Your Global Automation Partner

TURCK

Overview
Safety Solutions in IP67





Compact Safety Solutions in IP67

Safe I/O modules for Profisafe and CIP Safety

With the safe I/O modules for Profinet/ Profisafe and EtherNet/IP/CIP Safety, Turck has the right solution for every application scenario: Full-safety I/O modules with eight safe inputs/outputs or hybrid I/O modules in which standard and safe inputs/outputs are combined in one device. All modules work in conjunction with external safety controllers or independently as decentralized safety controllers.

The full block I/O modules feature:
- Four redundant safety-related inputs on the left-hand side
- Four redundant and configurable safety-related inputs/outputs on the right-hand side

The hybrid block I/O modules feature:
- Two redundant, safety-related inputs on the left-hand side
- Two redundant, safety-related universal inputs/outputs on the left-hand side
- Four configurable digital inputs/outputs on the right-hand side
- Two IO-Link masters

All configurable digital inputs/outputs can be switched off for safety purposes using an internal fail-safe output. The same applies to the second IO-Link master.

Maximum output current for the safety outputs and the IO-Link master
- Max. load 2 A (DC13 with free-wheeling diode)

Maximum total output current of the configurable outputs in the hybrid module
- Max. load 2 A (DC13 with free-wheeling diode)

Maximum total current of the modules
- Max. load 9 A (DC13 with free-wheeling diode)

Simple installation and commissioning
- Safety properties configured via software tool
- Web server simplifies diagnostics and commissioning
- Integrated switch allows installation in line topology

Robust design enables use in harsh industrial environments
- Housing with fully potted module electronics
- High protection classes: IP65/IP67/IP69K
- Extended temperature range -40…+70 °C



CIP Safety™

Benefits:

- Simple and rapid implementation in your automation environment
- Extensive diagnostic functions
- Possibility to preconfigure the safety application in the module
- Reduced wiring effort
- Extremely robust thanks to fully potted module electronics
- Flexible use thanks to large temperature range from -40…70 °C
- High degrees of protection to IP65/IP67/IP69K enable mounting directly at the safety guard or machine
- Processing of safety signals and IO-Link function in a single device
- Simple device replacement in the event of a fault, thanks to cabling and downloading of the program that already exists
- Program transferable from one module to another



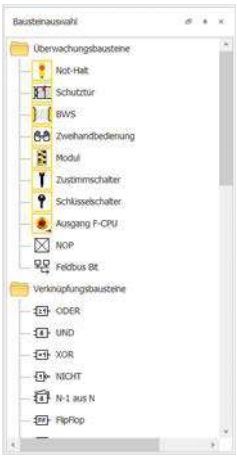


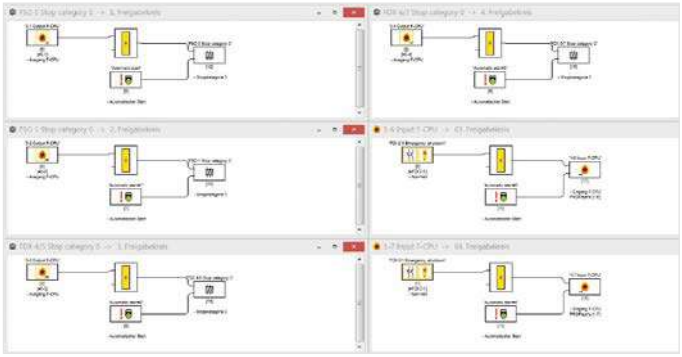
Safety Switch Boxes

The switch boxes of the TBSB series are used for safe disconnection of the V2 actuator voltage in a supply line of a plant. This makes it possible to safely disconnect the output voltage on conventional TBEN modules. The devices are designed for protection class IP65 and can be mounted directly in the field. Depending on the wiring, the boxes can be used in safety applications up to Cat. 4 and PLe according to EN ISO 13849-1 or SIL 3 to EN IEC 61508.

Turck Safety Configurator

The safety hybrid module is configured simply and quickly using the Turck Safety Configurator. The software preconfigures the module according to the I/O assignment. The standard configuration is based on the assumption that a safety controller is connected. However, the configuration can be adapted to your individual requirements at any time. For this Turck offers a large range of libraries, application and logic function blocks right through to start and monitoring function blocks.





Light Screens and Scanners

Turck's light screens and scanners are contactless personal protection systems for area and access protection at hazardous machines. The devices are designed in compact and robust housings for simple and economical use. Scan ranges of 0.8…20 m as well as 15…70 m are possible, depending on type.



RFID Safety Switches

The robust IP67 safety switches of the SI-RF product series use RFID technology to monitor, gates and other moving mechanical protective devices without tampering. The switches can be installed and commissioned quickly thanks to their low space requirements and cascadability. The ISD function enables diagnostics of each individual actuation in the cascade



Inductive Safety Sensors

Turck's inductive safety sensors send switching signals to safety systems via two OSSD outputs. They detect short circuits, overloads or cross-connections while simultaneously testing the shutdown capability. With SIL 2 (IEC 61508) and Performance Level d (EN ISO 13849) ratings, the devices meet stringent functional safety requirements. The flush-mountable threaded barrel devices are available in M12, M18 and M30, each with a high secured switch-on distance, robust metal housing and wide temperature range of -25…+70 °C.



Mechanical Safety Switches

The safety portfolio also offers Turck customers a range of conventional mechanical safety switches. These are built in compliance with EN/IEC 60947-5-1 with and without guard locking. They are positively driven and have positively opening contacts.



Magnetic and Hinge Switches

Small, compact and robust. The switches are designed exactly like the safety position switches in accordance with EN/IEC 60947-5-1 and have positively driven and positively opening contacts. The magnetic proximity switches are built in accordance with EN/IEC 60947-5-1 and EN 62246-1 and are coded via three internal reed contacts per switch contact.



Connectivity

From pre-assembled connecting cables to corresponding junction boxes and field-wireable connectors, the comprehensive Turck range for tasks involving connecting and distributing contains everything required to install a safety solution quickly and reliably – color-coded and with a suitable pin assignment.

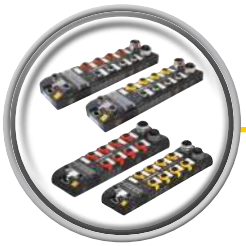




The safety rope pull switches of the RP-RM (metal housing) are approved for all commonly recognized standards. After actuation or in the event of a rope break, the E-stop device locks automatically and can only be reset by means of the reset feature on the device.



Enabling functions are often used for applications in which the presence of persons in the hazardous area of a machine is required. For example during setup or maintenance of robots. The enabling devices can be integrated simply in the hybrid module by means of a simple configuration.



Whether for Profinet or EtherNet/IP – Turck always offers the right connection for PROFIsafe and CIP Safety with both TBPN and TBIP modules. Both modules talk safely with a safety controller but can also operate safely automatically.



No safety without the appropriate configuration. The Turck Safety Configurator enables you to create your safety application directly in the module. A safety controller is not absolutely necessary.





The OSSD outputs of light screens and scanners can be integrated in the hybrid module. Turck also provides the right cabling.



Turck offers an extensive portfolio of switches with a wide range of actuator designs with or without guard locking.



The illuminated E-stop buttons with rotary release indicate the status of a machine or plant at a glance. The tripped switch can be identified immediately, even on large installations, thanks to the illumination feature.



Hinge switches and magnetically coded safety switches can be connected simply to the hybrid modules, as well as all other electromechanical safety switches.

Enabling Devices

Type code	Ident-No.	Description	
ED1G-L20MB-1N	3012937	Enabling device, three position activation for starting stopping machines	2 outputs, NO contacts, 2 outputs, NO contact via additional button

Position Switches

Type code	Ident-No.	Description	
SI-LS83E	3049482	Safety switch, position switch with separate actuator **without** guard locking, additional actuator required	2 safety outputs, NC contacts, 83 mm design, plastic
SI-LS100SF	3049480		2 safety outputs, NC contacts, 1 auxiliary contact, NO contact, 100 mm design, plastic
SI-LS42DSH	3047875	Safety switch, position switch with separate actuator with guard locking, additional actuator required	2 safety outputs, NC contacts, 42 mm design, metal
SI-QM100DSH	3077751		2 safety outputs, NC contacts, 100 mm design, metal
Other position switch variants available			
SI-QM-SSA	3048555	Actuator, for position switch with guard locking (SI-LS42/SI-QM100)	Rigid version, straight
SI-QM-SMFA	3048562		Flexible version

Hinge Safety Interlock Switches

Type code	Ident-No.	Description	
SI-HGZ63FQDR	3025583	Safety switch, door hinge switch, for monitoring a guard	2 safety outputs, NC contacts, 1 auxiliary contact, NO contact Right-side hinge, straight version*, die-cast zinc**
SI-HGZ63FQDRR	3025584		2 safety outputs, NC contacts, 1 auxiliary contact, NO contact Right-side hinge, angled version*, die-cast zinc**
*Models available with left-side hinge | **stainless steel versions available			

Magnetic Switches

Type code	Ident-No.	Description	
SI-MAG1SM	3046989	Safety switch, magnetic switch, long design 88 x 25 mm	1 safety output, NC contacts, 1 auxiliary contact, NO contact
SI-MAG2MM	3046992	Coded magnet, for SI-MAG2SM magnetic switch	ON: Switching distance 0…4 mm, OFF: Switching distance 4…8 mm

RFID Safety Switches

Type code	Ident-No.	Description	
SI-RFPT-LP5	3806407	RFID safety switch	M12 connected, 5-pin, A-coded, non-cascadable
SI-RFDT-LP8	3806398	RFID safety switch with ISD function	M12 connector, 8-pin, A-coded, cascadable
SI-RF-A	3806408	Actuator	For actuating switches SI-RFDT-LP8, SI-RFPT-LP5
SI-RFA-TS	3806409	T-splitter for connecting ISD	
SI-RFA-P	3806411	Terminating resistor for connecting ISD	
SI-RFA-DM1	3806412	Evaluation relay from ISD to IO-Link	

Rope Pull Switches

Type code	Ident-No.	Description	
RP-RM83F-75LT*	3081876	Rope pull switch with integrated E-Stop button, tension indication, maximum rope length: 75 m, required accessory kit for rope pull switch	2 safety outputs, NC contacts, 2 auxiliary contact, NO contacts, 83 mm design, metal
RPAK-CHP2-40-TA*	3084443	Accessory kit for rope pull switch	Kit consisting: 1 x 40 m cable, 3 mm thick, 4 thimbles, 4 clamps, 11 eye bolts, 11 equalizing pulleys, 1 turnbuckle

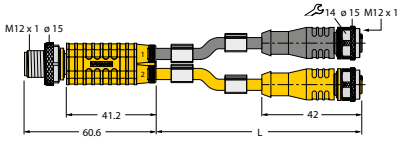
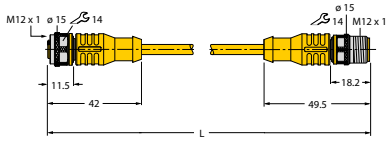
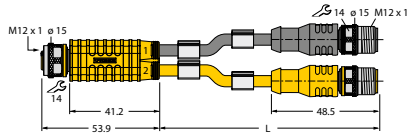
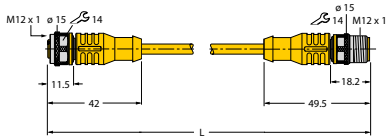
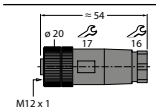
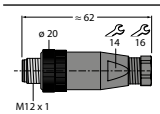
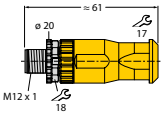
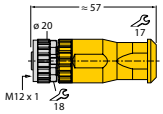
Safety Switch Boxes

Typenbezeichnung	Ident-No.	Description	
TBSB-L4-CS09	100003273	Switch box for disconnecting the V2 actuator voltage V2	2-channel switch-off from V2 to 9A, separate
TBSB-L5-CS09	100002112	Switch box for disconnecting the V2 actuator	control input for switch-off, control output as feedback loop

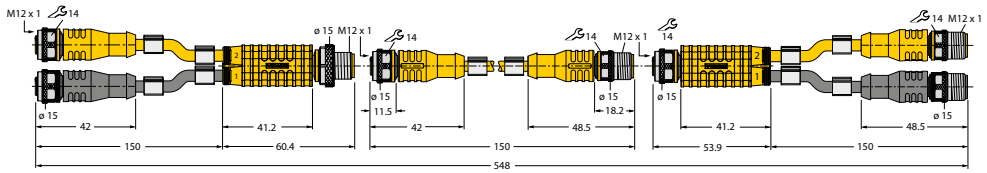
Inductive Safety Sensors

Type code	Ident-No.	Description	
BI4-M12-2APS8X2-H1141	100016606	M12 × 1 PLd inductive safety sensor	4-wire, 2 OSSD, NO contact, PNP
BI8-M18-2APS8X2-H1141	100016607	M18 × 1 PLd inductive safety sensor	4-wire, 2 OSSD, NO contact, PNP
BI12-M30-2APS8X2-H1141	100016608	M30 × 1 PLd inductive safety sensor	4-wire, 2 OSSD, NO contact, PNP

Connectivity

Dimensional drawing	Ident-No.	Type code	Description	Length in m
	6631286	VBRS4.4-2RKC4.880T-0,15/ 0,15/TXL4000	Y-splitter, 2-way, 5-pin, female connector for connecting light screens to modules, male connector 5-way	0.15
	6631289	RKC8.704T-2-RSC4.5T/ TXY3013	Connection cable 8-pin to 5-pin for connecting an SSA illuminated E-stop button, 8-pin directly to the modules	2
	6631290	RKC8.704T-5-RSC4.5T/ TXY3013	Connection cable 8-pin to 5-pin for connecting an SSA illuminated E-stop button, 8-pin directly to the modules	5
	6631295	VBRK8-2RSC4.870T-0,15/ 0,15/TXL4000	Y-splitter, 2-way, 5-pin for connecting an SSA E-stop button, 8-pin to the modules	0.15
	100000219	RKC8T-2-RSC8T/TXY3013	Connection cable 8-pin to 8-pin for connecting an SSA E-stop button, 8-pin directly to the modules via a 6631295 Y-splitter	2
	100000220	RKC8T-5-RSC8T/TXY3013	Connection cable 8-pin to 8-pin for connecting an SSA E-stop button, 8-pin directly to the modules via a 6631295 Y-splitter	5
	6904604	B8151-0/9	M12 x 1 round connector, field-wireable female connector, straight, A-coded with screw terminals, 5-pin, PG9 screw-in thread Cable feedthrough 6.0…8.0 mm	–
	6904613	BS8151-0/9	M12 x 1 round connector, field-wireable male connector, straight, A-coded with screw terminals, 5-pin, PG9 screw-in thread Cable feedthrough 6.0…8.0 mm	–
	6936232	BMS8151-0/PG9/YE	M12 × 1 round connector, field-wireable male connector, straight, A-coded with screw terminals, 5-pin, yellow housing, metal union nut, cable feedthrough 4.0…8.0 mm	–
	6936233	BM8151-0/PG9/YE	M12 × 1 round connector, field-wireable female connector, straight, A-coded with screw terminals, 5-pin, yellow housing, metal union nut, cable feedthrough 4.0…8.0 mm	–

Dimensional drawing



Ident-No.	Type code	Description	Length in m
6631344	VBR-TXL4100	Junction system for connecting an Lxxx light screen, Y-splitter with cable, 2 male connectors M12 x 1, 4-pin to 2 female connectors M12 x 1, 4-pin and 8-pin	0.55
6631345	VBR-TXL4200	Junction system for connecting an Lxxx light screen, Y-splitter with cable, 2 male connectors M12 x 1, 4-pin to 2 female connectors M12 x 1, 8-pin	0.55

Our Portfolio for Your Safety

Hybrid and Full Safety Block I/O Modules

Type code	Ident-No.	Description	
TBPN-L1-FDIO1-2IOL	6814053	Profinet/Profisafe hybrid module, 5-pin power supply	2 dual-channel safety inputs; 2 safety-related configurable dual-channel inputs or PP/PM switching outputs, 4 DXP ports, power supply can be safely switched off, 1 IO-Link master with power supply that can be safely switched off, 1 additional IO-Link master without switch-off ability
TBIP-L4-FDIO-2IOL	100000360	EtherNet/IP/CIP Safety hybrid module, 4-pin power supply	
TBIP-L5-FDIO1-2IOL	6814056	EtherNet/IP/CIP Safety hybrid module, 5-pin power supply	
TBPN-L5-4FDI-4FDX	100001826	Profinet/Profisafe safety module, 5-pin power supply	4 dual-channel safety inputs; 4 safety-related configurable dual-channel inputs or PP/PM switching outputs
TBIP-L4-4FDI-4FDX	100001827	EtherNet/IP/CIP Safety safety module, 4-pin power supply	
TBIP-L5-4FDI-4FDX	100001828	EtherNet/IP/CIP Safety safety module, 5-pin power supply	
TSC	6814048	Cost-neutral software	Turck Safety Configurator software for configuration and safe logic programming of the modules

Light Screens

Type code	Ident-No.	Description	
SLPP14-410P88	3083725	EZ-Screen LP, compact design, Safety light screen, Emitter/receiver pair	14 mm resolution*, 410 mm height of monitoring field**, 2 x OSSD outputs, NC contacts, cable with plug connector M12 x 1, 8-pin
SLPP14-970P88	3083729		14 mm resolution*, 970 mm height of monitoring field**, 2 x OSSD outputs, NC contacts, cable with plug connector M12 x 1, 8-pin
*Models with 25 mm resolution available | **Monitoring field heights 270…1810 mm available in 12 lengths			
SLLP14-770P88	3089673	EZ-Screen LS, simple setup, Safety light screen, Emitter/receiver pair	14 mm resolution*, 770 mm height of monitoring field**, 2 x OSSD outputs, NC contacts, cable with plug connector M12 x 1, 8-pin***
SLLP14-490P88	3089669		14 mm resolution*, 490 mm height of monitoring field**, 2 x OSSD outputs, NC contacts, cable with plug connector M12 x 1, 8-pin***
*Models available with 23 and 40 mm resolution | **Monitoring field heights 280…1820 mm available in 23 lengths | ***Models available with 5-pin with plug connector			

Illuminated E-Stop Buttons

Type code	Ident-No.	Description		Design
SSA-EB1PLYR-12ECQ8	3025304	Illuminated E-stop button/not actuated: constant yellow/actuated: flashing red/ interrupted externally: constant red	2 safety outputs, NC contact, 1 x auxiliary output, no contact, M12 × 1 connector, 8-pin	Circular
SSA-EB1PLYR-02ECQ5B	3026267		2 safety outputs, NC contact, M12 × 1 connector, 5-pin	
SSA-EB1PLYR-12ED1Q8	3029989	Illuminated E-stop button/not actuated: constant yellow/actuated: flashing red/ interrupted externally: constant red	2 safety outputs, NC contact, 1 x auxiliary output, no contact, M12 × 1 connector, 8-pin	Square
SSA-EB1PLYR-02ED1Q5B	3030028		2 safety outputs, NC contact, M12 × 1 connector, 5-pin	

Two-Hand Module with Self-Checking Button and OSSD Output

Type code	Ident-No.	Description	
STBVP6BQ5	3064181	Duo-Touch two-hand control,	2 outputs, NC contacts

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