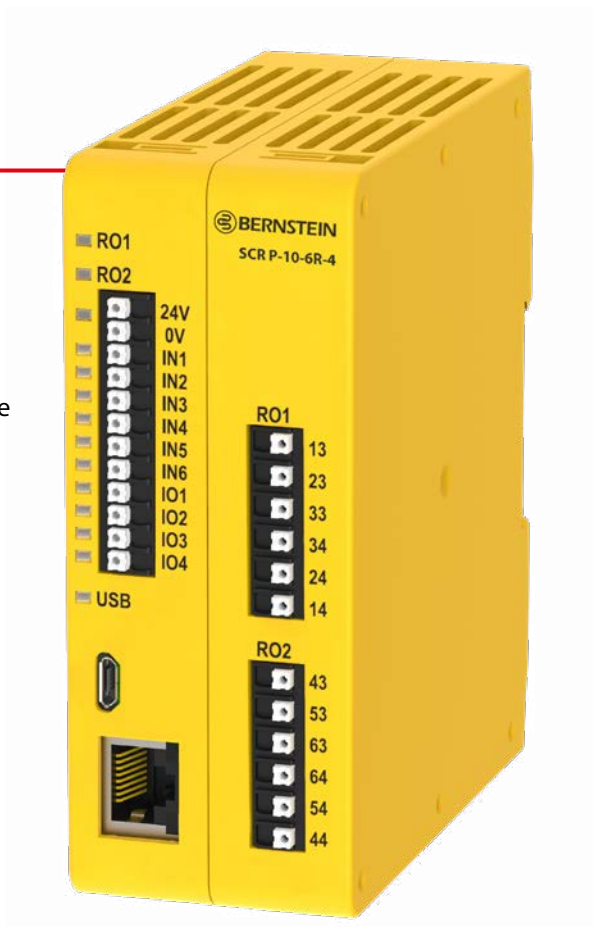


# Safety controller SCR P

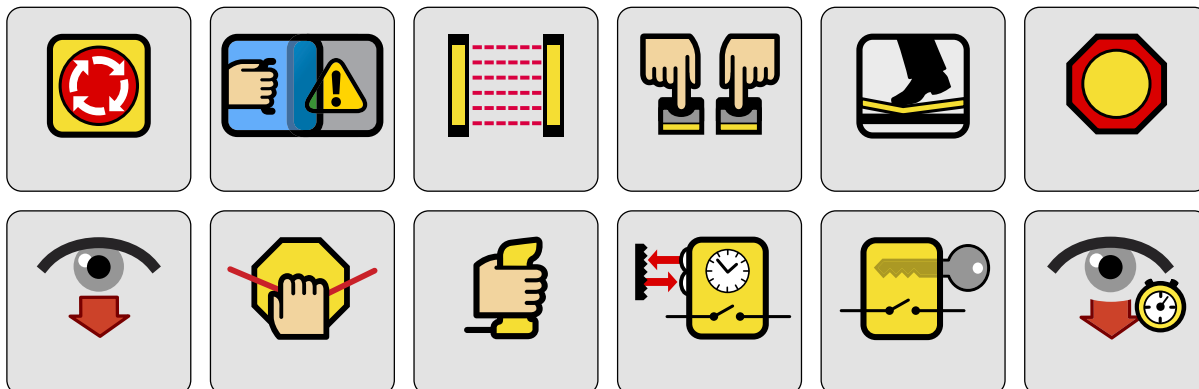
The smart solution for machine safety

## PRODUCT HIGHLIGHTS


- **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
- **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**

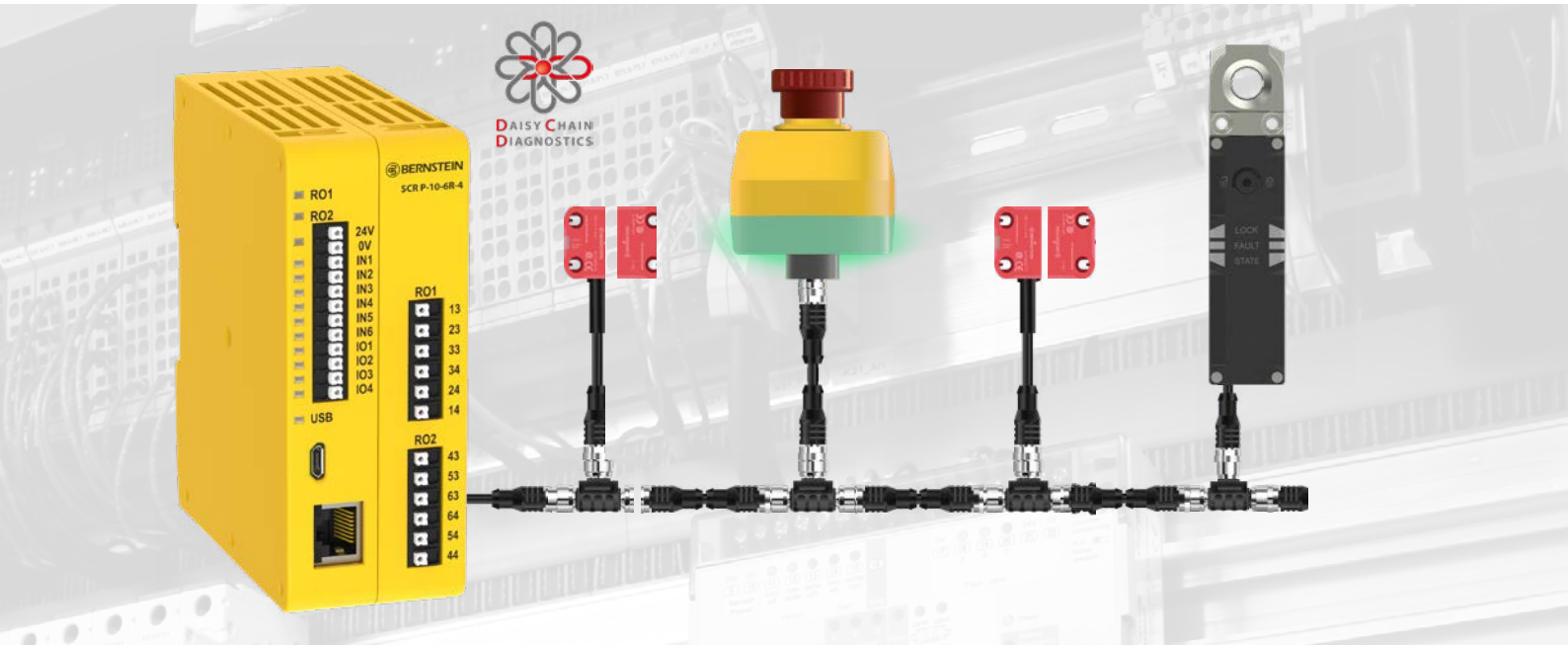


## Various application possibilities



## Order data SCR P

Picture	Designation	Article number	Description
	SCR P-10-6R-4	6075133159	Programmable safety controller



## Technical Data

### RO1 and RO2 enabling paths

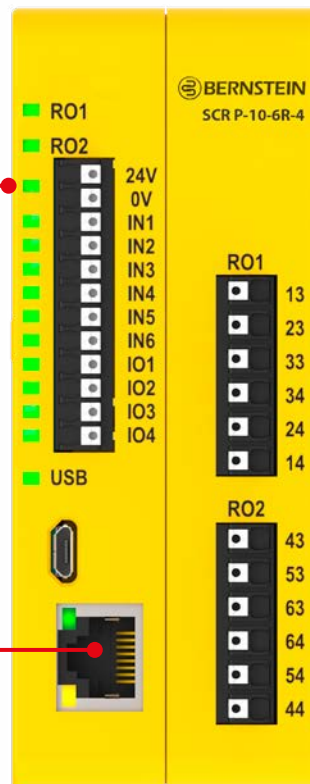
### 24 V DC Power

### 6 Safe Inputs

### 4 Safe Inputs or 4 Non-Safe Outputs

### Micro-USB

### Ethernet-Port



### Relais Output 1 (RO1)

- 240 V AC/6 A
- 3 NO sets of contact

### Relais Output 2 (RO2)

- 240 V AC/6 A
- 3 NO sets of contact



To the SCR P configuration software tutorials

Accessories on page 36

# Safety Controller SCR DI with IO-Link

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.

- 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

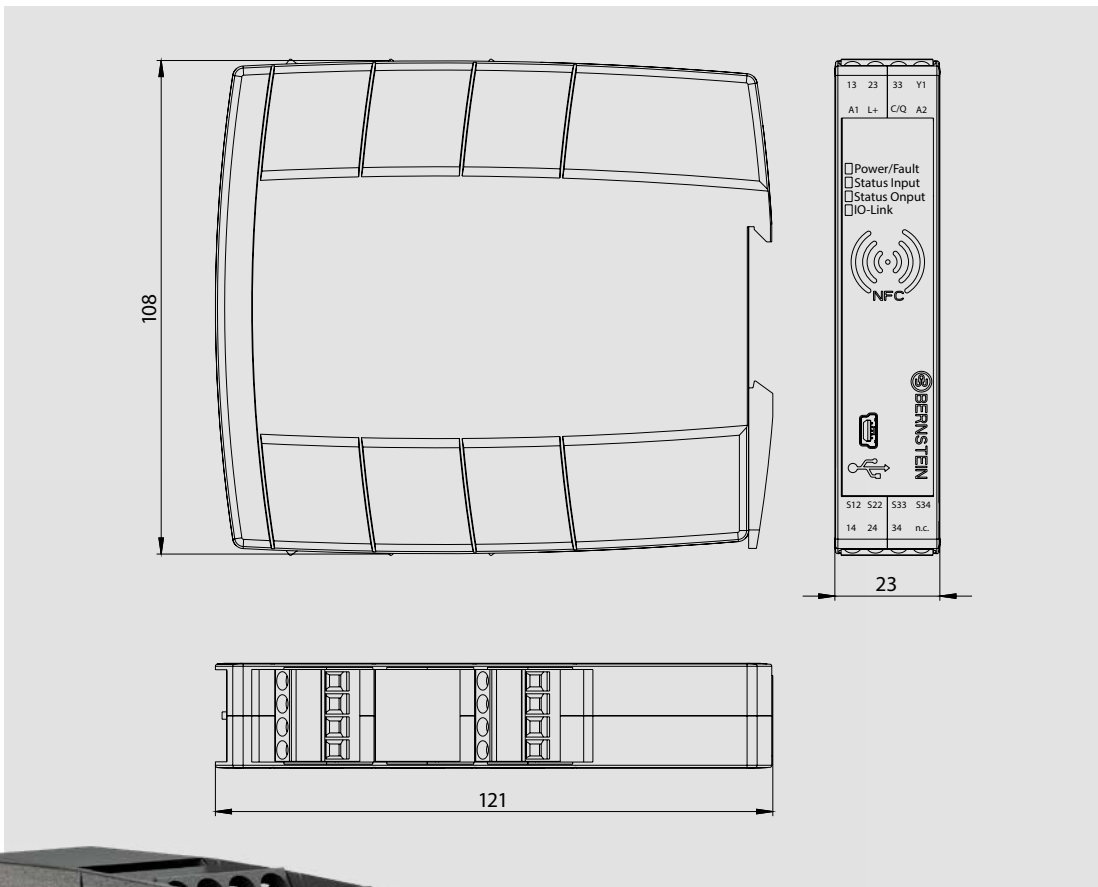
## PRODUCT HIGHLIGHTS

- **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



## Order data SCR DI

Picture	Designation	Article number	Enabling paths	Signalling contact Feedback circuit	Digital outputs	Automatic/ manual reset	Interfaces		
							IO-link	NFC	USB 2.0
	SCR DI-1/0/3-T	6075113139	3	1	–	auto/button	x	–	–
	SCR DI-1/8/3-T	6075113140	3	1	8	auto/button	x	–	–
	SCR DI-1/0/1-T	6075113141	3	1	–	auto/button	x	x	x



## Technical data

### Product information

- Dimensions: 108×22.5×121 mm (W×H×D)
- IO-link protocol: V1.1
- For semiconductor outputs  
BERNSTEIN SMART Safety System

### Electrical data

- Rated operational voltage  $U_e$ : 24 V DC
- Three enabling paths with up to 6A switching current per path

### Mechanical data

- Enclosure material:  
Glass fibre reinforced polyamide PA-GF
- Ambient temperature: 0°C to +60°C
- Protection class: IP20

# Safety Relay SCR ON

## For the safe evaluation of signals

The SCR safety relays are used to reliably evaluate signals, such as those generated by BERNSTEIN position switches, safety switches, safety latching devices, safety rope pull switches, safety sensors or 2-hand controllers.

With their compact standard mounting rail enclosure, BERNSTEIN SCR relays impress in a wide variety of applications up to performance level e as defined by EN 13849. Conforming to this standard, the SCR relays monitor the correct position and reliable operation of safety sensors and or contacts in safety switches. This evaluation function is used to actuate power elements such as power contactors or frequency converters and stop machines in the case of emergency.


### Safety relay for monitoring sensors with PNP or OSSD outputs

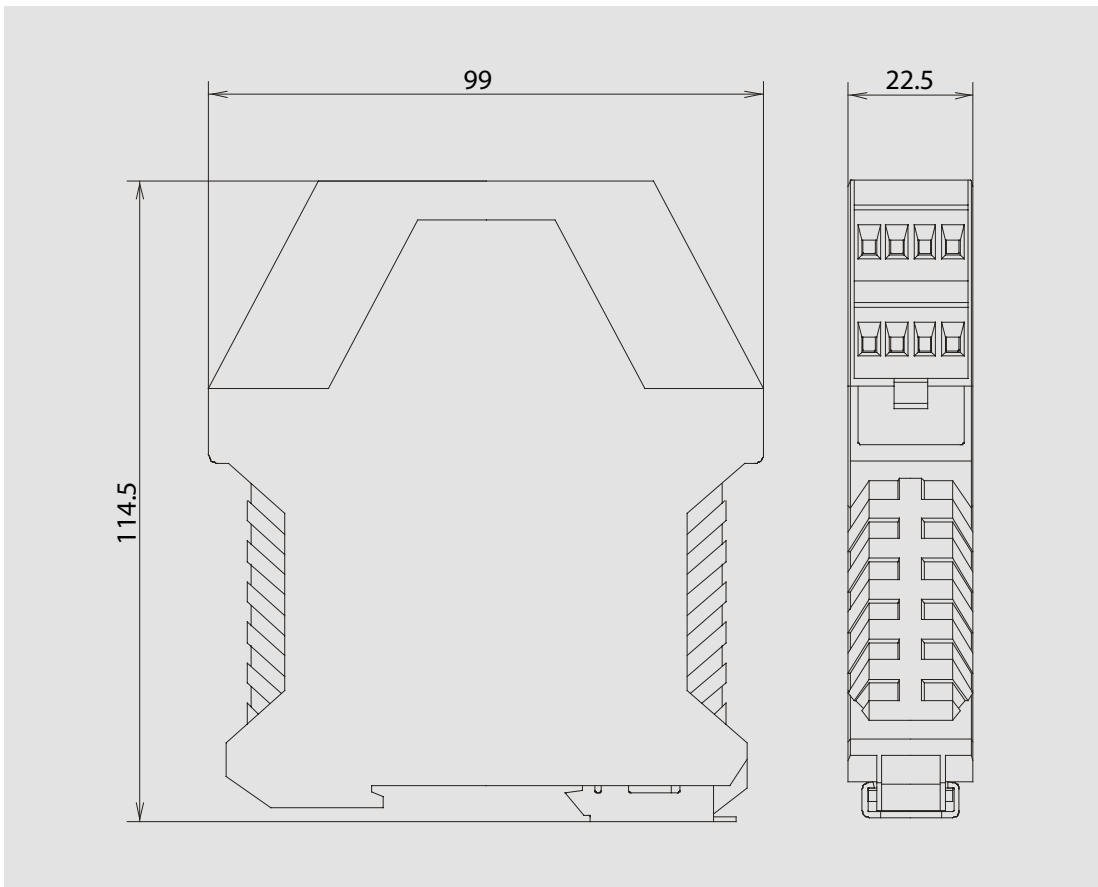
#### PRODUCT-HIGHLIGHTS

- Compact standard mounting rail enclosure
- Application possibility up to Performance Level e according to EN 13849
- Monitoring of the correct position and reliable function of the safety sensors
- Control of power elements, such as power contactors or frequency converters, and stopping of the machine in case of emergency



### Order data SCR ON

Picture	Designation	Article number	Description
	SCR ON4-W22-3.6-S	6075111020	Monitoring of sensors with PNP output



## Technical data

### Product information

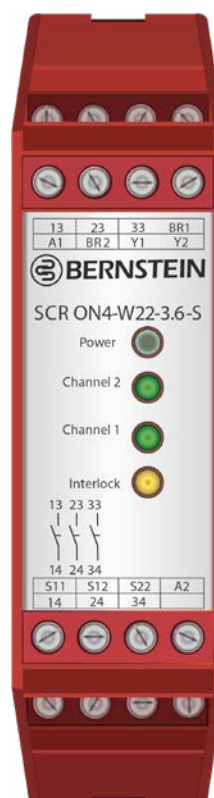
- Dimensions: 22,5 × 99 × 114,5 mm (W×H×D)
- Weight: approx. 200 g

### Electrical data

- Rated operational voltage: 24 V AC / 50 Hz, 24 V DC
- Switching capacity of the enable paths: AC 15 : 230 V / 6 A
- Utilization categories: DC 13 : 24 V / 6 A
- Rated insulation voltage: 240V AC

### Mechanical data



- Enclosure material: Polyamide PA 6.6
- Operating temperature: 0°C to +70°C
- Protection class: IP 40, IP 20 for clamping area



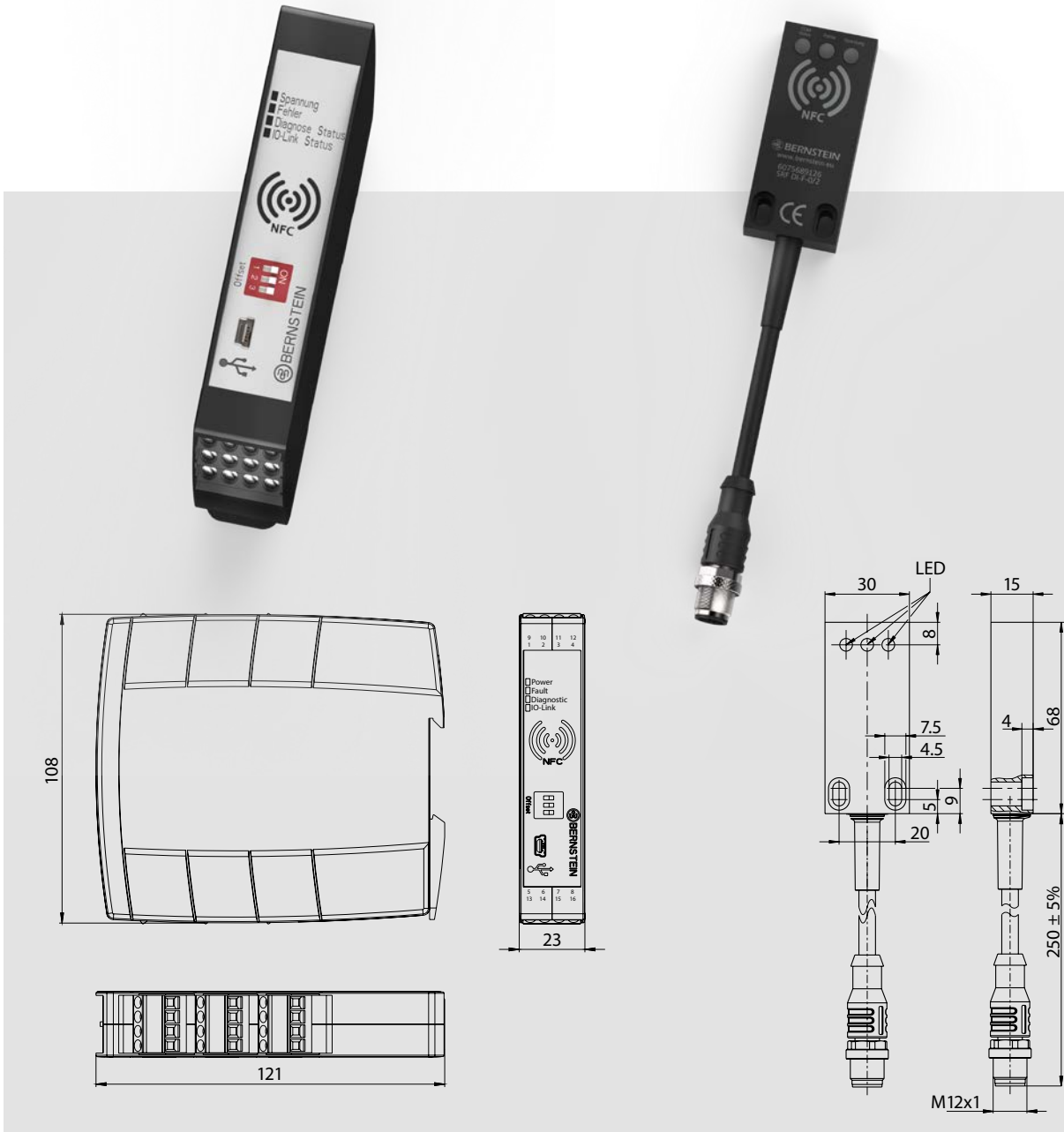
# Diagnostic module



## Order data diagnostic modules

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

## Technical data



### Control 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 to +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

# Accessories



**Note:** For series connections in which no guard locking is integrated, the T-adapters with item no. 4 are sufficient. In all other cases, we recommend item no. 7. The connection length depends on the specific application.






## Single-ended cordset and double-ended cordset

Pos.-Nr.	Bezeichnung	Artikelnummer	Beschreibung	Stecker Ausrichtung	Stecker 1	Stecker 2	Polzahl	Kabellänge [m]
1	S1W-M12A8/BW-2PU	6075689086	Double-ended cordset	straight	F	M	8	2
1	S1W-M12A8/BW-1PU	6075689085	Double-ended cordset	straight	F	M	8	1
8	S1W-M12B5/AW-10PU	6075689011	Double-ended cordset	straight	F	M	5	10
8	S1W-M12B5/AW-5PU	6075689008	Double-ended cordset	straight	F	M	5	5
8	S1W-M12B5/AW-2PU	6075689007	Double-ended cordset	straight	F	M	5	2
2	S1W-M12C4/AW-10PU	6075689089	Double-ended cordset	straight	F	M	4	10
2	S1W-M12C4/AW-5PU	6075689088	Double-ended cordset	straight	F	M	4	5
2	S1W-M12C4/AW-2PU	6075689087	Double-ended cordset	straight	F	M	4	2
	SFW-M12A12/BW-10PU	6075689006	Single-ended cordset	straight	F		12	10
	SFW-M12A12/BW-5PU	6075689005	Single-ended cordset	straight	F		12	5
	SFW-M12A12/BW-2PU	6075689004	Single-ended cordset	straight	F		12	2
	SFW-M12A8/BW-10PU	6075689187	Single-ended cordset	straight	F		8	10
	SFW-M12A8/BW-5PU	6075689186	Single-ended cordset	straight	F		8	5
	SFW-M12A8/BW-2PU	6075689185	Single-ended cordset	straight	F		8	2
3	SFW-M12B5/AW-20PU	6075689184	Single-ended cordset	straight	F		5	20
3	SFW-M12B5/AW-10PU	6075689183	Single-ended cordset	straight	F		5	10
3	SFW-M12B5/AW-5PU	6075689093	Single-ended cordset	straight	F		5	5
3	SFW-M12B5/AW-2PU	6075689092	Single-ended cordset	straight	F		5	2
3	SFW-M12C4/AW-20PU	6075689189	Single-ended cordset	straight	F		4	20
3	SFW-M12C4/AW-10PU	6075689188	Single-ended cordset	straight	F		4	10
3	SFW-M12C4/AW-2PU	6075689091	Single-ended cordset	straight	F		4	2
3	SFW-M12C4/AW-0,5PU	6075689090	Single-ended cordset	straight	F		4	0,5

## T-adapter, termination plug and fixing screws

Pos.-Nr.	Bezeichnung	Artikelnummer	Beschreibung
4	ATS-M12/4-M12/8	6075989082	T-adapter for series connection of sensors
5	ATD-M12/8-M12/4	6075989083	T-adapter for IO-Link connection and reset button
6	AEP-M12/4	6075689084	Termination plug M12
7	ATS-M12/5-M12/8	6075989001	T-adapter for the series connection of guard lockings with single-channel simultaneous guard locking control
	AT-CLIP-M12	6075689127	Fixing clip for T-adapter
	One-way screw M4 × 16	6075689128	10 × fixing screws M4 × 16 one-way-screw




## Accessories SLO

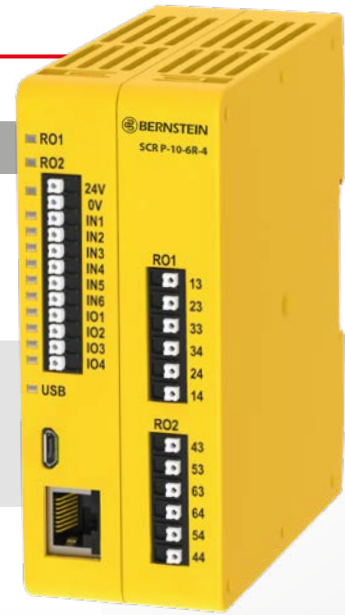
Abbildung	Bezeichnung	Artikelnummer	Beschreibung
	ESCR-SB-1	<b>6051202024</b>	<b>Escape release</b> The escape release can be mounted directly on the rear of the SLO. In case of an emergency, the escape release enables immediate opening of the guard locking from <b>inside</b> the hazardous area.
	EMR-SB-1	<b>6051202023</b>	<b>Emergency release</b> The emergency release can be mounted directly on the rear of the SLO. In case of an emergency, it enables immediate opening of the guard locking from <b>outside</b> the hazardous area.
	LRB-SB-40-1 LRB-SB-100-1	<b>6051202025</b> <b>6051202026</b>	<b>Extension module</b> The extension module is mounted directly on the rear of the SLO. The module enables an extension of the emergency release and escape release by 40 or 100 mm. A customized extension of up to 100 mm is possible.
	APB-1	<b>6050102027</b>	<b>Mechanical blocking element</b> that prevents unintentional closing of the door and can be secured with padlocks.
	ESCR-SB-MH	<b>6051202028</b>	<b>Rotary knob for improved usability</b> and optimal feel of the escape release for the SLO safety lock. The rotary knob is an extension of the escape release (article 6051202024) and has to be ordered separately, as well as mounted on the escape release.



# Accessories




## Accessories SCR P and SCx

Picture	Designation	Article number	Description
	SCR P-PA	<b>3991000250</b>	USB programming adapter
	USB-cable A/ Micro-B	<b>3991000251</b>	USB cable
	SCR P-FPS	<b>3991000252</b>	Programming flash drive

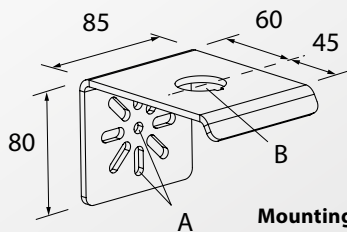


## Accessories SEU

### Mounting bracket and silicone protection cover

Picture	Designation	Article number	Description
	SEU-MB1H <sup>1</sup>	<b>6075689178</b> <sup>1</sup>	E-Stop mounting bracket, metal, black
	SEU-MB1H-S <sup>1</sup>	<b>6075689179</b> <sup>1</sup>	E-Stop mounting bracket, stainless steel
	SEU-WDC <sup>1</sup>	<b>6075689182</b> <sup>1</sup>	Silicone Washdown Cover IP67/69 for SEU-4

<sup>1</sup> Stock items: Items available for immediate delivery



**Mounting bracket**  
SEU-MB1H ...  
Dimensions: A= Ø 7mm, B= Ø 30mm

**Silicone protection cover**  
SEU-WDC







**DETECT**

**We make  
safety happen.**



**PROTECT**

**We keep your  
visions safe.**