TURCK | **BANNER**

Safety
Solutions

Contents

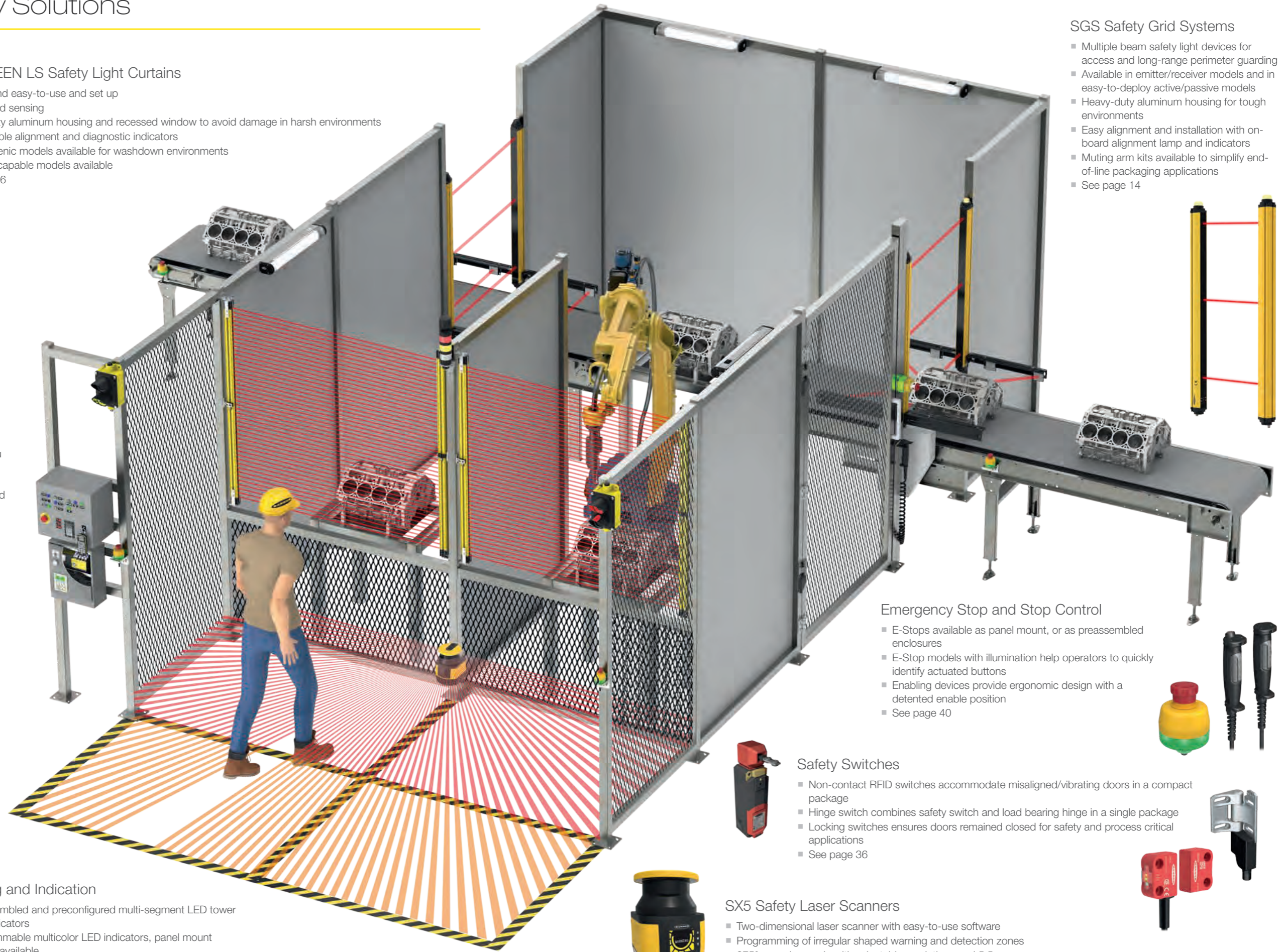# Complete Safety Solutions

EZ-SCREEN LS Safety Light Curtains

- Intuitive and easy-to-use and set up
- End-to-end sensing
- Heavy-duty aluminum housing and recessed window to avoid damage in harsh environments
- Highly visible alignment and diagnostic indicators
- IP69 Hygienic models available for washdown environments
- Cascade capable models available
- See page 6

SGS Safety Grid Systems

- Multiple beam safety light devices for access and long-range perimeter guarding
- Available in emitter/receiver models and in easy-to-deploy active/passive models
- Heavy-duty aluminum housing for tough environments
- Easy alignment and installation with on-board alignment lamp and indicators
- Muting arm kits available to simplify end-of-line packaging applications
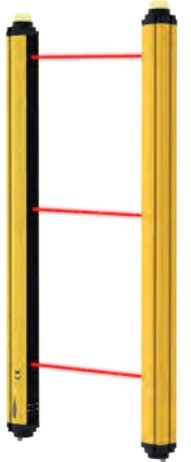- See page 14

XS26-2 Expandable Safety Controllers

- Up to eight expansion I/O modules can be added as your safety application grows or changes
- Configuration software is so simple that you will be programming in minutes
- Simulator functionality allows users to test their configurations without being connected to a controller
- See page 25

Emergency Stop and Stop Control

- E-Stops available as panel mount, or as preassembled enclosures
- E-Stop models with illumination help operators to quickly identify actuated buttons
- Enabling devices provide ergonomic design with a detented enable position
- See page 40

Safety Switches

- Non-contact RFID switches accommodate misaligned/vibrating doors in a compact package
- Hinge switch combines safety switch and load bearing hinge in a single package
- Locking switches ensures doors remained closed for safety and process critical applications
- See page 36

Lighting and Indication

- Preassembled and preconfigured multi-segment LED tower light indicators
- Programmable multicolor LED indicators, panel mount models available
- Pro Editor software offers a wide variety of color and animation options

SX5 Safety Laser Scanners

- Two-dimensional laser scanner with easy-to-use software
- Programming of irregular shaped warning and detection zones
- 275° scanning angle with selectable resolutions and 5.5 m range
- See page 20

Type 4 Heavy-Duty Light Curtains

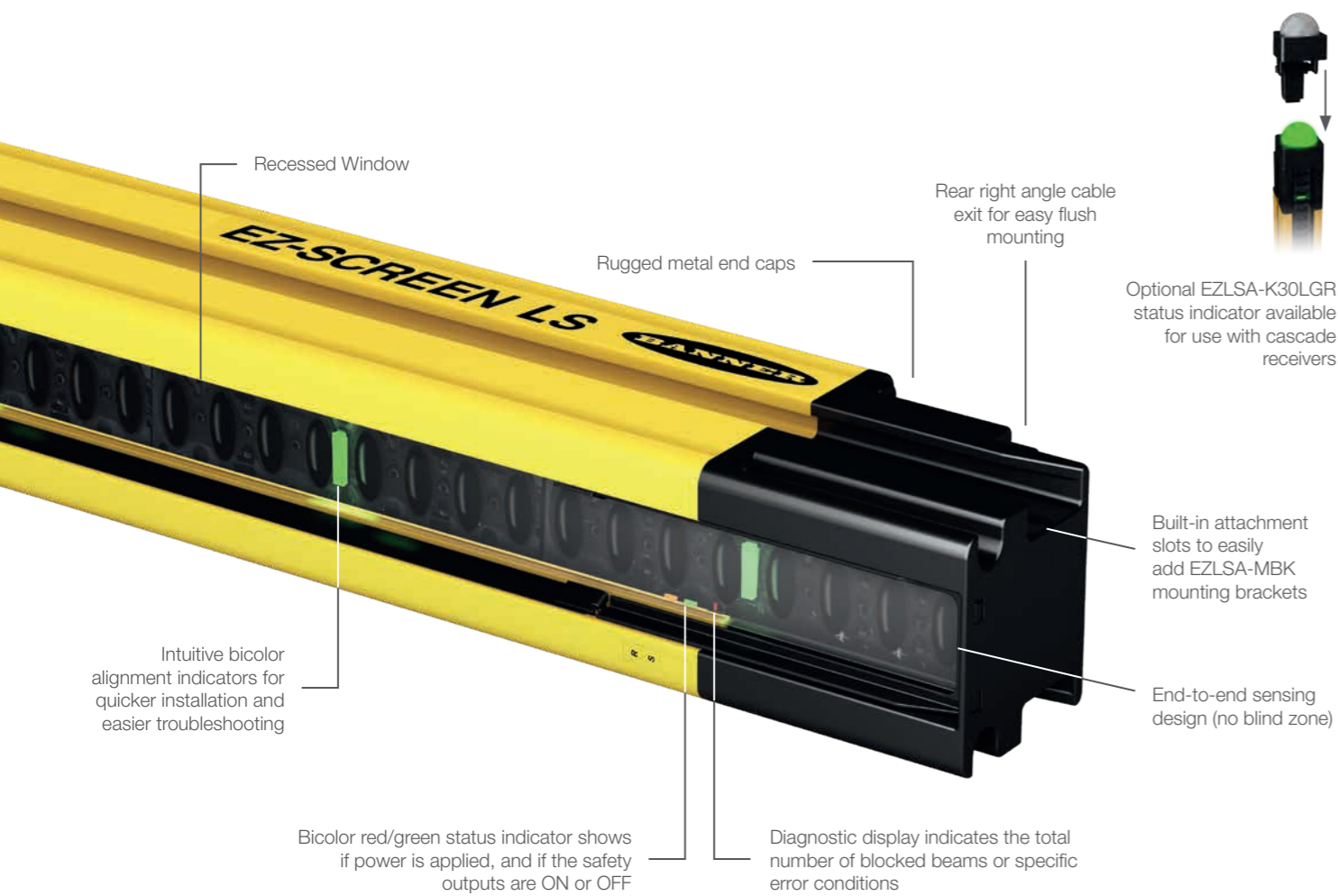## Robust safety light curtains for harsh industrial environments

Banner Engineering's easy-to-use, heavy-duty Type 4 safety light curtains with several resolution options available to detect fingers, hands, arms, or legs. Our heavy duty light curtains are built to withstand harsh industrial environments.
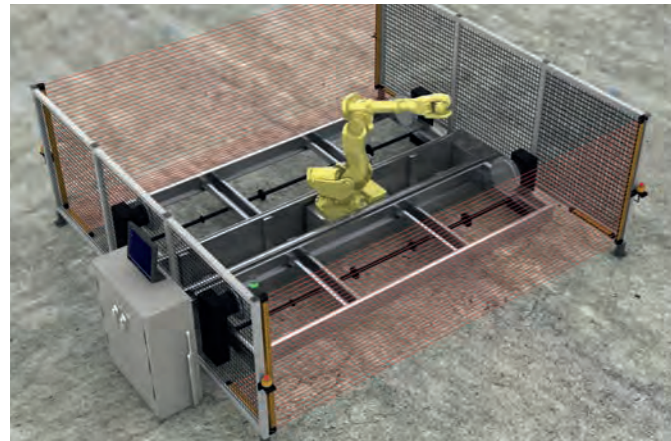
Due to its robust design, the EZ-SCREEN LS is the perfect fit in large robotic cell applications that require sturdy safety devices and heavy duty enclosures.

EZ-SCREEN LS light curtains in hygienic tubular enclosures successfully protect operators from injury and remain hygienic for easy cleaning procedures.

EZ-SCREEN LS

- Recessed Window
- Rugged metal end caps
- Rear right angle cable exit for easy flush mounting
- Optional EZLSA-K30LGR status indicator available for use with cascade receivers
- Built-in attachment slots to easily add EZLSA-MBK mounting brackets
- End-to-end sensing design (no blind zone)
- Intuitive bicolor alignment indicators for quicker installation and easier troubleshooting
- Bicolor red/green status indicator shows if power is applied, and if the safety outputs are ON or OFF
- Diagnostic display indicates the total number of blocked beams or specific error conditions

Type 4 Compact Light Curtains

Compact safety light curtains for safety in tight spaces

Banner Engineering's easy-to-use, compact Type 4 safety light curtains are available with several resolution options available to detect fingers, hands, arms, or legs. Our compact safety light curtains are ideal for smaller machines and other space-constrained areas.

SLC4 are Type 4 safety light curtains specifically designed to safeguard smaller points of operation and access on compact machines.
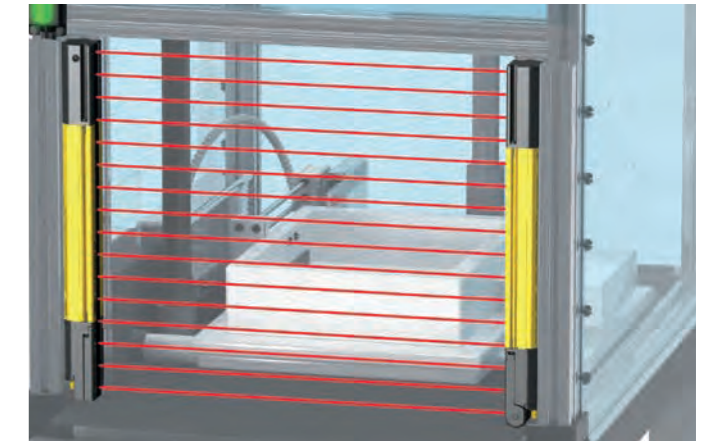
The EZ-SCREEN LP safety light screen is compact and mounts in tight spaces with its continual end-to-end sensing that leaves no gaps.

SLC4 / EZ-SCREEN LP

- Threaded inserts for end-mount brackets
- Low-profile compact package for smaller production machines
- End-to-end sensing design (no blind zone)
- IP65 polycarbonate enclosure
- Intuitive bicolor red/green alignment and blocked zone indicator lights
- Sturdy aluminum housing
- Bicolor red/green status indicator shows if power is applied, and if safety outputs are ON or OFF
- Sturdy interior aluminum housing
- Intuitive bicolor red/green alignment and blocked zone indicator lights
- Diagnostic display indicates the total number of blocked beams or specific error conditions
- RD Removable Disconnect Pigtail connection

Safety Light Curtain Selection

Choose your safety light curtain, suitable for a wide variety of safety applications.

- Heavy-Duty Type 4 robust safety light curtains for harsh industrial environments
- Compact Type 4 safety light curtains for safety in tight spaces
- Type 2 cost-effective safety light curtains for lower risk applications
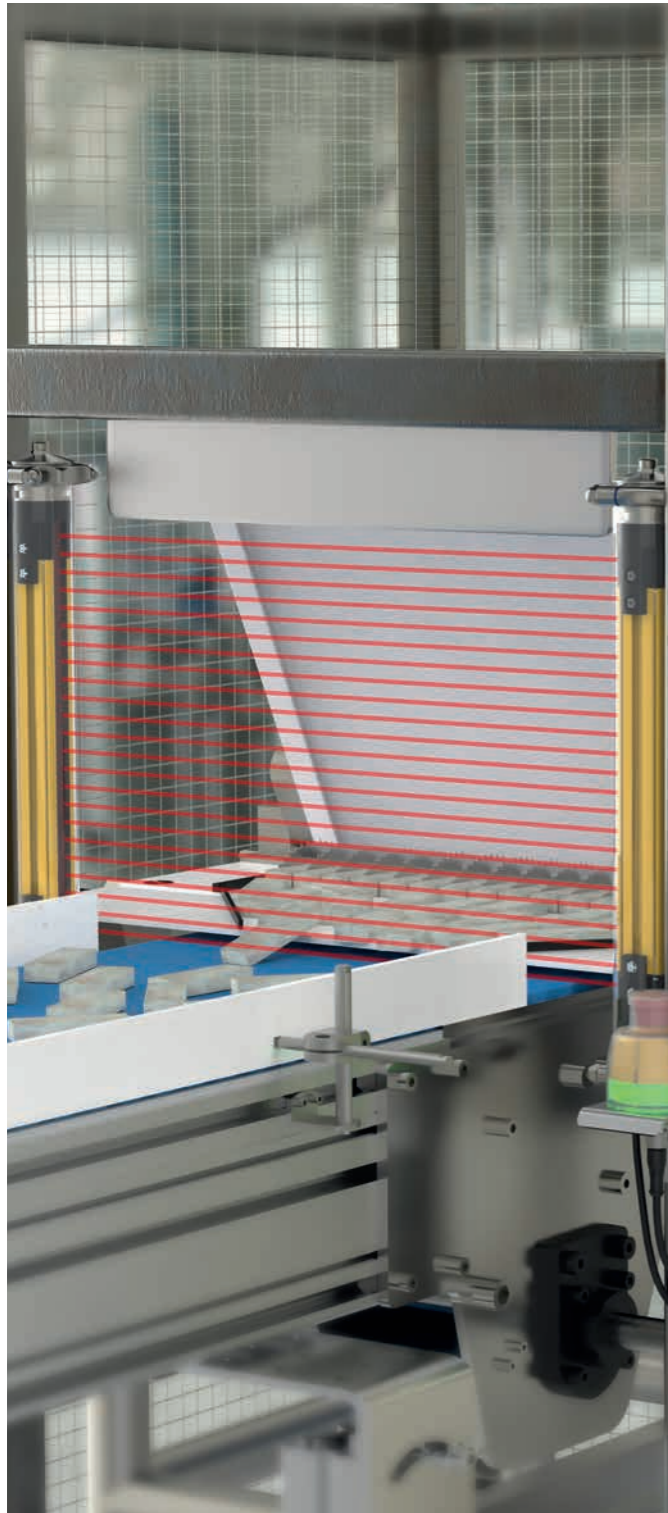
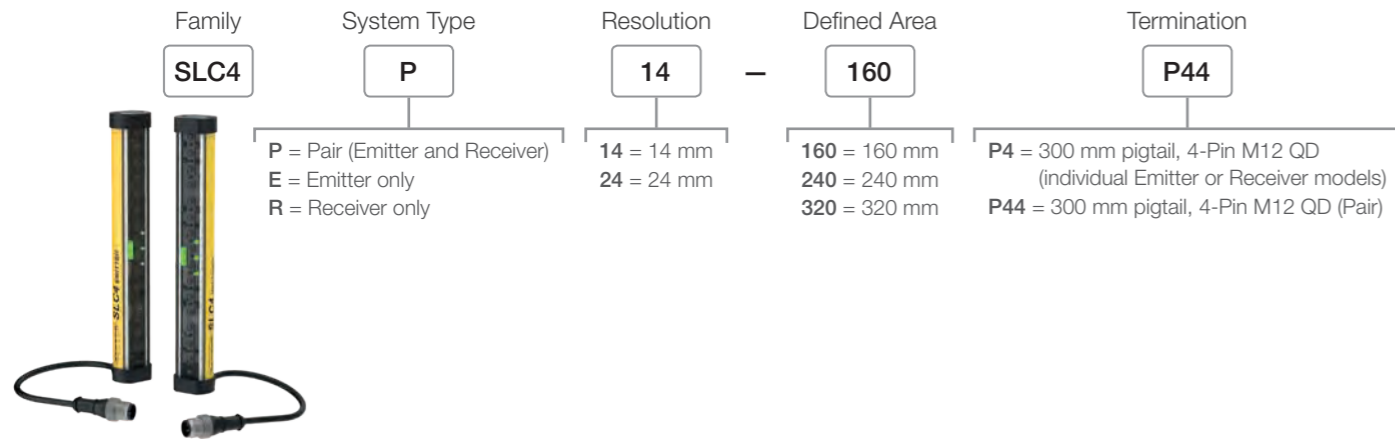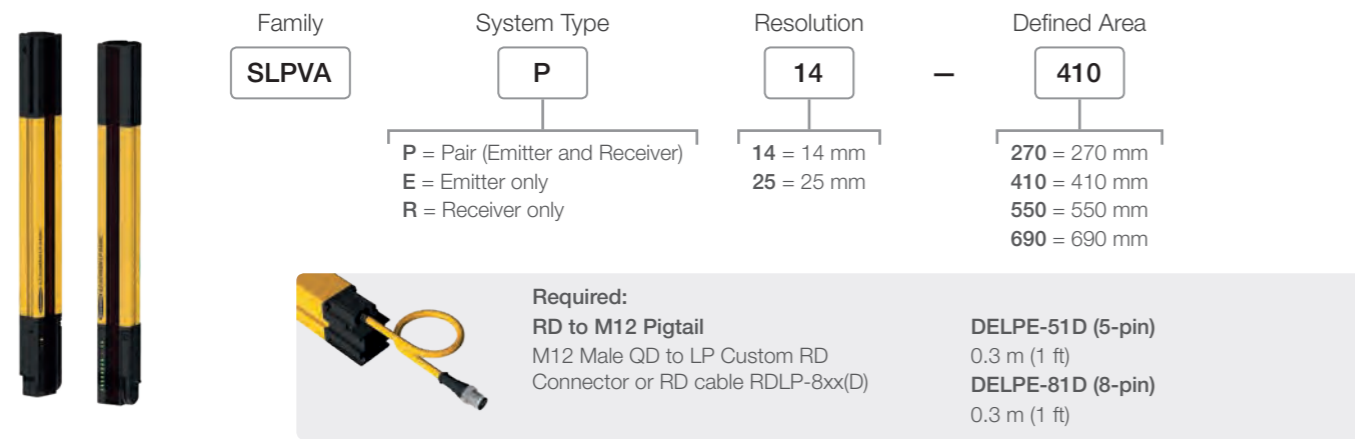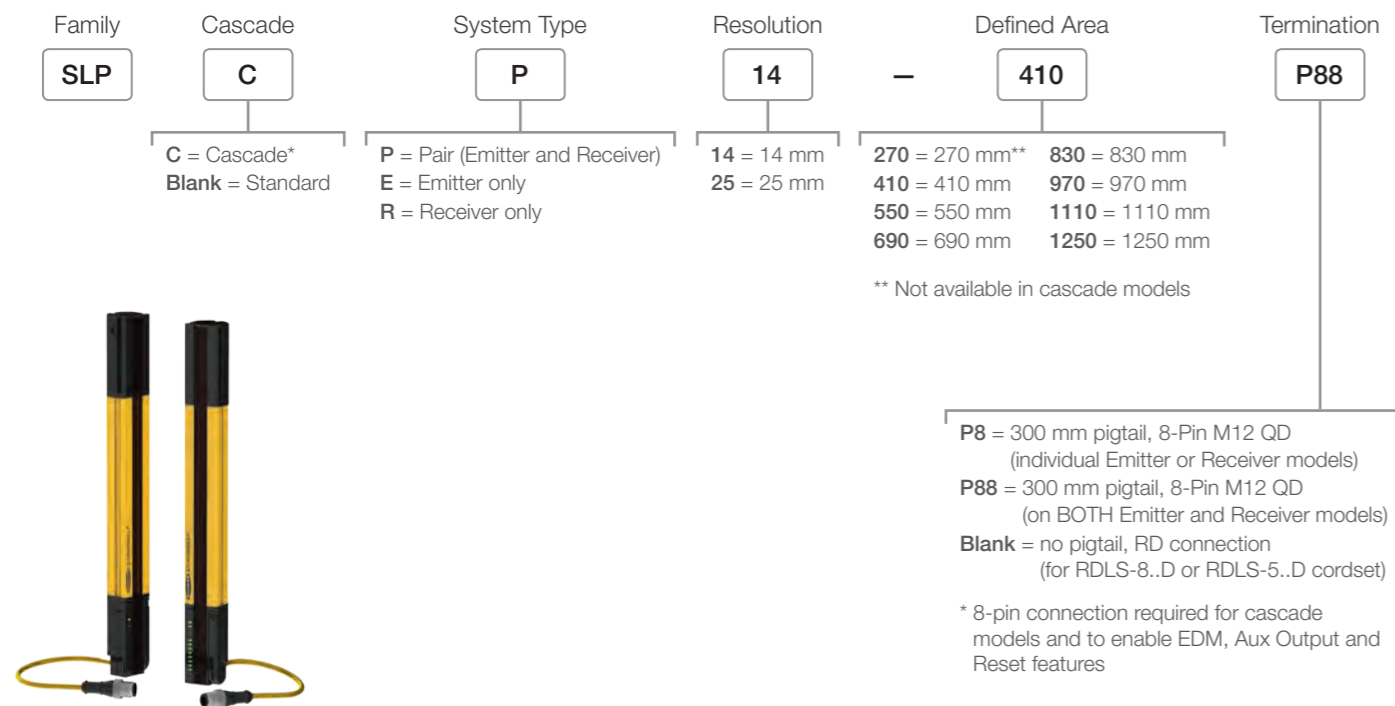|	Compact Type 4		Compact Type 4		Heavy-Duty Type 4			Type 2
	SLC4	EZ-SCREEN LP Basic	EZ-SCREEN LP	EZ-SCREEN LP with Muting	EZ-SCREEN LS Basic	EZ-SCREEN LS	EZ-SCREEN	EZ-SCREEN
Finger Detection	✓	✓	✓	✓	–	✓	✓	–
Hand Detection	✓	✓	✓	✓	✓	✓	✓	✓
Muting/Presence Detection	–	–	–	✓ (muting)	–	✓ (presence)	–	–
Family	SLC4	SLPVA	SLP	SLPMP	SLLV	SLL	SLS	LS2
Type IEC 61496-1, -2	Type 4	Type 4	Type 4	Type 4	Type 4	Type 4	Type 4	Type 2
Safety Rating EN ISO 13849-1; IEC 61508; IEC 62061	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 2 PL c
Dimensions W x D (mm)	26.7 x 22.1	28 x 26	28 x 26	28 x 26	36 x 45	36 x 45	36 x 45.2	25.4 x 31.8
Resolution (mm)	14, 24 mm	14, 25 mm	14, 25 mm	14, 25 mm	23 mm	14, 23, 40 mm	14, 30 mm	30 mm
Max Sensing Range (m)	0.1 to 2 m	0.1 to 4 m	0.1 to 7 m	0.1 to 7 m	0.1 to 8 m	0.1 to 12 m	14: 0.1 to 6 m 30: 0.1 to 18 m	0.2 to 15 m
Defined Area (mm)	160 mm 240 mm 320 mm	270, 410, 550, 690 mm	270 to 1250 mm	410 to 1250 mm	350, 420, 630, 910, 1050, 1190, 1260, 1330, 1540, 1820 mm	280 to 1820 mm	14: 150 to 1800 mm 30: 150 to 2400 mm	150 to 1800 mm
Increments (mm)	Not applicable	Not applicable	140 mm	140 mm	Not applicable	70 mm	150 mm	150 mm
Functions								
Reset	–	–	✓	✓	–	–	✓	✓
EDM	–	–	✓	✓	✓	✓	✓	✓
Scan Code	–	–	✓	✓	✓	✓	✓	–
Reduced Resolution	–	–	✓	✓	–	–	✓	–
Fixed Blanking	–	–	✓	✓	–	✓	✓	–
Integrated Muting	–	–	–	✓	–	–	–	–
Cascade	–	–	SLPC	–	–	SLLC	SLSC	–
E-Stop/Safety Switch Connect	–	–	SLPC	–	–	SLLC	SLSC	–
Brackets Included	–	–	✓	✓	–	✓	✓	✓
Connection	4-pin Integral Pigtail M12 — Included	5-pin Pigtail M12 or 8-pin Pigtail M12 — Order separately	8-pin Pigtail M12 — Included or order separately	8-pin Pigtail M12 and 12-pin Pigtail M12 — Included or order separately	5-pin Pigtail M12 or 8-pin Pigtail M12 — Order separately	5-pin Pigtail M12 or 8-pin Pigtail M12 — Included or order separately	8-pin M12 or 8-pin Pigtail M12 — Included (Pigtail)	8-pin M12
Options								
LED on Top	–	–	–	Accessory	–	Accessory	–	–
Different Housing	–	–	–	–	–	EZLSA-HTE IP69	Tubular Enclosures IP67	–
Available Finishing	–	–	- Yellow Painted Aluminum - Clear Anodized Aluminum - Nickel-Plated ESD	–	–	–	- Yellow Painted Aluminum - Clear Anodized Aluminum - Nickel-Plated ESD	–

Safety Light Curtains – Model Keys

Compact Type 4: SLC4

Family	System Type	Resolution		Defined Area	Termination
SLC4	P	14	–	160	P44

System Type
P = Pair (Emitter and Receiver)
E = Emitter only
R = Receiver only

Resolution
14 = 14 mm
24 = 24 mm

Defined Area
160 = 160 mm
240 = 240 mm
320 = 320 mm

Termination
P4 = 300 mm pigtail, 4-Pin M12 QD
(individual Emitter or Receiver models)
P44 = 300 mm pigtail, 4-Pin M12 QD (Pair)

Compact Type 4: EZ-SCREEN LP Basic

Family	System Type	Resolution		Defined Area
SLPVA	P	14	–	410

System Type
P = Pair (Emitter and Receiver)
E = Emitter only
R = Receiver only

Resolution
14 = 14 mm
25 = 25 mm

Defined Area
270 = 270 mm
410 = 410 mm
550 = 550 mm
690 = 690 mm

Required:
RD to M12 Pigtail
M12 Male QD to LP Custom RD
Connector or RD cable RDLP-8xx(D)

DELPE-51D (5-pin)
0.3 m (1 ft)
DELPE-81D (8-pin)
0.3 m (1 ft)

Compact Type 4: EZ-SCREEN LP

Family	Cascade	System Type	Resolution		Defined Area	Termination
SLP	C	P	14	–	410	P88

Cascade
C = Cascade*
Blank = Standard

System Type
P = Pair (Emitter and Receiver)
E = Emitter only
R = Receiver only

Resolution
14 = 14 mm
25 = 25 mm

Defined Area
270 = 270 mm**
410 = 410 mm
550 = 550 mm
690 = 690 mm
830 = 830 mm
970 = 970 mm
1110 = 1110 mm
1250 = 1250 mm

** Not available in cascade models

Termination
P8 = 300 mm pigtail, 8-Pin M12 QD
(individual Emitter or Receiver models)
P88 = 300 mm pigtail, 8-Pin M12 QD
(on BOTH Emitter and Receiver models)
Blank = no pigtail, RD connection
(for RDLS-8..D or RDLS-5..D cordset)

* 8-pin connection required for cascade
models and to enable EDM, Aux Output and
Reset features

Safety Light Curtains – Model Keys

Compact Type 4: EZ-SCREEN LP with Muting

Family	Resolution		Defined Area	Finish	Termination
SLPMP	14	–	410		

Family
SLPE = Emitter
SLPMR = Receiver
SLPMP = Pair

Resolution
14 = 14 mm
25 = 25 mm

Defined Area
410 = 410 mm
550 = 550 mm
690 = 690 mm
830 = 830 mm
970 = 970 mm
1110 = 1110 mm
1250 = 1250 mm

Finish
Blank = Yellow powder coat
N = Nickel-plated ESD
A = Clear Anodized Aluminum

Termination
Blank = Integral Removable Disconnect
P8 = 8-pin Pigtail QD (SLPE)
P12 = 12-pin Pigtail QD (SLPMR)
P128 = For SLPMP (Pair)
Emitter with 8-pin pigtail QD
Receiver with 12-pin pigtail QD

Heavy-Duty Type 4: EZ-SCREEN LS Basic

Family	System Type	Resolution		Defined Area
SLLV	P	23	–	910

System Type
P = Pair (Emitter and Receiver)
E = Emitter only
R = Receiver only

Resolution
23 = 23 mm

Defined Area
350 = 350 mm   1050 = 1050 mm   1540 = 1540 mm
420 = 420 mm   1190 = 1190 mm   1820 = 1820 mm
630 = 630 mm   1260 = 1260 mm
910 = 910 mm   1330 = 1330 mm

Required:
M12 Pigtail
Euro-Style Quick Disconnect to LS
Custom Male Straight Connector or
RD cable RDLP-8xx(D)

DELSE-51D (5-pin)
0.3 m (1 ft)
DELSE-81D (8-pin)
0.3 m (1 ft)

Heavy-Duty Type 4: EZ-SCREEN LS

Family	Cascade	System Type	Resolution		Defined Area	Termination
SLL	C	P	14	–	910	P88

Cascade
C = Cascade
Blank = Standard

System Type
P = Pair (Emitter and Receiver)
E = Emitter only
R = Receiver only

Resolution
14 = 14 mm
23 = 23 mm
40 = 40 mm

Termination
P8 = 300 mm pigtail, 8-Pin M12 QD
(individual Emitter or Receiver models)
P88 = 300 mm pigtail, 8-Pin M12 QD
(on BOTH Emitter and Receiver models)
P5 = 300 mm pigtail, 5-Pin M12 QD
(individual Emitter or Receiver models)
P55 = 300 mm pigtail, 5-Pin M12 QD
(on BOTH Emitter and Receiver models)
Blank = no pigtail, RD connection
(for RDLS-8..D or RDLS-5..D cordset)

Defined Area
280 = 280 mm*   840 = 840 mm   1400 = 1400 mm
350 = 350 mm   910 = 910 mm   1470 = 1470 mm
420 = 420 mm   980 = 980 mm   1540 = 1540 mm
490 = 490 mm   1050 = 1050 mm   1610 = 1610 mm
560 = 560 mm   1120 = 1120 mm   1680 = 1680 mm
630 = 630 mm   1190 = 1190 mm   1750 = 1750 mm
700 = 700 mm   1260 = 1260 mm   1820 = 1820 mm
770 = 770 mm   1330 = 1330 mm

* Not available in cascade models

Safety Light Curtains – Model Keys

Heavy-Duty Type 4 IP69 Hygienic: EZ-SCREEN LS

Family		System Type	Resolution	Defined Area		Termination
EZLSA-HTE	–	R	23	–	910	–

System Type
E = Emitter*
R = Receiver

Resolution
23 = 23 mm

Defined Area
280 = 280 mm*	700 = 700 mm
350 = 350 mm	770 = 770 mm
420 = 420 mm	840 = 840 mm
490 = 490 mm	910 = 910 mm
560 = 560 mm	980 = 980 mm
630 = 630 mm	1050 = 1050 mm

* Not available with remote fixed blanking option

Termination
Blank = 25 ft, 8-wire high durometer PVC cordset
F = Remote Fixed Blanking Receiver model with additional 25 ft cordset for blanking configuration

Heavy-Duty Type 4: EZ-SCREEN

Family	Cascade	System Type	Resolution	Defined Area	Finish	Termination
SLS	C	P	14	– 150		Q88

Cascade
C = Cascade

System Type
E = Emitter
R = Receiver
P = Pair

Resolution
14 = 14 mm
30 = 30 mm

Defined Area
150 = 150 mm*
300 = 300 mm
450 = 450 mm
600 = 600 mm
750 = 750 mm
900 = 900 mm
1050 = 1050 mm
1200 = 1200 mm
1350 = 1350 mm
1500 = 1500 mm
1650 = 1650 mm
1800 = 1800 mm
1950 = 1950 mm**
2100 = 2100 mm**
2250 = 2250 mm**
2400 = 2400 mm**

* Not available in cascade models
** Only available in cascade models

Finish
Blank = Yellow powder coat
N = Nickel-plated ESD (ESD-safe models are not available with pigtail QD)
A = Clear Anodized Aluminum
S = Nickel-plated (silver)

Termination
Q8 = 8-pin QD (individual Emitter or Receiver models)
P8 = 8-pin Pigtail QD (individual Emitter or Receiver models)
Q88 = For Pair
Emitter with 8-pin QD
Receiver with 8-pin QD
P88 = For Pair
Emitter with 8-pin pigtail QD
Receiver with 8-pin pigtail QD

Type 2: EZ-SCREEN LS2

Family	System Type	Resolution	Defined Area		Termination
LS2	TP	30	– 150		Q88

System Type
E = Emitter
TR = Trip Receiver
TP = Trip Pair
LR = Latch Receiver
LP = Latch Pair

Resolution
30 = 30 mm

Defined Area
150 = 150 mm	1050 = 1050 mm
300 = 300 mm	1200 = 1200 mm
450 = 450 mm	1350 = 1350 mm
600 = 600 mm	1500 = 1500 mm
750 = 750 mm	1650 = 1650 mm
900 = 900 mm	1800 = 1800 mm

Termination
Q8 = 8-pin QD (individual Emitter or Receiver models)
Q88 = For Pair
Emitter with 8-pin QD
Receiver with 8-pin QD

Safety Light Curtains – Accessories

SLC4 Brackets

SLC4A-MBK-10
- End Mount Bracket
- Rotation: +/- 20º
- Includes 4 brackets and hardware
- Glass-filled polycarbonate

SLC4A-MBK-11
- End Mount Bracket
- Rotation: Fixed
- Includes 4 brackets and hardware
- Glass-filled polycarbonate

SLC4A-MBK-12
- Side mount bracket
- Rotation: +/- 15º
- Includes 2 brackets
- Glass-filled polycarbonate

LP Cascade Brackets

LPA-MBK-21
- Pivoting cascade mounting bracket
- Includes 2 brackets and hardware
- 14 ga. steel, black zinc-plated

LP Brackets

LPA-MBK-10
- End mount bracket
- Rotation: 40º
- Includes 2 brackets and hardware
- 8 ga. steel, black zinc-plated

LPA-MBK-11
- Standard end mount bracket
- Rotation: 360º
- Includes 2 brackets and hardware
- 14 ga. steel, black zinc-plated

LPA-MBK-12
- Standard side mount bracket
- Rotation: +10º and -30º
- Includes 1 bracket and hardware
- 14 ga. steel, black zinc-plated

LPA-MBK-16
- Side mount bracket
- Rotation: +15º and -20º
- Includes 1 bracket and hardware
- Black zinc die-cast

LS Brackets

EZLSA-MBK-11
- End mount steel bracket
- 360º rotation in 23º increments
- Two supplied with each sensor
- Not included with LS Basic or IP69 Hygienic models

LS Brackets

EZLSA-MBK-12
- Center mount steel bracket
- Rotation: +/- 15º
- One supplied with each sensor ≥ 980 mm
- Not included with LS Basic or IP69 Hygienic models

EZLSA-MBK-16
- Side mount die-cast bracket
- Rotation: +15º and -20º
- One bracket per optional kit

EZLSA-MBK-20
- 8-ga. black cold-rolled steel
- Optional end-mount bracket for slotted aluminum framing

EZLSA-MBK-HTE-1
- Stamped stainless steel bracket
- 360º rotation for IP69 enclosure models
- Two brackets per optional kit

EZLSA-MBK-HTE-2
- Hygienic stainless steel bracket
- 360º rotation for IP69 enclosure models
- Two brackets per optional kit

Safety Light Curtains Cables

5-Pin M12/Euro-Style		8-Pin M12/Euro-Style	
QDE-515D 4.5 m (15')	QDE-575D 22.8 m (75')	QDE-815D 4.5 m (15')	QDE-875D 22.8 m (75')
QDE-525D 7.6 m (25')	QDE-5100D 30.4 m (100')	QDE-825D 7.6 m (25')	QDE-8100D 30.4 m (100')
QDE-550D 15.2 m (50')		QDE-850D 15.2 m (50')	

Type 4 Safety Light Grids

Easy-to-use, heavy-duty Type 4 grids for perimeter guarding

Two to four beam Type 4 safety light grids protect personnel from injury and machines from damage by guarding access, areas, and perimeters. Able to detect a body in a cost-effective and heavy-duty safety light curtain package.
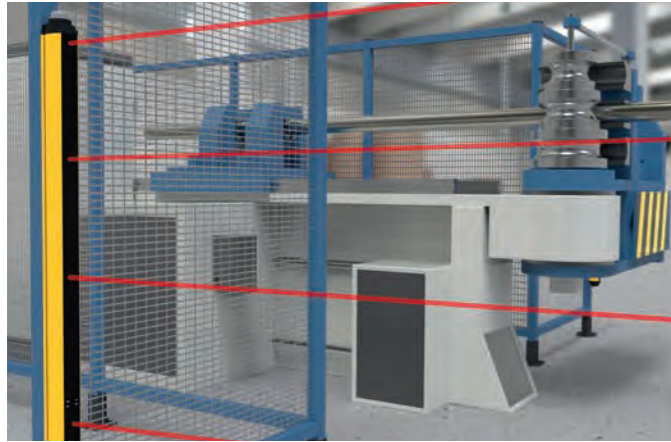
SGS Safety Grid Systems, with two, three, or four beams, are used to monitor the perimeter of the work area.

SGS Safety Grid Systems are available in Emitter/Receiver models capable of safeguarding over very long distances and in easy-to-deploy Active/Passive models.

Built-in attachment slots to easily add brackets and/or mute arm kits

Alignment & Mute Indication Lamp

Rugged metal body

Diagnostic display aides set-up, displays operating status or specific error conditions

QD connector(s) for easy installation

Emitter

- Power ON
- Status

Receiver

- OSSD Outputs ON — Last Beam
- OSSD Outputs OFF — Synch Beam
- EDM Status
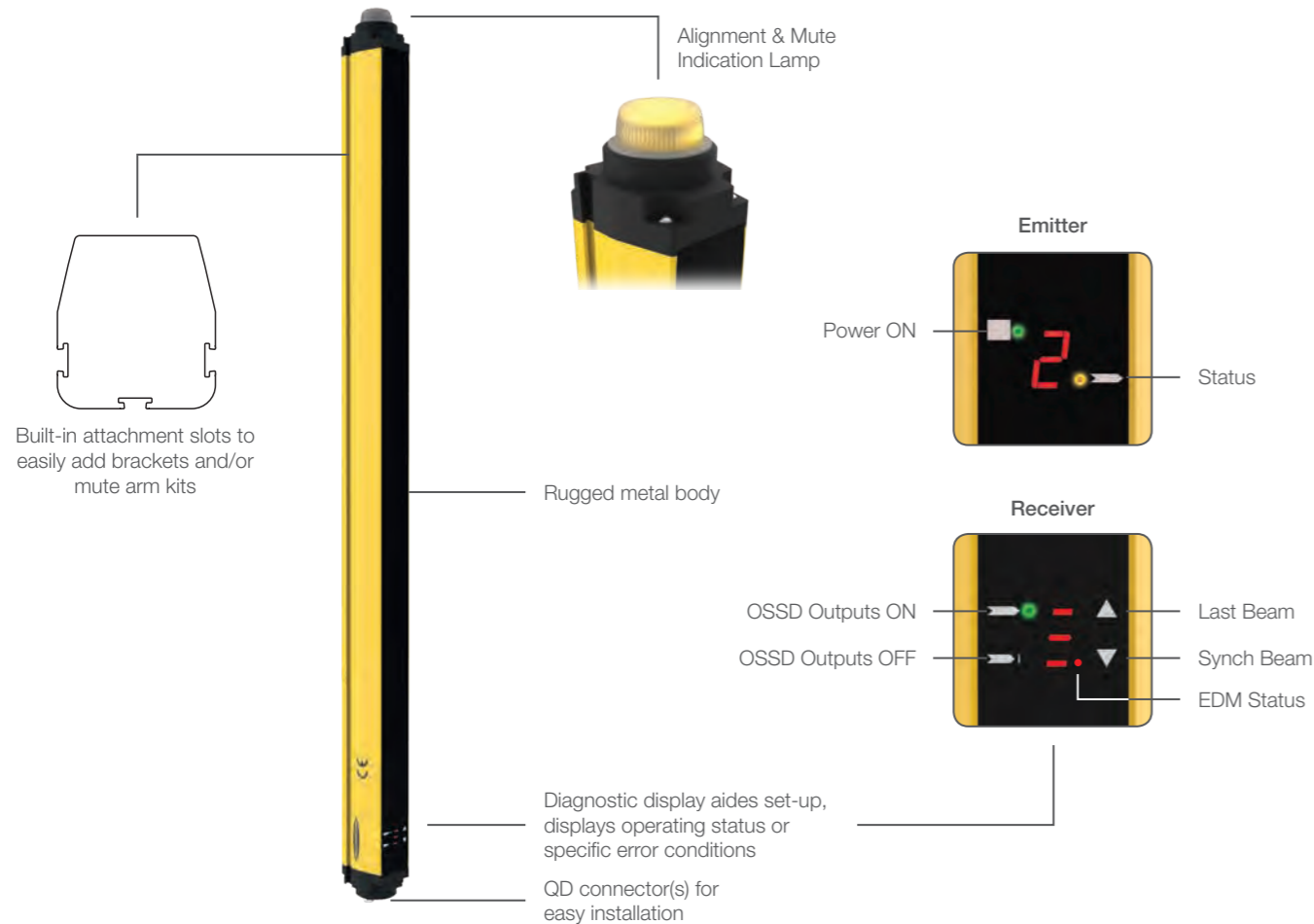
Muting Options for Safety Light Grids

Certain SGS models are available with integral muting for specific types of entry/exit applications

Integral Muting allows monitoring of redundant mute device inputs and automatically suspends (mutes) the safeguarding function of a device during the non-hazardous portion of the machine cycle.

Integral muting models have muting technology built into the device eliminating the need for an external muting controller. Preassembled muting arm kits are available in T, L and X configurations. The muting kits use premounted hardware and Q20 retroreflective sensors and reflectors.

Benefits of Muting

- Maintain high safety standards while allowing for a predetermined object to break a beam
- Limit downtime by not unnecessarily shutting down a conveyor or robot cell

Applications

- Assembly and packaging machines
- Automated production equipment
- Robotic work cells
- Automated warehouses
- Palletizers

Mute Arm Kits

Preassembled (with mounting hardware) for plug-and-play connection to the SGS grid and LS Safety Light Curtains

- Wiring connection block or cable accessories available
- Adjusts easily for line changes

L-Configuration

(left)

(right)
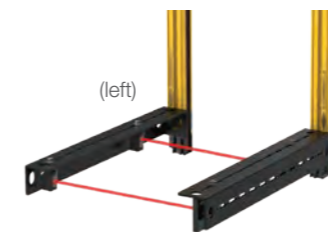
SGSA-ML-L-LPQ20
- Includes 2 mute arms, 2 SGSA-Q20PLPQ5 mute sensors, and 2 retroreflectors
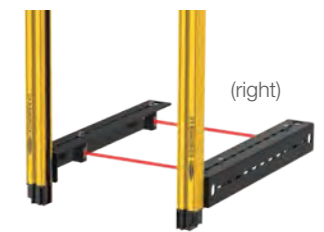
SGSA-ML-R-LPQ20
- Includes 2 mute arms, 2 SGSA-Q20PLPQ5 mute sensors, and 2 retroreflectors

T-Configuration

SGSA-MT-LPQ20
- Includes 4 mute arms, 4 SGSA-Q20PLPQ5 mute sensors, and 4 retroreflectors

X-Configuration

SGSA-MX-LPQ20
- Includes 4 mute arms, 2 SGSA-Q20PLPQ5 mute sensors, and 2 retroreflectors

SGS Selection

Choose your safety light grids for perimeter guarding.

- 2, 3 & 4 beam Emitter/Receiver models with a broad feature set
- 2, 3 & 4 beam easy-to-deploy Active/Passive models, only require wiring to the active side

	SGS Active/Passive Use with SGSB	SGS Emitter/ Receiver	SGS Long Distance	SGS Active/Passive with Muting Use with SGSB	SGS Emitter/ Receiver with Muting	SGS Mirror Use with SGSSA/SGSMA
Body Detection						
Muting						
Family	SGSSA	SGSSP	SGSXP	SGSMA	SGSMP	SGSB
Type IEC 61496-1, -2	Type 4	Type 4	Type 4	Type 4	Type 4	/
Safety Rating EN ISO 13849-1; IEC 61508; IEC 62061	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	Category 4 PL e; SIL3; SIL CL3	/
Dimensions W x D (mm)	52 x 56.9	52 x 56.9	52 x 56.9	52 x 56.9	52 x 56.9	52 x 56.9
Unit Type	Active/Passive	Emitter/Receiver	Emitter/Receiver	Active/Passive	Emitter/Receiver	Mirror Assembly
Max Sensing Range (m)	0.5 to 8 m (6.5 m[†])	0.5 to 30 m	6 to 60 m	0.5 to 8 m (6.5 m[†])	0.5 to 30 m	/
Number of Beams	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4
Beam Spacing	300[†]/400/500 mm	300/400/500 mm	300/400/500 mm	300[†]/400/500 mm	300/400/500 mm	300/400/500 mm

Functions

Reset	✓	✓	✓	✓	✓	/
EDM	✓	✓	✓	✓	✓	/
Scan Code	–	✓	✓	–	✓	/
Integrated Muting	–	–	–	✓	✓	/
Integrated Muting Lamp	–	–	–	✓	✓	/
Override Input	–	–	–	✓	✓	/
Connection	8-pin M12	8-pin M12	8-pin M12	12-pin M12 and 5-pin M12 for muting sensors	E: 8-pin M12 R: 12-pin M12 E & R: 5-pin M12 for muting sensors	/

Options

Brackets	✓	✓	✓	✓	✓	✓
Muting Arms	–	–	–	✓	✓	✓

SGS Emitter/Receiver

- When compared to higher resolution light screens, a lower cost option for body detection applications
- Available with integral muting
- Long range, up to 60 m
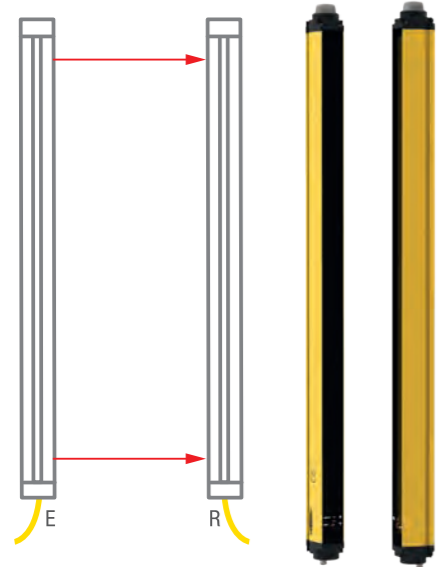
Type	Protective Height (mm)	Range (m)	Integral Muting	Model
Emitter & Receiver	500 (2 beams)	6 to 60	No	SGSXP2-500Q88
	800 (3 beams)			SGSXP3-400Q88
	900 (4 beams)			SGSXP4-300Q88
	1200 (4 beams)			SGSXP4-400Q88
Emitter & Receiver	500 (2 beams)	0.5 to 30	No	SGSSP2-500Q88
	800 (3 beams)			SGSSP3-400Q88
	900 (4 beams)			SGSSP4-300Q88
	1200 (4 beams)			SGSSP4-400Q88
Emitter & Receiver	500 (2 beams)	0.5 to 30	Yes	SGSMP2-500Q128
	800 (3 beams)			SGSMP3-400Q128
	900 (4 beams)			SGSMP4-300Q128
	1200 (4 beams)			SGSMP4-400Q128

E   R

SGS Active/Passive

- Active transceiver contains emitter and receiver
- Reduces overall wiring costs
- Available with integral muting
- Up to 8 m range
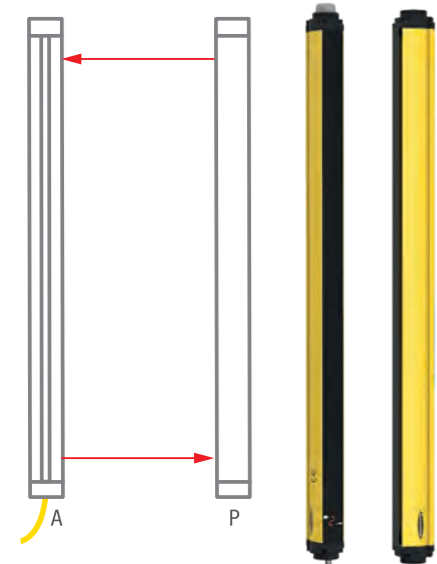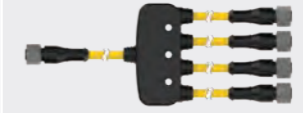
Type	Protective Height (mm)	Range (m)	Integral Muting	Model
Active Transceiver	500 (2 beams)	0.5 to 8	No	SGSSA2-500Q8
	800 (3 beams)	0.5 to 8		SGSSA3-400Q8
	900 (4 beams)	0.5 to 6.5		SGSSA4-300Q8
	1200 (4 beams)	0.5 to 8		SGSSA4-400Q8
Active Transceiver	500 (2 beams)	0.5 to 8	Yes	SGSMA2-500Q12
	800 (3 beams)	0.5 to 8		SGSMA3-400Q12
	900 (4 beams)	0.5 to 6.5		SGSMA4-300Q12
	1200 (4 beams)	0.5 to 8		SGSMA4-400Q12

Passive Mirror			
Type	Protective Height (mm)	Range (m)	Model
Passive Mirror Assembly	500 (2 beams)	Pair with Active Transceivers with matching beams and protective heights	SGSB2-500
	800 (3 beams)		SGSB3-400
	900 (4 beams)		SGSB4-300
	1200 (4 beams)		SGSB4-400

A   P

Safety Light Grids – Accessories

Connection Options

8-Pin M12/Euro-Style		12-Pin M12/Euro-Style	
QDEG-815D 4.5 m (15')	QDEG-875D 22.8 m (75')	QDEG-1215E 4.5 m (15')	QDEG-1275E 22.8 m (75')
QDEG-825D 7.6 m (25')	QDEG-8100D 30.4 m (100')	QDEG-1225E 7.6 m (25')	QDEG-12100E 30.4 m (100')
QDEG-850D 15.2 m (50')		QDEG-1250E 15.2 m (50')	

Mute Connection Options

Model	Description	
SGSA-MCB	Connection box for X, L or T mute arm kits	
SGSA-MCS-2	Connection cable for X and L mute arm kits	
SGSA-MCS-4	Connection cable for T mute arm kits	
SGSA-MCB-HW	Optional hardware kit for mounting mute connection box, or mute connection cable to the t-slot of SGS Receiver or Active Unit	

Bracket

SGSA-MBK-10-4
- End-mount bracket

Stands and Corner Mirrors

SGSA-S Series Enclosures					
Enclosure Model	Fits SGS Models	# of Windows	Enclosure Height	Distance from Floor to Bottom Window	Distance between Beams
SGSA4-S300 SGSA4-S300-M	SGS..4-300Q..	4	1543 mm (60.75")	300 mm (11.8")	300 mm (11.8")
SGSA3-S400 SGSA3-S400-M	SGS..3-400Q..	3	1238 mm (48.78")	300 mm (11.8")	400 mm (15.8")
SGSA4-S400 SGSA4-S400-M	SGS..4-400Q..	4	1618 mm (63.69")	300 mm (11.8")	400 mm (15.8")
SGSA2-S500 SGSA2-S500-M	SGS..2-500Q..	2	1035 mm (40.75")	400 mm (15.8")	500 mm (19.7")

SSM Series Corner Mirrors				
Mirror Model	Fits SGS Models	Reflective Area	Mounting Area	Mirror Height
SSM-550	SGS..2-500..	550 mm (21.7")	661 mm (26.0")	628 mm (24.7")
SSM-825	SGS..3-400..	825 mm (32.5")	936 mm (36.9")	903 mm (35.6")
SSM-975	SGS..4-300..	975 mm (38.4")	1086 mm (42.8")	1053 mm (41.5")
SSM-1275	SGS..4-400..	1275 mm (50.2")	1386 mm (54.6")	1353 mm (53.3")

MSA Series Stands		
Stand Model	Pole Height	Usable Stand Height
MSA-S66-1	1676 mm (66")	1550 mm (61")
MSA-A84-1	2134 mm (84")	2007 mm (79")
MSA-S105-1	2667 mm (105")	2667 mm (100")

Safety Scanner System

Horizontal or vertical monitoring of both personnel and stationary or mobile systems

SX Series safety laser scanners protect personnel, equipment, and mobile systems by continuously scanning a user-defined area of up to 275° to create a two-dimensional protected zone.
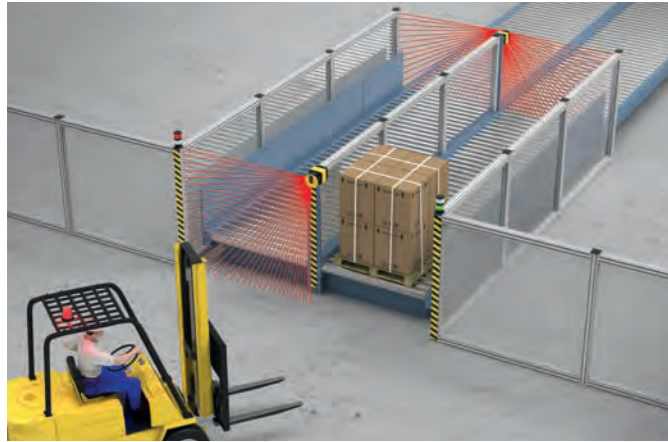
SX5 software configuration allows for Zone switching for FULL, RIGHT-SIDE and LEFT-SIDE Safety Protection during this forklift access application.
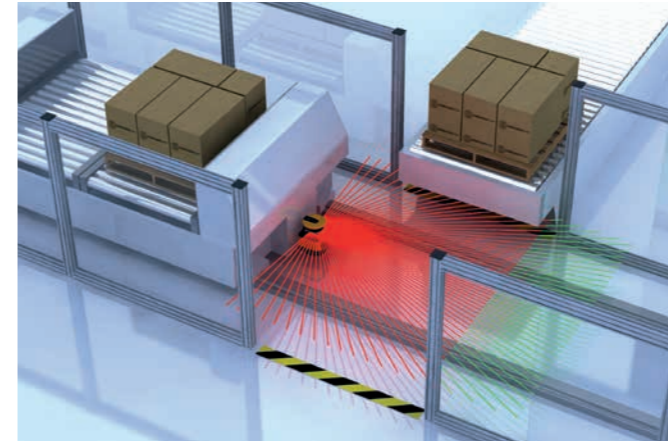

Software interface makes it easy to create custom safety and warning zones to safeguard large, complex, and irregularly shaped areas.

275°

275 degrees of coverage makes it easy to mount on a corner

Maximum range for Safety Zone: 5.5 m

Maximum range for Warning Zone: 40 m

Light Immune and dust resistant – Best-in-class
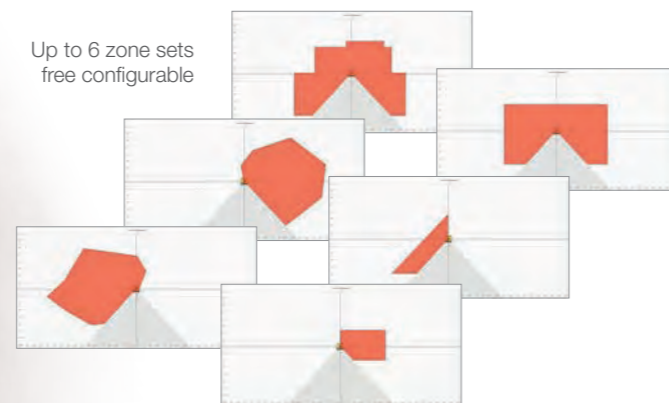
Up to 6 zone sets free configurable

Safety Scanner System

Increased Machine Uptime

The SX5-B has on-board LED indicators and a large multi-segment color display that provide at-a-glance system status information so users can quickly identify zone breaches and resolve issues with a minimal amount of equipment downtime.

Compact, one-piece safety device installs easily above and away from area hazards without requiring time-consuming alterations to area infrastructure.

An alert is triggered if an object enters the warning zone and equipment will come to a stop if the safety zone is breached.

Rugged design for reliable industrial use

GO

STOP

WARNING

Restart — 27 different status, diagnostic, warning and error displays

MUTING — Dynamic Muting available and selectable detection capability for vertical applications

CLEANW1

LED **1**: Object Detection in Safety Zone (OSSD)
LED **2**: Not Available
LED **3**: Assigned to Warning Zone 2
LED **4**: Assigned to Warning Zone 1
LED **5**: Interlock Status (waiting for Reset)

Keypad

M12 Ethernet connector cover

Safety Scanner System – Software

Simple Setup for Rapid Deployment

The SX5-B can be set up in just a few simple steps using Banner's free configuration software. This robust software features menu-driven tools that guide users through setup and make it easy to design custom safety and warning zones to accommodate existing infrastructure and meet the specific needs of any application.
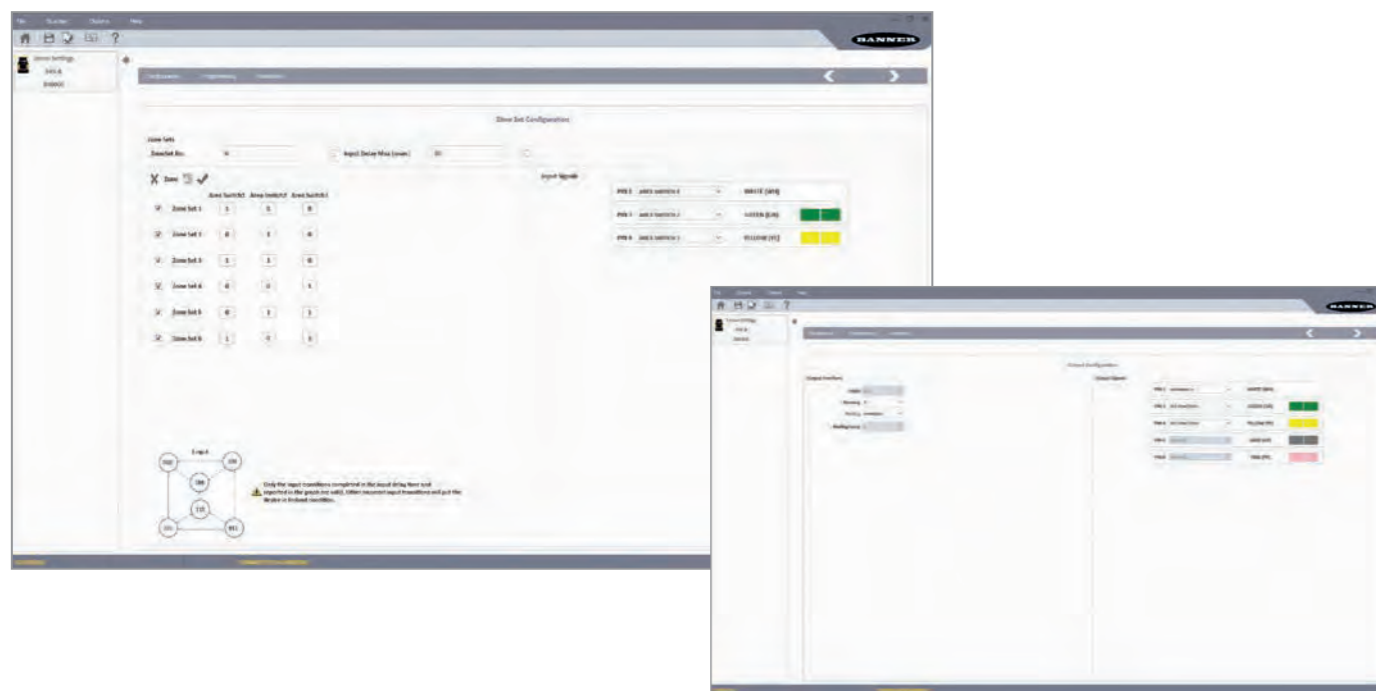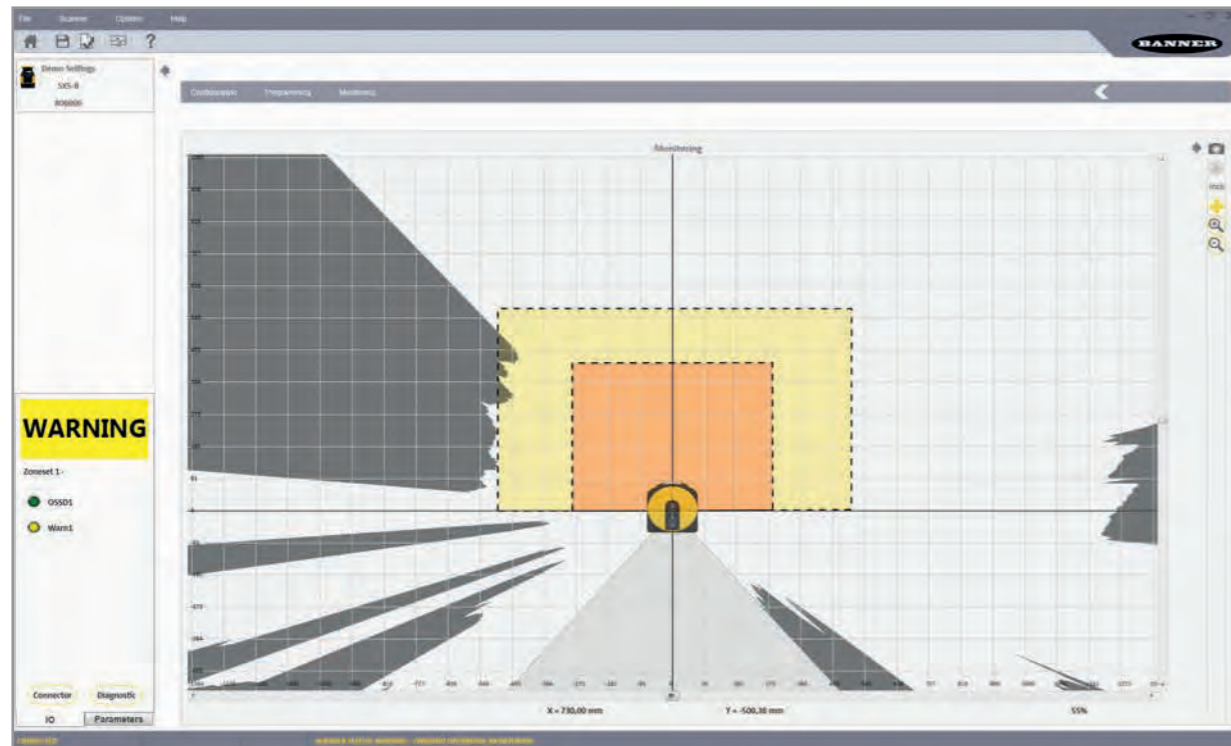
The software displays a graphic rendering of the monitored area, and provides configuration and management tools, such as drop-down menus, function-specific worksheets…

- Administrative data: file title header, application description and more
- Safety-relevant data: startup process information
- Safety Zone or Warning Zone configuration data: contours and limits

Safety Scanner System – Models and Accessories

SX Series Safety Scanners

Model	Protective Field Range	Warning Field Range	Scanning Angle	Dimensions H x W x D (mm)	Features
SX5-B	0.05 m to 5.5 m	40 m	275°	152 x 112.5 x 102	LCD Display, Muting

SX Series Safety Scanners Specifications

Detection Capability	40 mm, 70 mm	Current Consumption (24V dc)	No output load: 0.3A at 24V dc With maximum output load: 1.1A at 24V dc
OSSD (Safety Outputs)	2 OSSD All inputs and outputs are protected from short circuits to +24V dc or dc common	Mechanical Data	Housing material: Aluminum Alloy Housing color: Yellow RAL1003 Optics cover material: PC Optics cover surface: Acrylic
Zone Sets	Six	Safety Data	Type 3 (EN 61496-1) SIL 2 (IEC 61508) Category 3 (EN ISO 13849-1) SIL CL 2 (EN 62061) PL d (EN ISO 13849-1)
Environmental Rating	IEC IP65	Optical Data	Wavelength: 905 nm Pulse duration: 3 nsec Laser class: CLASS 1 (EN 60825-1)
Operating Conditions	0° C to +50° C (+32° F to +122° F) 95% maximum relative humidity (non-condensing)	Certifications	CE c UL us LISTED

SX Series Safety Scanners Brackets

SXA-MBK-1
- Pitch and roll angle adjustment bracket
- Bracket memory feature allows for fast scanner swap out

SXA-MBK-2
- Protection bracket

SX Series Safety Scanners Cables

8-Pin M12/Euro-Style Straight connector		4-Pin M12 D-Code to RJ45 Double ended	
SXA-815D 4.5 m (15')	SXA-850D 15.2 m (50')	STP-M12D-406 1.83 m (6')	STP-M12D-430 9.14 m (30')
SXA-825D 7.6 m (25')	SXA-8100D 30.4 m (100')	STP-M12D-415 4.5 m (15')	

Safety Relays and Safety Controllers

Configurable controllers monitor multiple safety devices

Industrial safety controllers and relays provide an interface between safety devices and the machines and processes those devices monitor for a complete and easy-to-use safety control solution.
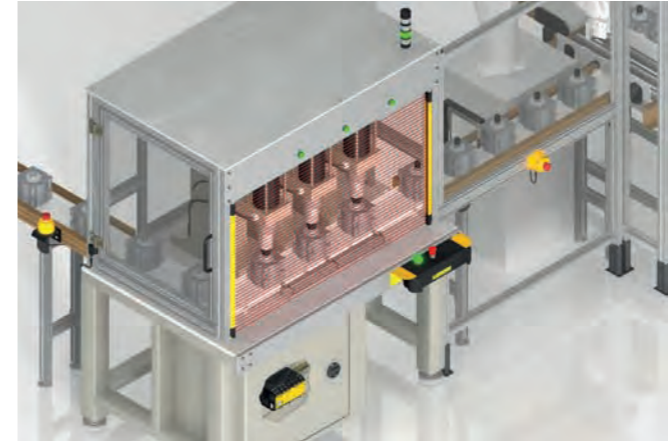

Safety controllers can be tailored for a wide variety of machines, including machines with multiple processes.

Safety Relays

SR-IM-9A   IM-T-9A

Cost-effective for simple safety circuits
- Preset Functionality: Configuration not required
- Safety Inputs: 1
- Independently controlled Safety Outputs: 1; 4 to 7A

Hybrid Safety Controller plus 2 Safety Relays

SC10

Flexible and cost-effective solution for machines typically using 2 Safety Relays
- PC Configurable: Flexible and easy-to-use
- Safety Inputs: up to 10; up to 14 using Automatic Terminal Optimization (ATO)
- Independently controlled Safety Outputs: 2; 6A each
- Convertible Safety Inputs: 4
- Terminal LEDs for easy troubleshooting
- Industrial Ethernet

PCCC
Modbus
PROFINET
EtherNet/IP
Industrial Ethernet

Safety Relays and Safety Controllers

Various safety devices are monitored, such as E-stop buttons, safety switches, safety light screens, two-hand controls and rope pull switches.

Connect safety devices easily to the safety controller
- Universal input safety relays
- E-Stop monitoring safety relays
- Muting safety relays
- Safe speed monitoring relays
- Safety mat relays
- Safety extension relays

Expandable Safety Controller

XS26

Expandable for Complex Safety applications where 3 or more safety relays are typically used
- PC Configurable: Flexible and easy-to-use
- Safety Inputs: 26 (base unit) up to 154
- Independently controlled Safety Outputs: up to 68; 0.5A to 6A each
- Convertible Safety Inputs: 8 (Base Unit) up to 40
- LCD Display for easy troubleshooting
- Industrial Ethernet

PCCC
Modbus
PROFINET
EtherNet/IP
Industrial Ethernet

| E-Stop | Light Curtain | Safety Mat | 2-Hand Control | Rope Pull |

Safety Input

Safety Output   Standard Output

Modbus
PROFINET
EtherNet/IP
PCCC
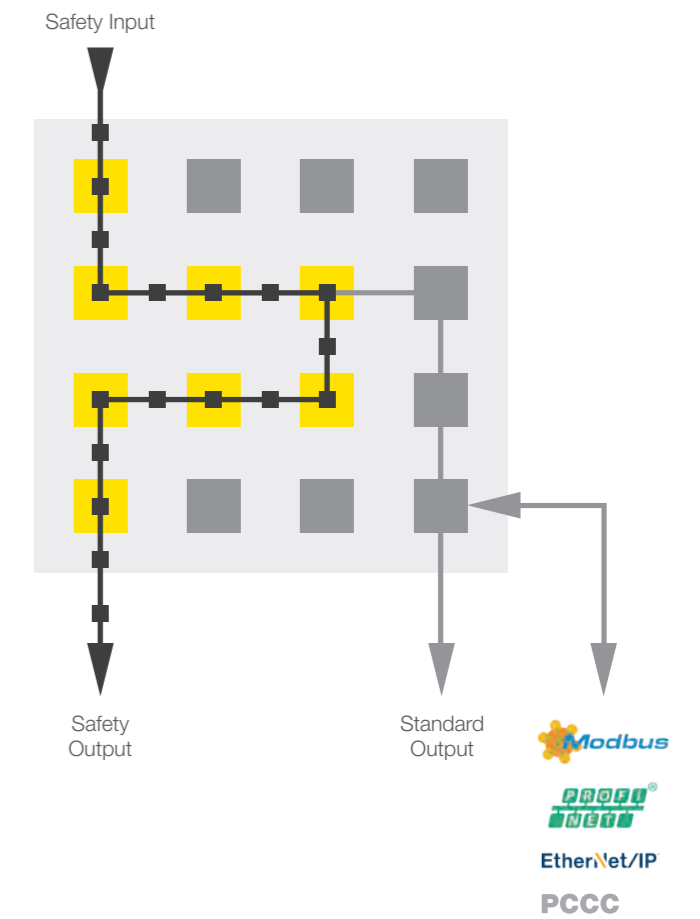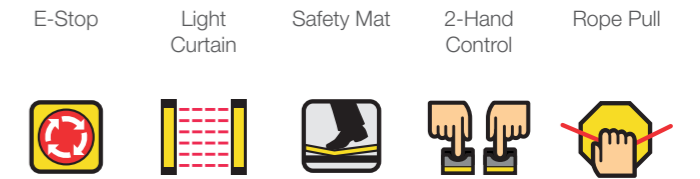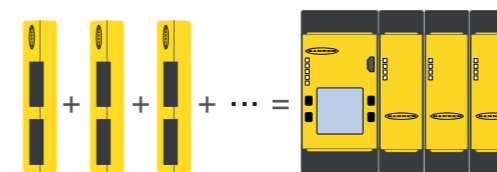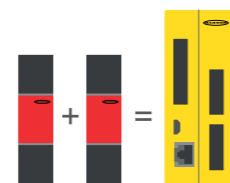
Build System and Select Equipment

The feature-rich SC10 and SC/XS26 safety controller software provides a seamless user interface for setting up and managing safety systems. The software features an intuitive icon-based, drag-and-drop user interface to reduce the learning curve and speed up commissioning.
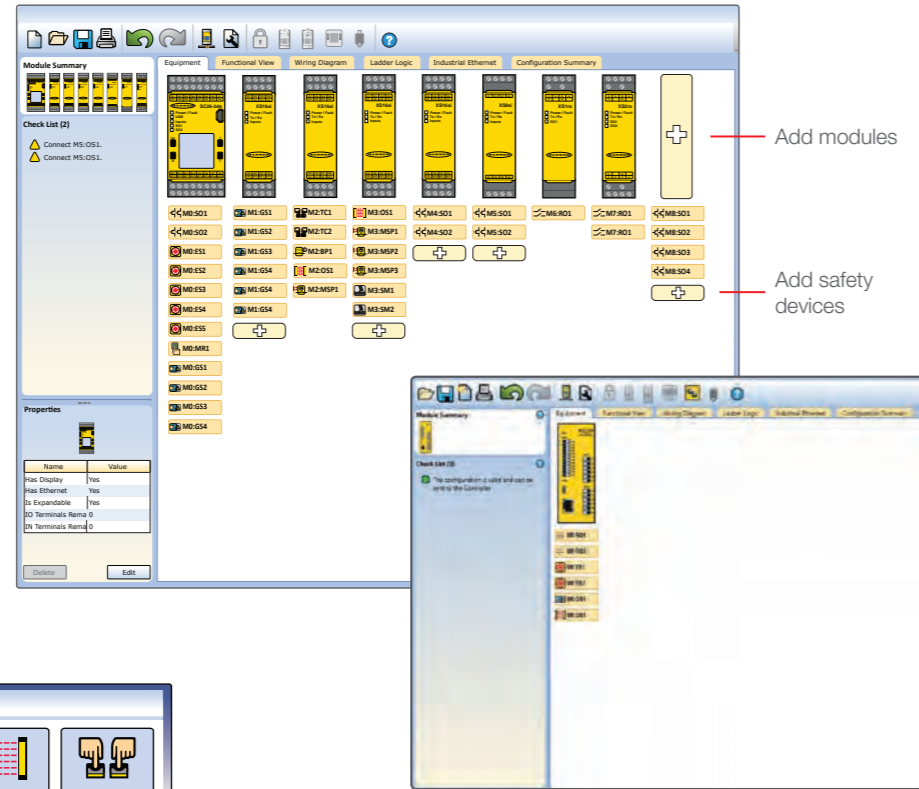
- Complex configurations made easy
- Simulate configurations before implementation
- Auto configure Industrial Ethernet for remote monitoring and diagnostics

Start using the free software today. Go to www.bannerengineering.com/safetycontroller

1. Choose Controller

2. Equipment View

Add modules

Add safety devices

3. Add safety devices

4. Select safety device properties

5. Add virtual non-safety inputs
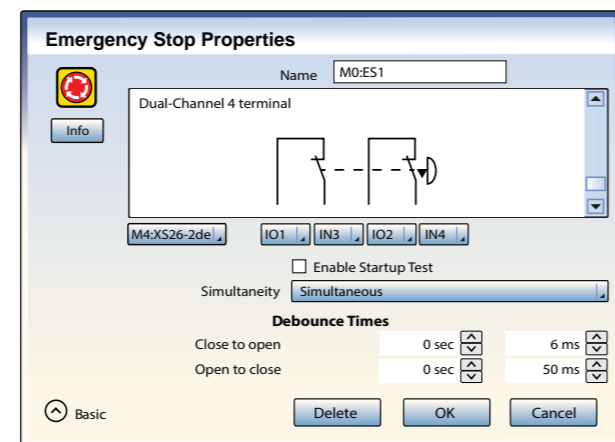
Configure your system in minutes

Assorted View Menus

Simulation View

Module Summary and Configuration Checklist

Simple Drag-and-Drop Connections

Inputs

Logic Block

Function Block

Split Output
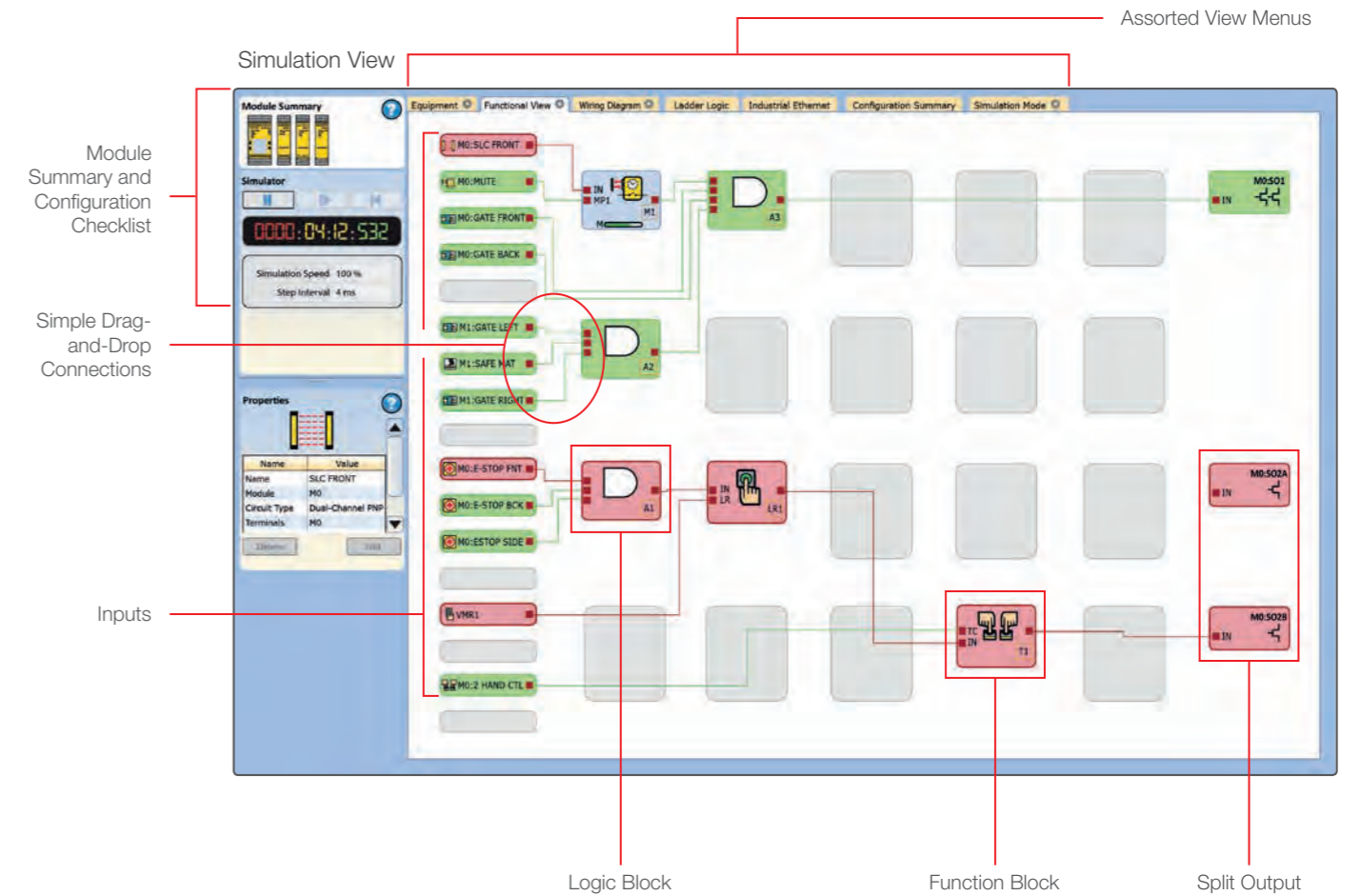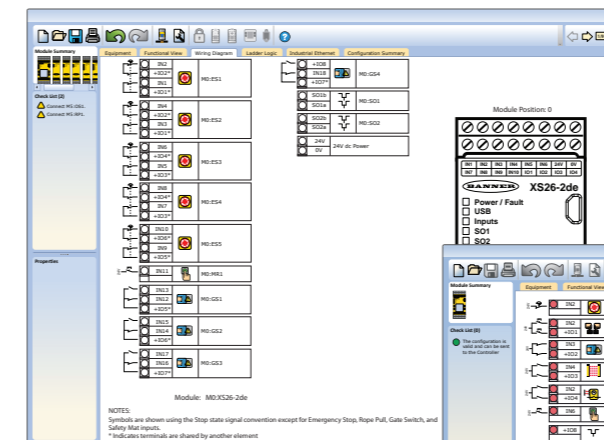
Wiring Diagram

Wiring Diagram in Live Mode
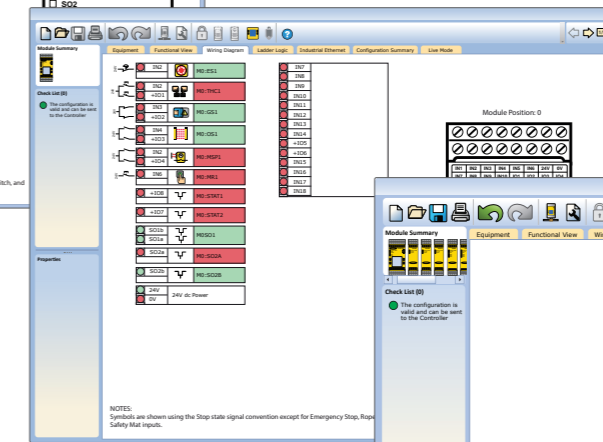
Ladder Logic
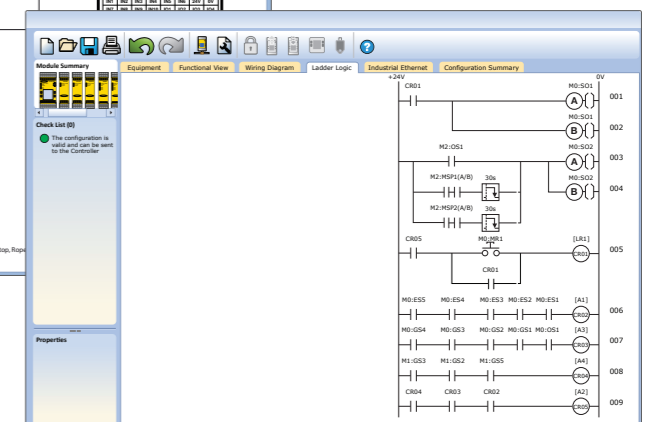
Safety Controllers

XS26 Expandable Safety Controller

Optional Ethernet Port

Status LEDs

Onboard Interface Push Buttons

Optional Display

PC communication via Micro USB Port
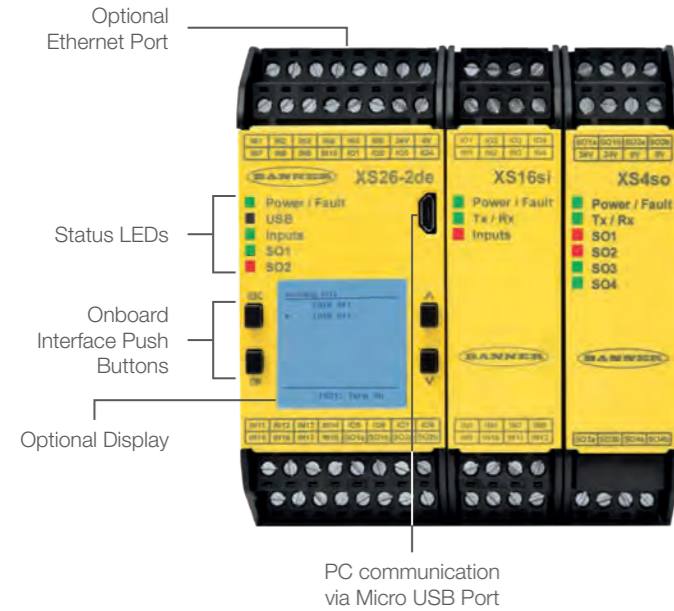
- Optional display screen allows local diagnostics for efficient troubleshooting
- Up to eight expansion I/O modules can be added as automation requirements grow or change
- Choose from six expansion module models with a variety of safety inputs, solid-state safety outputs and safety relay outputs
- Controller and input modules allow safety inputs to be converted to status outputs for efficient terminal use

SC10 Safety Controller with SC-XM3 Programming

RO1 & RO2 LEDs

Power LED

6 Safe Inputs & LEDs

4 Safe Inputs & LEDs or 4 Non-safe Outputs and LEDs

Micro USB & LED

Ethernet Port

Store SC-XM3 memory card directly on SC10
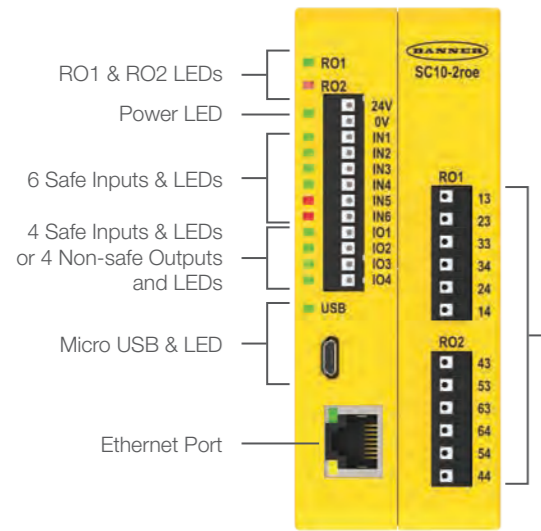
- 2x 6A independently controlled relays (RO1 and RO2)
- 3 NO sets of contacts each

SC-XM3 Fast Programming and Swapout

- Backup copy of configuration, password, network settings
- Download configuration without a PC; save time during panel build
- Fast swapout to minimize downtime at swapout

Automatic Terminal Optimization (ATO)

- Allows for an increase from 10 to 14 inputs

Wire Diagram View for 10 Inputs without ATO
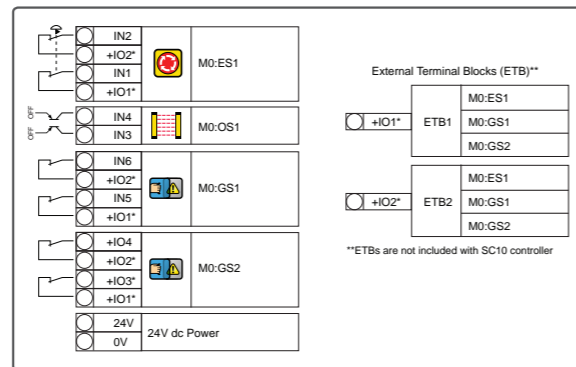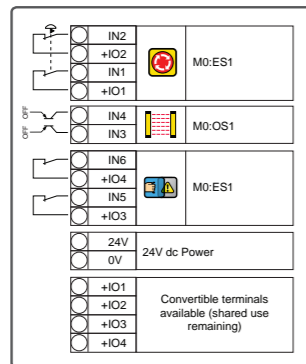
Wire Diagram View for 14 Inputs with ATO

External Terminal Blocks (ETB)**

**ETBs are not included with SC10 controller

Safety Controllers – Models

XS26 Safety Controllers

Model (24V dc)	Description	Housing (H x W x D in mm)	Inputs/ Convertible	Independently Controlled Safe Outputs	Maximum Safety Output Rating
XS26-2d XS26-2de	Base Controller, expandable, with LCD	110 x 45 x 128	26/8	2 Dual Channel PNP	0.5A @ 24V dc
XS26-2 XS26-2e	Base Controller, expandable	110 x 45 x 128	26/8	2 Dual Channel PNP	0.5A @ 24V dc
XS8si	Safety Input Module	W: 22.5 mm	8/2	/	/
XS16si	Safety Input Module	W: 22.5 mm	16/4	/	/
XS2so	Safety Output Module	W: 22.5 mm	/	2 Dual Channel PNP	0.75A @ 24V dc
XS4so	Safety Output Module	W: 22.5 mm	/	4 Dual Channel PNP	0.5A @ 24V dc
XS1ro	Safety Relay Output Module	W: 22.5 mm	/	1 Dual Channel Relay	6A; 2 NO, 1 NC Aux
XS2ro	Safety Relay Output Module	W: 22.5 mm	/	2 Dual Channel Relays	6A; 2x 2 NO, 2x 1 NC Aux

SC26 Safety Controllers

Model (24V dc)	Description	Housing (H x W x D in mm)	Inputs/ Convertible	Independently Controlled Safe Outputs	Maximum Safety Output Rating
SC26-2d SC26-2de	Base Controller, non-expandable, with LCD	110 x 45 x 128	26/8	2 Dual Channel PNP	0.5A @ 24V dc
SC26-2 SC26-2e	Base Controller, non-expandable	110 x 45 x 128	26/8	2 Dual Channel PNP	0.5A @ 24V dc

SC10 Safety Controllers

Model (24V dc)	Description	Housing (H x W x D in mm)	Inputs/ Convertible	Independently Controlled Safe Outputs	Maximum Safety Output Rating
SC10-2roe	Base Controller	115 x 45 x 100	10/4	2 Dual Channel Relays	2x 3 NO: 6A 250V ac / 24V dc

Accessories

SC-USB2
- USB Cable

SC-XM2
- Memory Card for XS26 and SC26

SC-XM3
- Memory Card for SC10

SC-XMP2
- SC-XM2/3 Configuration Tool

Relay and Controller Selection

Choose a safety relay or safety controller.
- Configurable (expandable) safety controllers
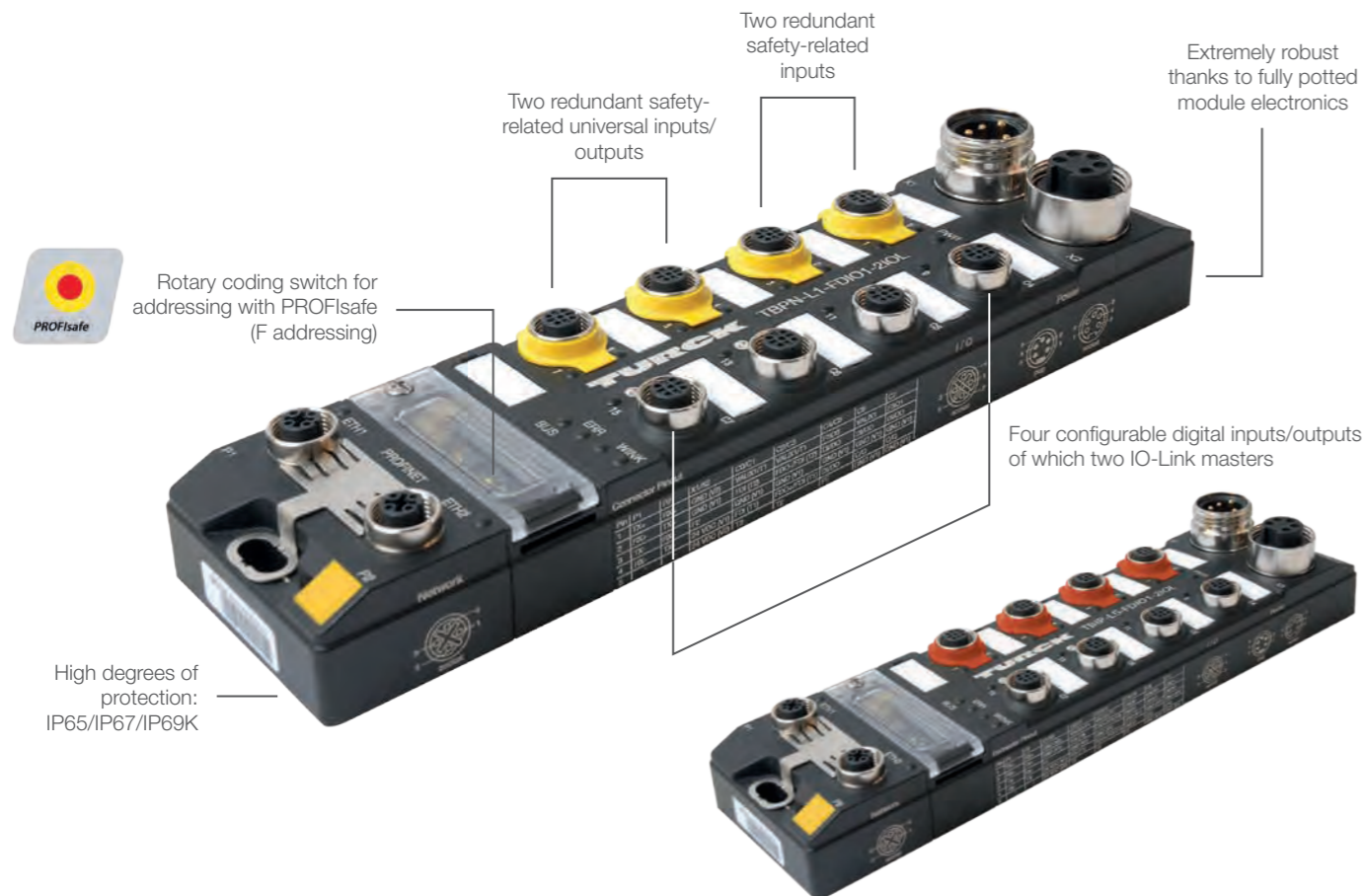- Preconfigured safety relay modules

		Preconfigured Safety Relay Modules									Configurable Controllers	
		GM/ES	UM	SM	AT	MMD	SSM	SR	IM	EM	SC10	SC26/XS26
Self Testing Safety Device			✓			✓					✓	✓
Self Testing Safety Device with EDM Function			✓			✓		✓	✓		✓	✓
E-Stop		✓	✓			✓ (secondary function)					✓	✓
Rope Pull		✓	✓			✓ (secondary function)					✓	✓
Gate Switch		✓	✓			✓					✓	✓
RFID Gate Switch			✓			✓					✓	✓
Safety Mat Monitoring				✓							✓	✓
Two-Hand Control					✓						✓	✓
Enabling Device		✓	✓								✓	✓
Extension Contacts									✓			✓
Speed Monitoring							✓					
Muting						✓					✓	✓
ON/OFF Delay										OFF Delay available	✓	✓
Safety Standard		Cat. 4 PL e, per EN ISO 13849-1; SIL 3 per IEC 61508 and IEC 62061										
Inputs		1 NC & 1 NO (single or dual) 1 NC (single) 2 NC (dual)	1 NC (single) or 2 NC (dual) or 2 PNP	1 (or multiple in series) 4-wire safety mat	2 STB or buttons with complementary contacts	2 NC muteable (dual) & 2 NC SSI (dual)	2 PNP	2 NC (dual) or 2 PNP	2 NC (dual) or 2 PNP	1 NC (single) or 2 NC (dual)	10	SC26: up to 26 XS26: up to 154
Safety Outputs		2 NO / 3 NO / 4 NO	3 NO or 2 NO	4 NO	2 NO	2 PNP OSSD or 2 NO	2 NO	2 NO / 3 NO	2 NO / 3 NO	4 NO or 4 NO with delay	2x 3 NO	SC: 2 XS: up to 68
Maximum Safety Output Rating		6A / 7A	7A	6A	6A	6A	4A	6A	6A	6A	6A each	0.5A each
Auxiliary Outputs		1 NC or 1 NC & 2 PNP	1 NC, depending on model	1 NC & 2 PNP	/	1 PNP or 1 NC	1 NC	1 NC	1 NC, depending on model	/	depending on configuration	depending on configuration
Power Supply		24V ac/dc 115V ac & 12-24V dc or 230V ac & 12-24V dc	24V ac/dc	115V ac & 12-24V dc or 230V ac & 12-24V dc	24V ac/dc	24V dc	24V dc	24V dc	24V dc	24V dc or 24V ac/dc, depending on model	24V dc	24V dc

I/O Hybrid Modules

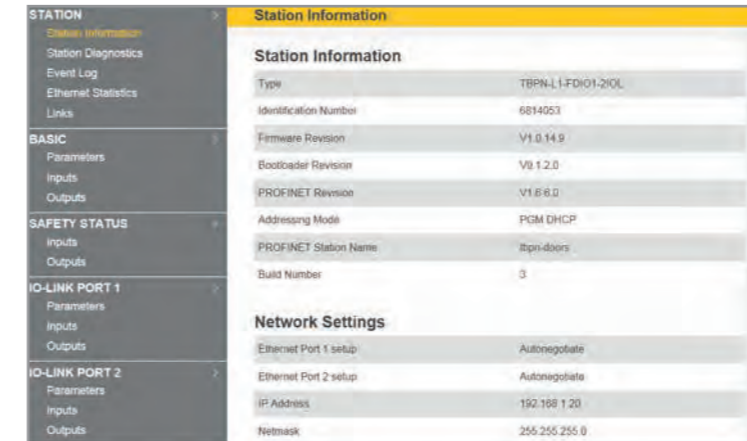## I/O Hybrid Modules for PROFIsafe and CIP Safety

Turck's TBPN and TBIP hybrid safety block I/O modules combine standard and safety inputs/outputs in a single device. This enables the IP65/IP67/IP69K hybrid modules to be adapted flexibly to the actual signal requirement of your machine. The modules can operate with external safety PLCs or also as remote safety controllers. The configurable digital inputs/outputs are suitable for safety disconnections according to SIL3/PL e. This also applies to the second IO-Link master.

Two redundant safety-related inputs

Two redundant safety-related universal inputs/outputs

Extremely robust thanks to fully potted module electronics

PROFIsafe

Rotary coding switch for addressing with PROFIsafe (F addressing)

Four configurable digital inputs/outputs of which two IO-Link masters

High degrees of protection: IP65/IP67/IP69K

Safety Configurator

Easy installation and startup

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.

- Configuration of the safety features via a software tool
- Web server simplifies diagnostics and startup
- Integrated switch enables installation in a linear topology
- Extensive diagnostic function
- Possibility to preconfigure the safety application in the module
- Program transferable from one module to another

Web server of the Profinet module

CIP safety module online with status query

CIP safety module with active connection
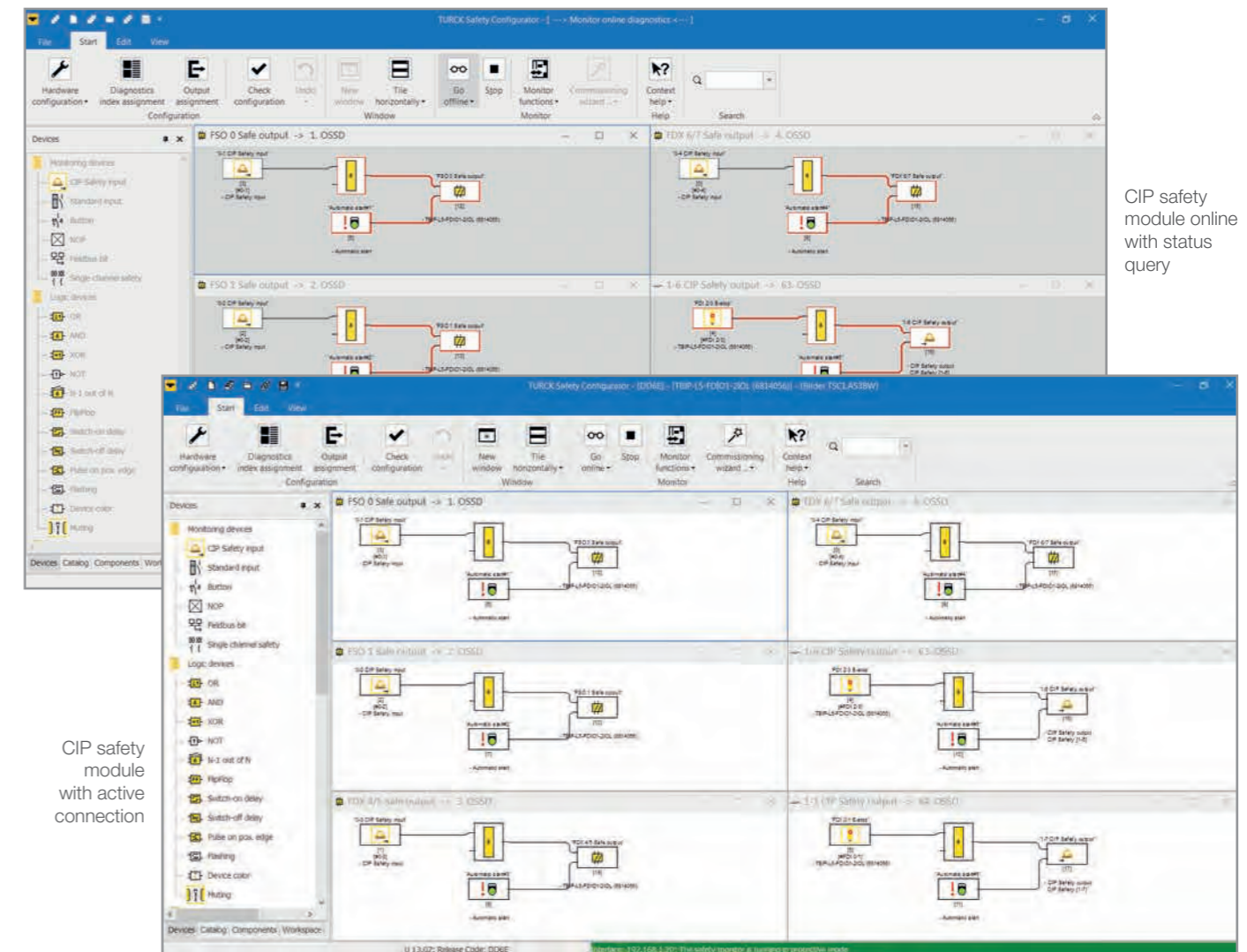
I/O Hybrid Modules – Models

Hybrid Block I/O Modules with Standard and Safety Inputs/Outputs

| Model		Description
TBPN-L1-FDIO1-2IOL	Profinet/ProfiSafe hybrid module	2 dual-channel safety inputs; 2 configurable dual-channel safety inputs or PP/PM switching outputs, 4 DXP ports, power supply suitable for safety-related disconnection, 1 IO-Link master with power supply suitable for safety-related disconnection, 1 additional IO-Link master without disconnection
TBIP-L5-FDIO1-2IOL	Ethernet/IP/CIP safety hybrid module	
Turck Safety Configurator		Software for configuring hybrid modules

Connectivity

Dimensional drawing	Model	Description	Length (m)
	VBRS4.4-2RKC4.880T-0,15/ 0,15/ TXL4000	Y-splitter, 2-way, 5-pin, female connector for connecting light screens to hybrid modules, male connector 5-way	0.15
	RKC8.704T-2-RSC4.5T/ TXY3013	Connection cable 8-pin to 5-pin for connecting an SSA illuminated emergency-stop switch, 8-pin directly to the hybrid modules	2
	RKC8T-2-RSC8T/ TXY3013	Connection cable 8-pin to 8-pin for connecting an SSA emergency-stop switch, 8-pin directly to the hybrid modules via a 6631295 Y-splitter	2
	RKC8.405T-2-RSC4.4T/ TXY3013	Connection cable 8-pin to 4-pin for connecting SX5-B safety laser scanner directly to the hybrid module	2
	VBRK8-2RSC4.870T-0,15/ 0,15/ TXL4000	Y-splitter, 2-way, 5-pin for connecting an SSA emergency-stop switch, 8-pin to the hybrid modules	0.15
	VBRK8-2RSC4.871T-0.15-0.15/ TXL4000	Y-splitter, 2 way, 5-pin for connecting SX5-B safety laser scanner directly to the hybrid module	0.15
	B8151-0/9 (female) BS8151-0/9 (male)	M12 x 1 round connector, field-wireable connector, straight, A-coded with screw terminals, 5-pin, PG9 screw-in thread, cable feed-through 6.0…8.0 mm	—
	BMS8151-0/PG9/YE (Field-wireable male connector) BM8151-0/PG9/YE (Field-wireable female connector)	M12 x 1 round plug connector, assemblable plug, straight, A-coded with screw terminals, 5-pin, yellow housing, metal union nut, cable passage 4.0...8.0 mm	—

| Model	Description	Length in m
VBR-TXL4100	Junction system for connecting an Lxxx light screen, Y-splitter with cable, 2 x male connectors M12 x 1, 4-pin to 2 x female connectors M12 x 1, 4-pin and 8-pin	0.55
VBR-TXL4200	Junction system for connecting an Lxxx light screen, Y-splitter with cable, 2 x male connectors M12 x 1, 4-pin to 2 x female connectors M12 x 1, 8-pin	0.55
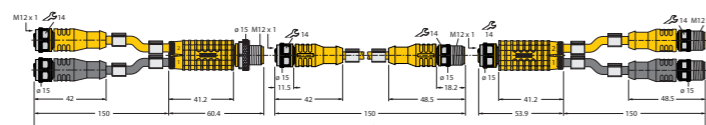
TBSB Safety Switch-Off Box

In order to provide a solution for safe switching off actuator voltage also in the field in customer applications TBSB for load currents up to 9 A. Safe switch-off is particularly advantageous for moving machine parts and helps to control the actuators in a simple manner.

- Die-cast aluminum housing, glass-fiber reinforced
- Fully potted module electronics
- High degrees of protection: IP65/IP67/IP69K
- Does not require to be installed in a cabinet
- Complies to SIL3, Ple
- Shock and vibration tested
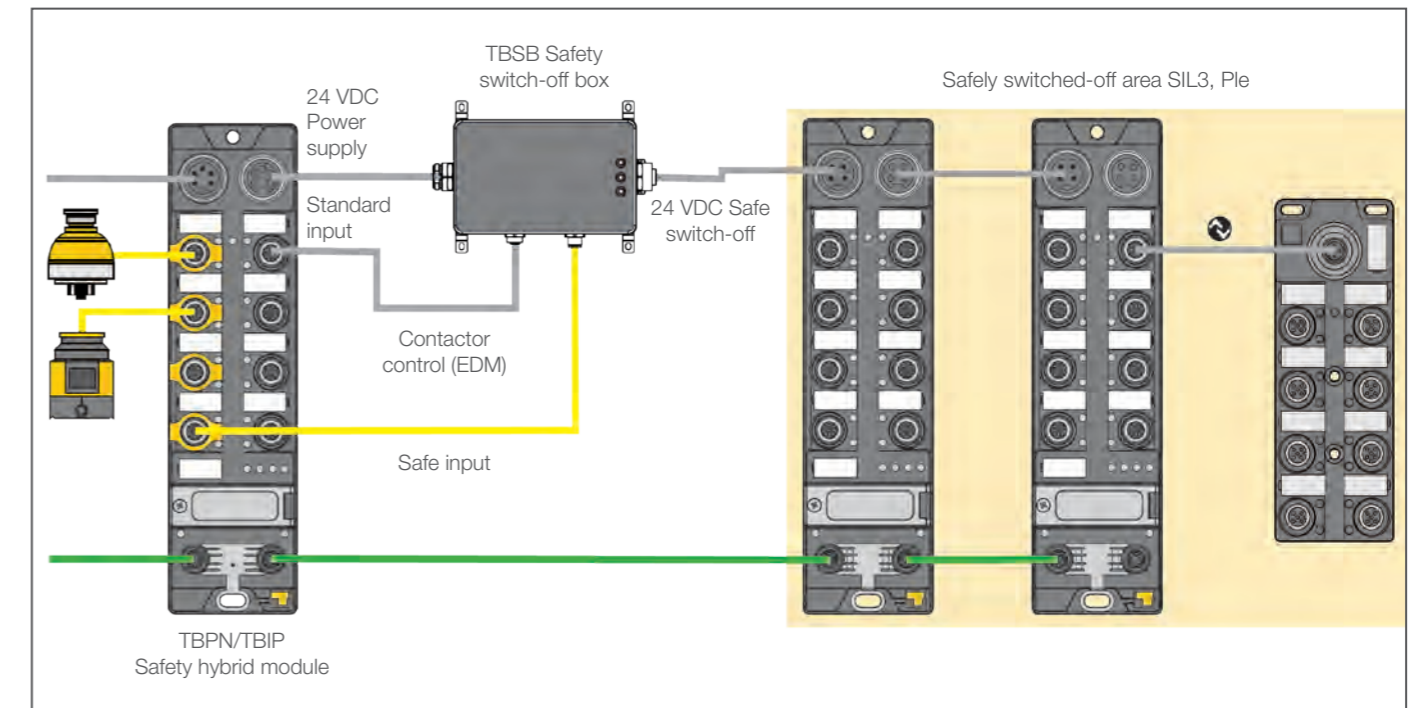
TBSB Safety switch-off box

Model	Description
	Switch-off of actuator voltage V2, feedback output, switch-off input for emergency stop, switch directly or via hybrid modules
TBSB-L4-CS09	4 pole 7/8 inch plug and a max. current load of 9A
TBSB-L5-CS09	5 pole 7/8 inch plug and a max. current load of 9A
TBSB-LL-CS16	5 pole M12 power connector and a max. current load of 16A
TBSB-A1-CS12	5 pole push pull connector and a max. current load of 12A

Safety Switches

Hinge Switches

- One-piece sensor and actuator with hinge function
- Fast installation and set-up with repositionable safety switch point
- Stainless steel and IP69 available
- Matching hinges without sensing available for additional door support
- Available with up to 270° safety switch point operation range

Locking Switches

- Two-piece design with up to 2000N locking force for safety or process critical applications
- Flexible actuator options for misalignment
- Rotatable heads for flexible installation
- Mechanically coded actuator to minimize tampering
- Up to 15N latching force to position door prior to locking

Mechanical Switches

- Two-piece design with mechanical operator feedback
- Flexible actuator options for misalignment
- Rotatable heads for flexible installation
- Mechanically coded actuator to minimize tampering
- Up to 15N latching force to reduce downtime due to vibrating doors
- One-piece limit switches available

Non-Contact Switches

- Two-piece design where sensor and actuator do not contact
- In-Series Diagnostics (ISD) provides users with data from each sensor in a cascade chain
- Cascade up to 32 sensors while achieving the highest level of safety
- Accommodating to misalignment
- IP69 solutions available
- Available with the highest level of tamper resistance

Non-Contact Safety Switches

Safety switches respond when a mechanical guard is opened. They feature "positive opening" contacts for high reliability regardless of environmental conditions and withstand attempts to override the switch and defeat the system.

RFID SI-RF Switches

Single door RFID non-contact gate/door sensing solution

- Basic, medium and high tamper resistance
- Misalignment tolerance of 10 mm
- Resistant to high vibration and operations with metallic shavings
- On-board LED for status and diagnostics

RFID SI-RF Switches – Cascade

Multiple door RFID non-contact gate/door sensing solution

- Basic, medium and high tamper resistance
- Misalignment tolerance of 10 mm
- Resistant to high vibration and operations with metallic shavings
- On-board LED for status and diagnostics
- Connect up to 32 sensors in cascade while maintaining the the highest level of safety

RFID SI-RF Switches – Cascade and ISD

SI-RFA-DM1 Controller
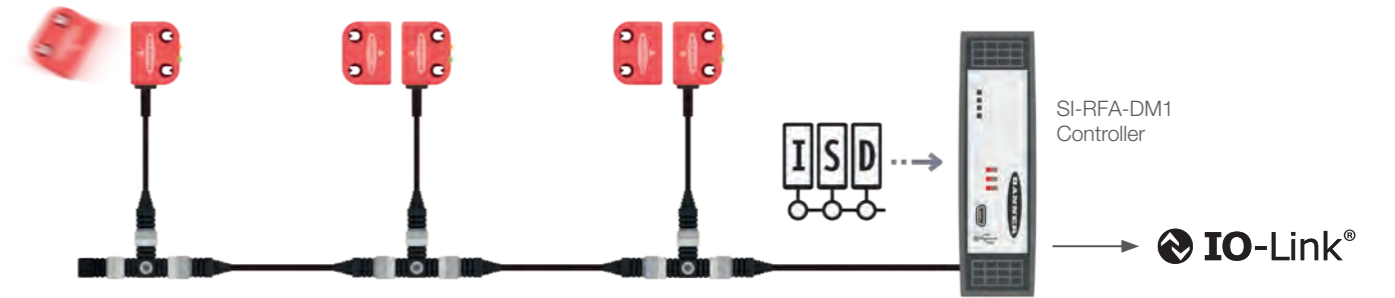
IO-Link®

Multiple door RFID non-contact gate/door sensing solution

In-Series Diagnostics (ISD) provides users with status and performance data from each sensor in a cascade chain. The ISD data collected is converted to IO-Link so it can be accessed with an HMI or similar device.

Users receive notification when an event has occurred as well as where in the series the event occurred. Events include the opening or closing of a door, door misalignment, wrong actuator, and a number of switch health attributes.

Safety Switches Selection

Choose a safety switch.

- Magnetic safety switches
- Plastic or metal compact safety switches
- Hinge safety switches
- Guard locking safety switches
- Rotary Lever, Plunger, Roller and Spindle-Mount Safety Limit Switches

| | Non-Contact Switches | | Switches with Separate Actuator | | | | | | | Hinge Switches | | |
| | Magnetic | RFID | | | | | | | | Hinge | | Rotating Head |
	SI-MAG	SI-RF	SI-LS100	SI-LS83	SI-QS90	SI-QS75	SI-LM40	SI-LS42	SI-QM100	SI-HG63	SI-HG80	SI-LS31
Non-Locking	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
Locking								✓	✓			
Position	✓	✓	Limit Switch Model Available	Limit Switch Model Available			Limit Switch Model Available					✓
Contacts	1 NC/1 NO	OSSD PNP	2 NC/1 NO	1 NC/1 NO 2 NC	1 NC/1 NO 2 NC 2 NC/1 NO	1 NC	1 NC/1 NO 2 NC 2 NC/1 NO	1 NC/1 NO 2 NC/1 NO 1 NC 2 NC 3 NC	1 NC/1 NO 2 NC	2 NC/1 NO	SPDT	1 NC/1 NO 2 NC
Locking or Unlocking Power								24V ac/dc 110V ac/ 230V ac	24V dc 120V ac 24V ac			
Straight Rigid In-Line			✓	✓			✓	✓	✓			
Rigid In-Line			✓	✓	✓	✓						
Flexible In-Line			✓	✓	✓	✓	✓	✓	✓			
High-Force Accessory					✓	✓						
LED Status Indication		✓										
Cascadable		✓										
ISD (In-Series Diagnostics)		✓										
Coding level/Manipulation protection EN ISO 14119	Low coding	Unique/Low/High coding	Low coding	Low coding	Low coding	Low coding	Low coding	Low coding	Low coding	Uncoded	Uncoded	Uncoded
Housing Material	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Metal	Plastic	Metal	Metal	Metal	Metal
Locking								Spring lock Solenoid lock	Spring lock Solenoid lock			
Actuation Extraction Force			10 N	10 N	10 N High-Force models: adjustable from 50-100 N	10 N High-Force models: adjustable from 50-100 N	10 N/20 N	2000 N when locked	1000 N when locked			10 N/15 N

Emergency Stop Buttons

Emergency Stop and Stop Controls

Emergency stop devices provide workers a means of stopping a device during an emergency by pushing a button or pulling a rope in order to prevent injury to personnel and material loss.

The red flashing illumination of the E-stop button visibly alerts operators which button was pressed so they can quickly and easily fix the problem to reduce downtime and only reset the button that was activated. When one button is pressed all other buttons turn red.
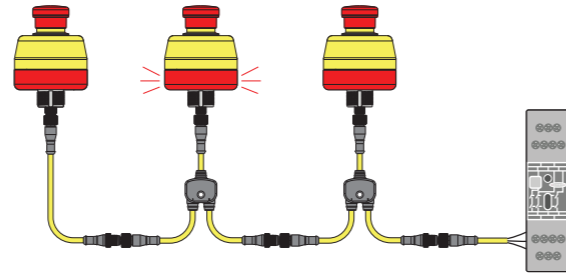
The 30 mm mount illuminated E-stop button has a unique 360 degree round housing, with a red button and yellow background, meeting worldwide safety standards. Models are also available in a non-lit, solid black base for additional safety applications.

30 mm Mount Electro-Mechanical E-Stop Push Button, IP65 rating

Model	E-Stop Contacts	Illuminated Base	Connection
SSA-EB1P-02ECQ4	2 NC	/	4-pin M12 QD
SSA-EB1P-11ECQ4	1 NO / 1 NC	/	4-pin M12 QD
SSA-EB1P-22ECQ8	2 NO / 2 NC	/	8-pin M12 QD
SSA-EB1PLYR-12ECQ8	1 NO (PNP) / 2 NC	Yellow & Red (Flashing/Solid)	8-pin M12 QD
SSA-EB1PLGR-12ECQ8	1 NO (PNP) / 2 NC	Green & Red (Flashing/Solid)	8-pin M12 QD
SSA-EB1PLXR-12ECQ8	1 NO (PNP) / 2 NC	OFF & Red (Flashing/Solid)	8-pin M12 QD
SSA-EB1PL-12ECQ8	1 NO (PNP) / 2 NC	OFF & Red (Solid/Solid)	8-pin M12 QD

### Flat Mount Electro-Mechanical E-Stop Push Button, IP65 rating

Standard Actuator	Lockable Actuator	E-Stop Contacts	Connection
SSA-EB1P-02ED1Q4	SSA-EB1MP-02ED1Q4	2 NC	4-pin M12 QD
SSA-EB1P-11ED1Q4	SSA-EB1MP-11ED1Q4	1 NO / 1 NC	4-pin M12 QD
SSA-EB1P-22ED1Q8	SSA-EB1MP-22ED1Q8	2 NO / 2 NC	8-pin M12 QD
SSA-EB1PL2-12ED1Q8	SSA-EB1ML2P-12ED1Q8	1 NO / 2 NC Illuminated button (Push ON)	8-pin M12 QD

Illuminated-base, with 1 NO (PNP) / 2 NC E-Stop Contacts, IP65 rating

Standard Actuator	Lockable Actuator	Illuminated Base	Connection
SSA-EB1PLXR-12ED1Q8	SSA-EB1MLXRP-12ED1Q8	OFF & Red (Flashing/Solid)	8-pin M12 QD
SSA-EB1PLYR-12ED1Q8	SSA-EB1MLYRP-12ED1Q8	Yellow & Red (Flashing/Solid)	8-pin M12 QD
SSA-EB1PL-12ED1Q8	SSA-EB1MLP-12ED1Q8	OFF & Red (Solid/Solid)	8-pin M12 QD
SSA-EB1PLGR-12ED1Q8	SSA-EB1MLGRP-12ED1Q8	Green & Red (Flashing/Solid)	8-pin M12 QD

SSA-EB1P-ECWC
FDA Grade Silicone Washdown Cover
IP67 and IP69 rated

Rope Pull E-Stop Devices and Switches
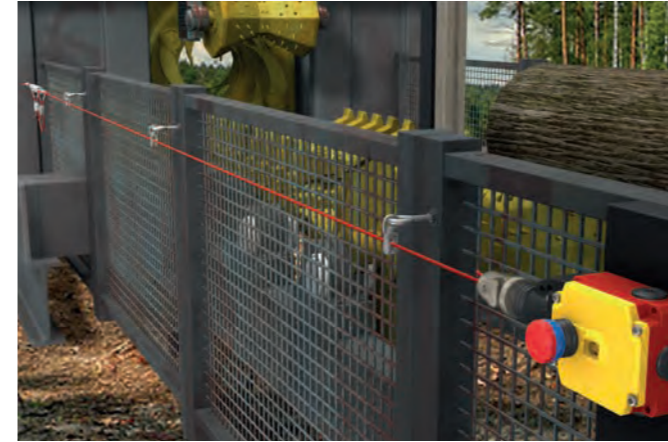
- Switch activates if the rope is pulled, becomes loose or breaks
- Rugged plastic housing to withstand harsh environments or heavy-duty housing rated to IP67 for use outdoors
- Models available with additional solid-state auxiliary output for remote tension monitoring
- Models available with E-stop button with manual reset
- Tension indicators

Rope pull emergency stop switches, when used with steel wire rope, provide emergency stop actuation for conveyors and large machinery.

Rope Pull E-Stop Devices

Model	Maximum Rope Length	Safety Contacts	Auxiliary Contacts	Actuation	Housing Material
RP-RM83	38 m 75 m	2 NC in	2 NO in	Latch	Metal, IP67
RP-LS42	25 m 37.5 m 75 m	2 NC in	2 NO in	Latch	Plastic

Rope Pull Switches

Model	Maximum Rope Length	Safety Contacts	Auxiliary Contacts	Actuation	Housing Material
RP-QM72	6 m 12 m 20 m	2 NC in	/	Latch	Metal
RP-QMT72	12 m	4 NC in 2 NC in	/ 1 NO in	Latch	Metal
RP-LM40	6 m	2 NC in	/	Trip & Latch	Metal
RP-QM90	100 m (50 m each side)	2 NC in	2 NO in	Latch	Metal

Components for Wire Rope Assembly

RPA-C	RPA-T	RPA-CC	RPA-TA	RPA-EB	RPA-P	RPA-S
▪ Wire Ropes	▪ Thimbles	▪ Clamps	▪ Turnbuckles	▪ Eye Bolts	▪ Pulleys	▪ Tensioning Springs

Hardware kits are available (RPAK)

Enabling Devices
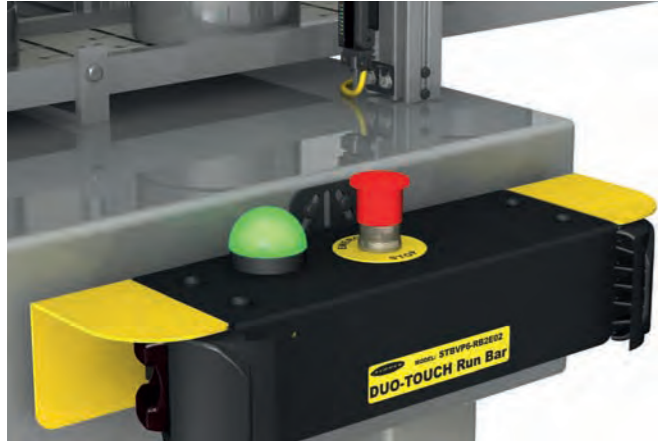
A two-hand control safeguarding system will prevent the operator from approaching the machine while a hazard is present. Duo-Touch Run Bar provides an all-in-one solution. Operators can touch the Safety Touch Buttons on either side of the run bar to start or stop a process, or press the E-Stop button to completely halt the assembly line.

Manually operated safety control devices which, when continuously activated and used in conjunction with a separate actuating control, will allow the machine to function in manual operating mode. The handheld grip-styled switch is used for manual control of machine functions, including visual observations, minor adjustments, calibration and more.

Two-Hand Control

STB Self-Checking Touch Buttons

Model	Connection	Touch Surface Material	Output	Power Supply
STBVP6	2 m cable	Polyetherimide (PEI)	Solid-state 2 Complementary PNP (1 ON, 1 OFF)	10-30V dc
STBVP6Q5	4-pin M12 QD			
STBVR81	2 m cable	Polyetherimide (PEI)	E/M Relay 2 Complementary SPST (1 NC, 1 NO)	20-30V ac/dc
STBVR81Q6	5-pin M12 QD			

STB buttons include yellow field cover to prevent unintended switching. To comply to safety standards, STB buttons must be used with appropriate Two-Hand control modules, SC26, XS26 or SC10 Safety Controller or comparable Type IIIC Two-Hand system.

DUO-TOUCH Two-Hand Control Kits with STB Touch Buttons
2 NO Safety Outputs, no auxiliary outputs, 24V ac/dc power supply, meets Cat 4 and Type IIIC

Kit	Module	IP Rating	STB Buttons (2 pieces)	IP Rating	Connection
ATK-VP6	AT-FM-10K	IP20	STBVP6	IP66	2 m cable
ATK-VP6Q5	AT-FM-10K	IP20	STBVP6Q5	IP66	4-pin M12 QD

Kit does not include run bar

Brackets

SMBAMS30P

SMBAMS30RA
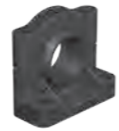
SMB30SC

Enabling Devices

Two Hand Control Run Bars

Run Bars with STBVP6		
Model	Connection	E-Stop
STBVP6-RB2	Terminal strip	Not included
STBVP6-RB2Q8	8-pin 7/8 QD	Not included
STBVP6-RB2E02	Terminal strip	SSA-EBM-02L

Telescopic stands for Run Bars

STBA-RB2-S1
■ Floor mounted

STBA-RB2-S2
■ Freestanding

Brackets for Run Bars

STBA-RB2-MB1

STBA-RB2-MB2

STBA-RB2-MB3

Enabling Devices

ED1G Enabling Devices		
Model	Contact Configuration	Momentary Push Button
ED1G-L21SM-1N	2 NO & 1 NC Aux	/
ED1G-L21SMB-1N	2 NO & 1 NC Aux	1 NO
ED1G-L20MB-1N	2 NO	2 NO

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