Safety
Solutions

BANNER ®

more sensors, more solutions

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Contents

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Complete Safety Solutions from Banner

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 12

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
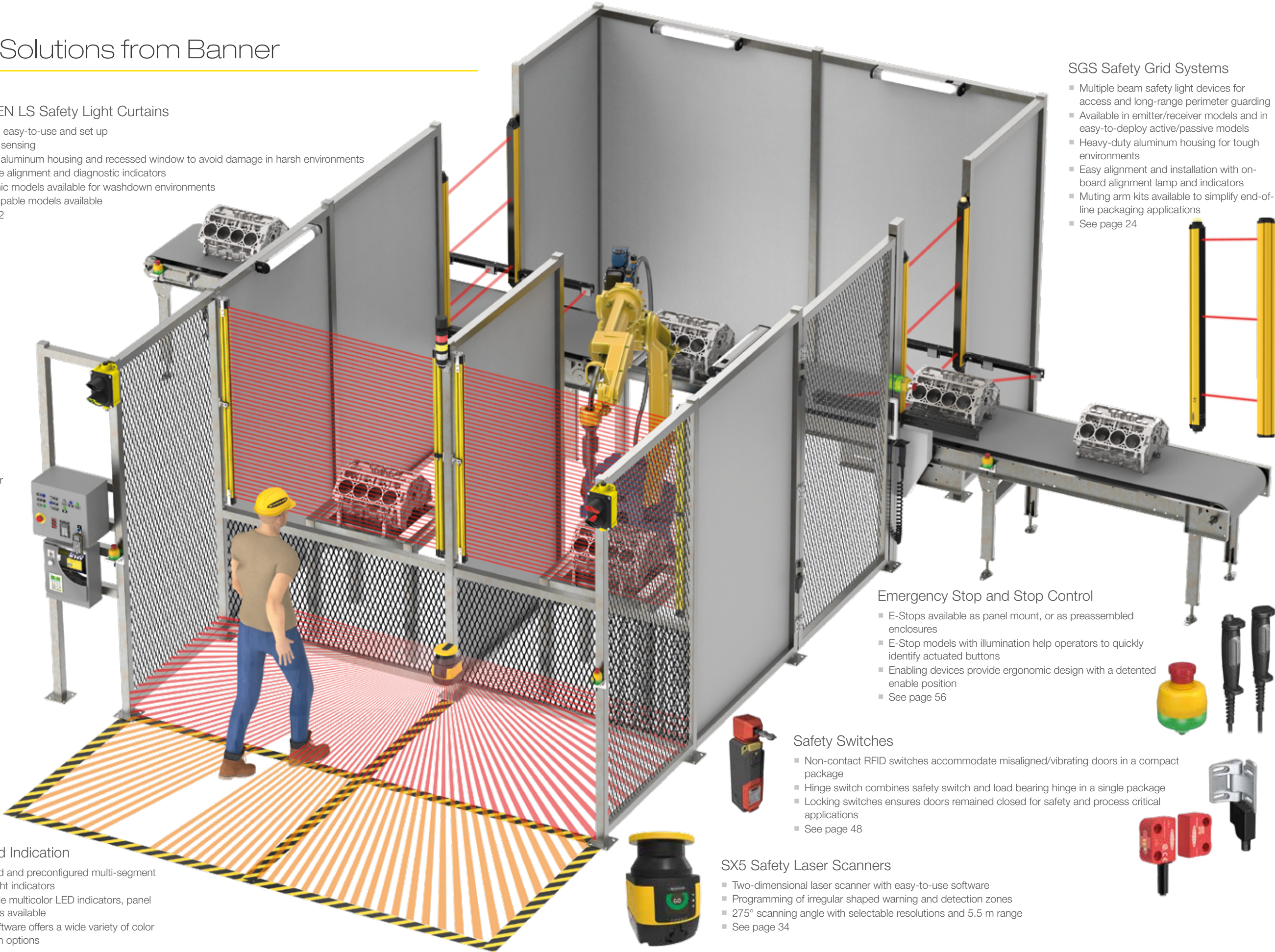- See page 24

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 38

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 56

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 48

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
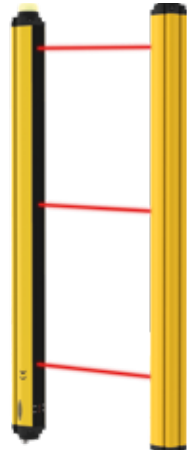- See page 34

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

Network Technology down to the Sensor Level

In-Series Diagnostics (ISD)

Cut Costs

Simplify Installation & Troubleshooting

Prevent & Reduce Downtime

ISD
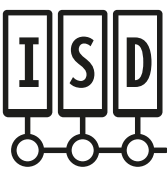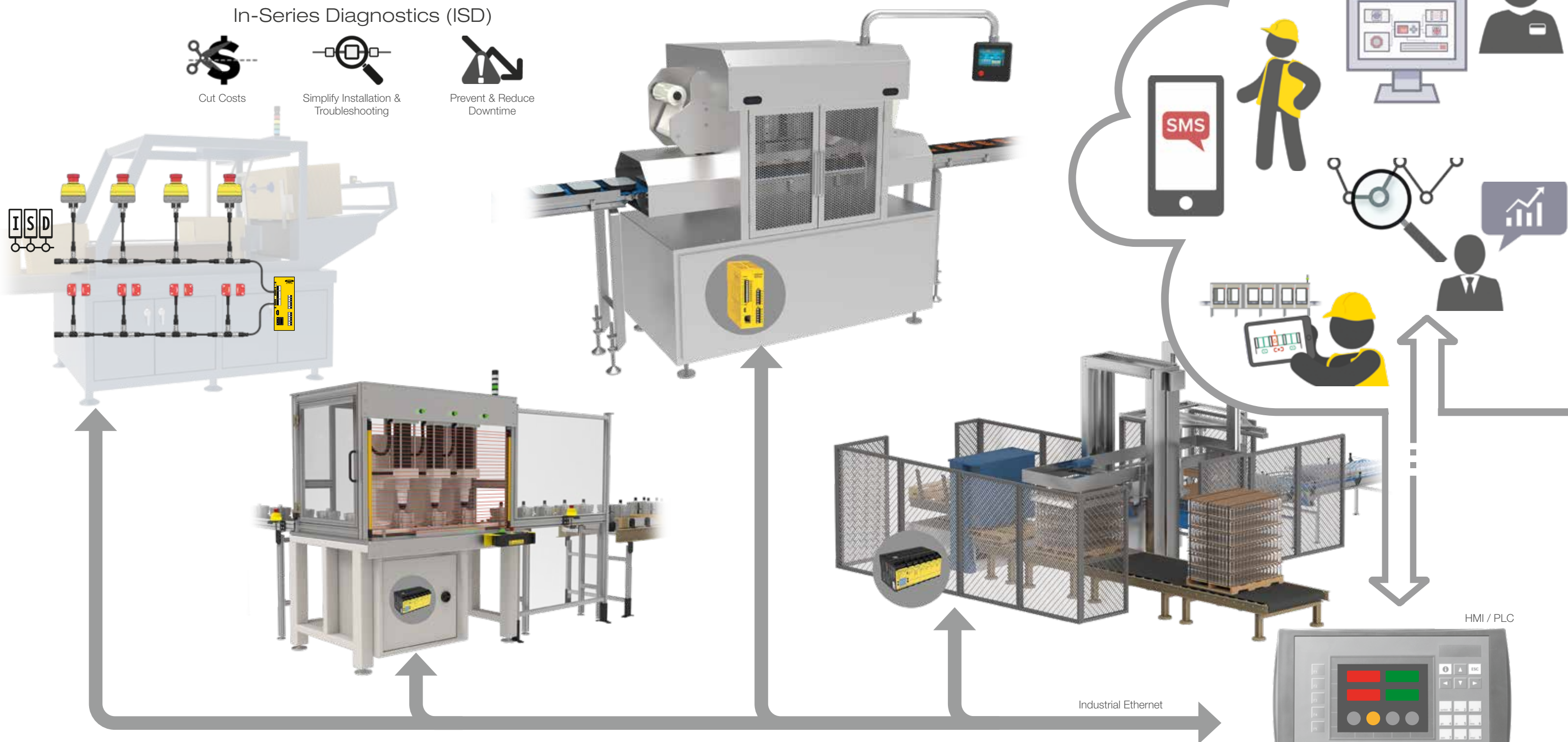
Banner In-Series Diagnostics

- Up to 32 ISD devices connected with one in-series cable communicate directly with PLC/HMI
- ISD provides an array of data including device status, voltage, temperature, RFID tag value, sensing distance and more

1234567890

74.5°C

13.7v

Status: ON

Alignment: OK

08.0 mm

Safety System Diagnostics

- Reduce downtime by quickly diagnosing safety events and displaying them on the HMI
- Prevent Downtime with ISD preventative manteinance alerts

Virtual Reset

- Eliminate physical button & wires
- Reset fron touch screen HMI over Industrial Ethernet

Industrial Ethernet

EtherNet/IP

PCCC

Modbus TCP/IP

PROFI NET®

HMI / PLC

Intuitive setup and PLC integration

- Free, Easy to use PC software
- Export tag feature for easy tag creation in a PLC (Patent Pending)
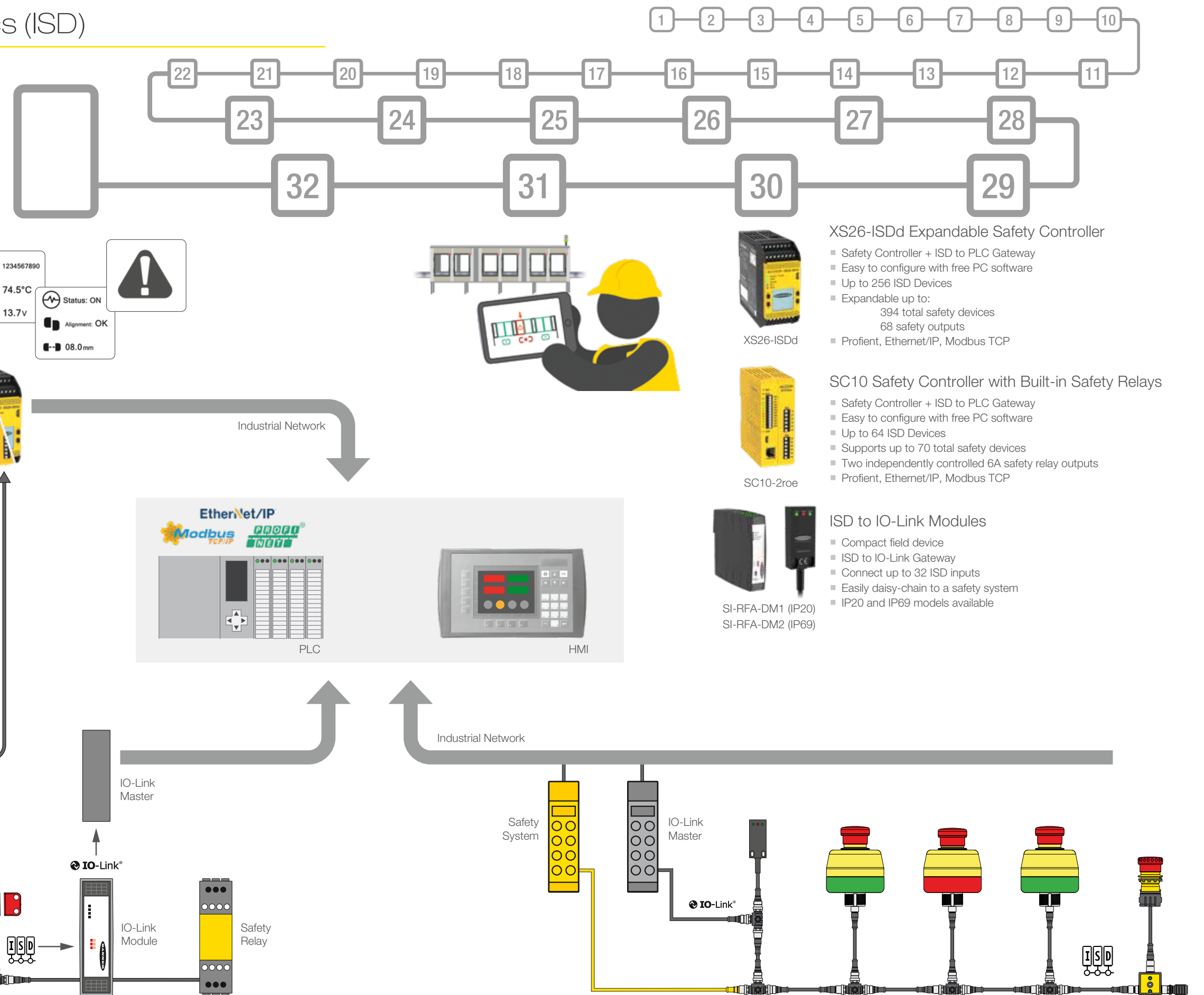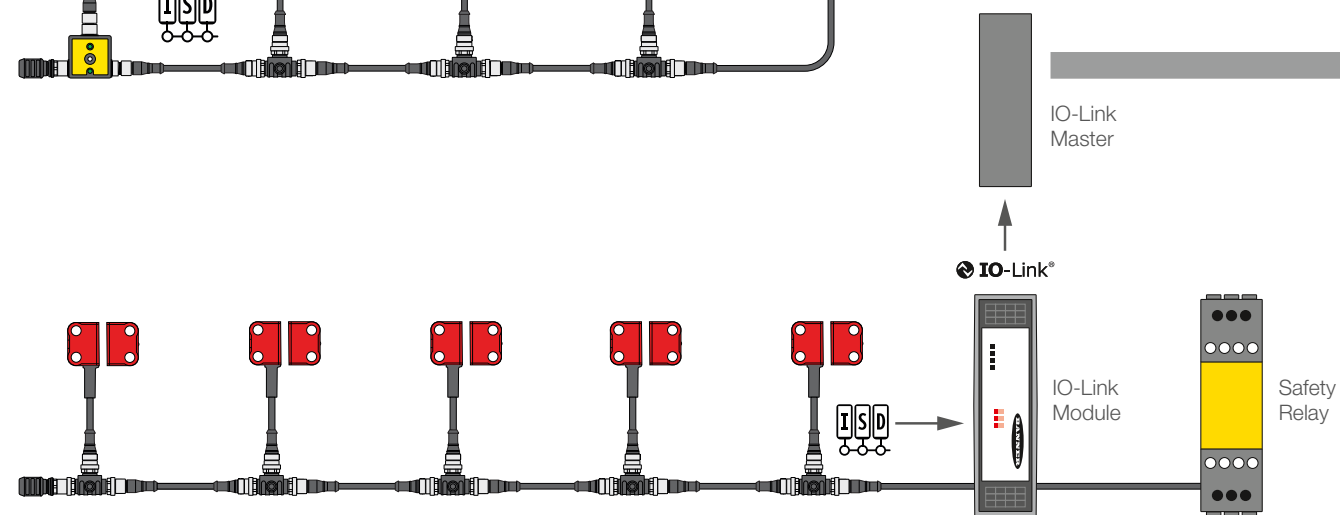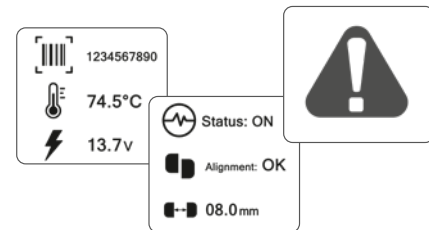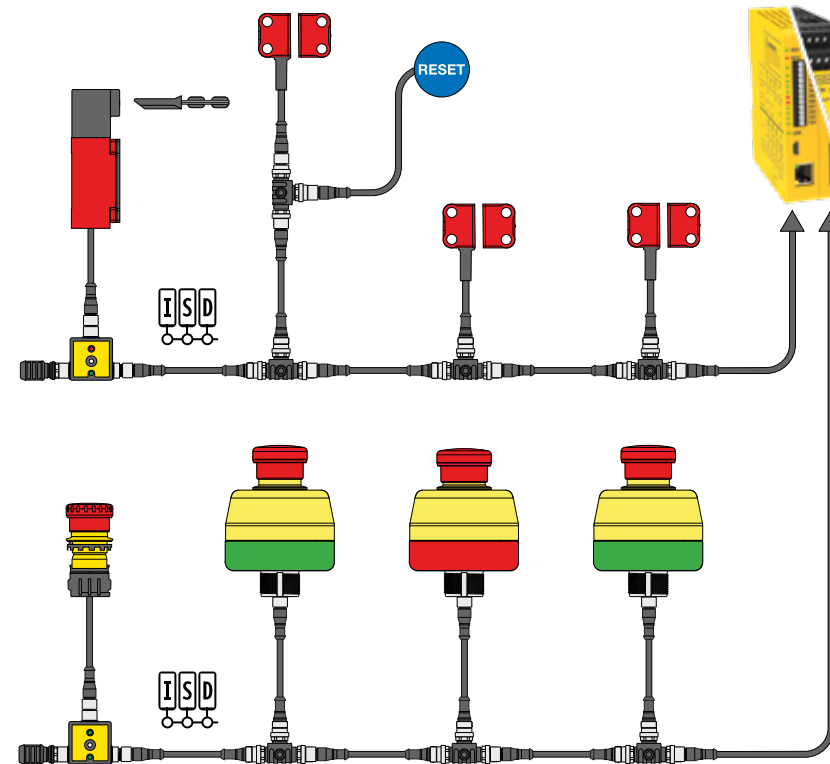
SMS

ISD Banner In-Series Diagnostics (ISD)

Easy-to-Implement Diagnostic Capabilities for Complex Safety Systems

In-Series Diagnostics allows connection of up to thirty-two devices with one in-series connection and communicate directly with the most commonly used PLCs.

When a Safety Event occurs the system receives an alert that includes information about which safety device tripped, making troubleshooting a breeze.

In-Series Diagnostics provides an array of additional data points for each In-Series Device used, including a unique tag value, internal temperature, voltage, and more, along with device-specific details such as the alignment and distance between a safety switch's sensor and actuator.

Additionally, the system sends warning alarms if devices are near to tripping, so that issues can be addressed before your machine shuts down.


```
1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10
22 - 21 - 20 - 19 - 18 - 17 - 16 - 15 - 14 - 13 - 12 - 11
23 - 24 - 25 - 26 - 27 - 28
32 - 31 - 30 - 29
```

|||| 1234567890
74.5°C
13.7v
Status: ON
Alignment: OK
08.0 mm

Industrial Network

EtherNet/IP
Modbus TCP/IP
PROFINET

PLC

HMI

IO-Link Master

IO-Link Module

Safety Relay

Safety System

IO-Link Master

XS26-ISDd Expandable Safety Controller

- Safety Controller + ISD to PLC Gateway
- Easy to configure with free PC software
- Up to 256 ISD Devices
- Expandable up to:
    - 394 total safety devices
    - 68 safety outputs
- Profient, Ethernet/IP, Modbus TCP

XS26-ISDd

SC10 Safety Controller with Built-in Safety Relays

- Safety Controller + ISD to PLC Gateway
- Easy to configure with free PC software
- Up to 64 ISD Devices
- Supports up to 70 total safety devices
- Two independently controlled 6A safety relay outputs
- Profient, Ethernet/IP, Modbus TCP

SC10-2roe

ISD to IO-Link Modules

- Compact field device
- ISD to IO-Link Gateway
- Connect up to 32 ISD inputs
- Easily daisy-chain to a safety system
- IP20 and IP69 models available

SI-RFA-DM1 (IP20)
SI-RFA-DM2 (IP69)

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Type 4 Heavy-Duty Light Curtains

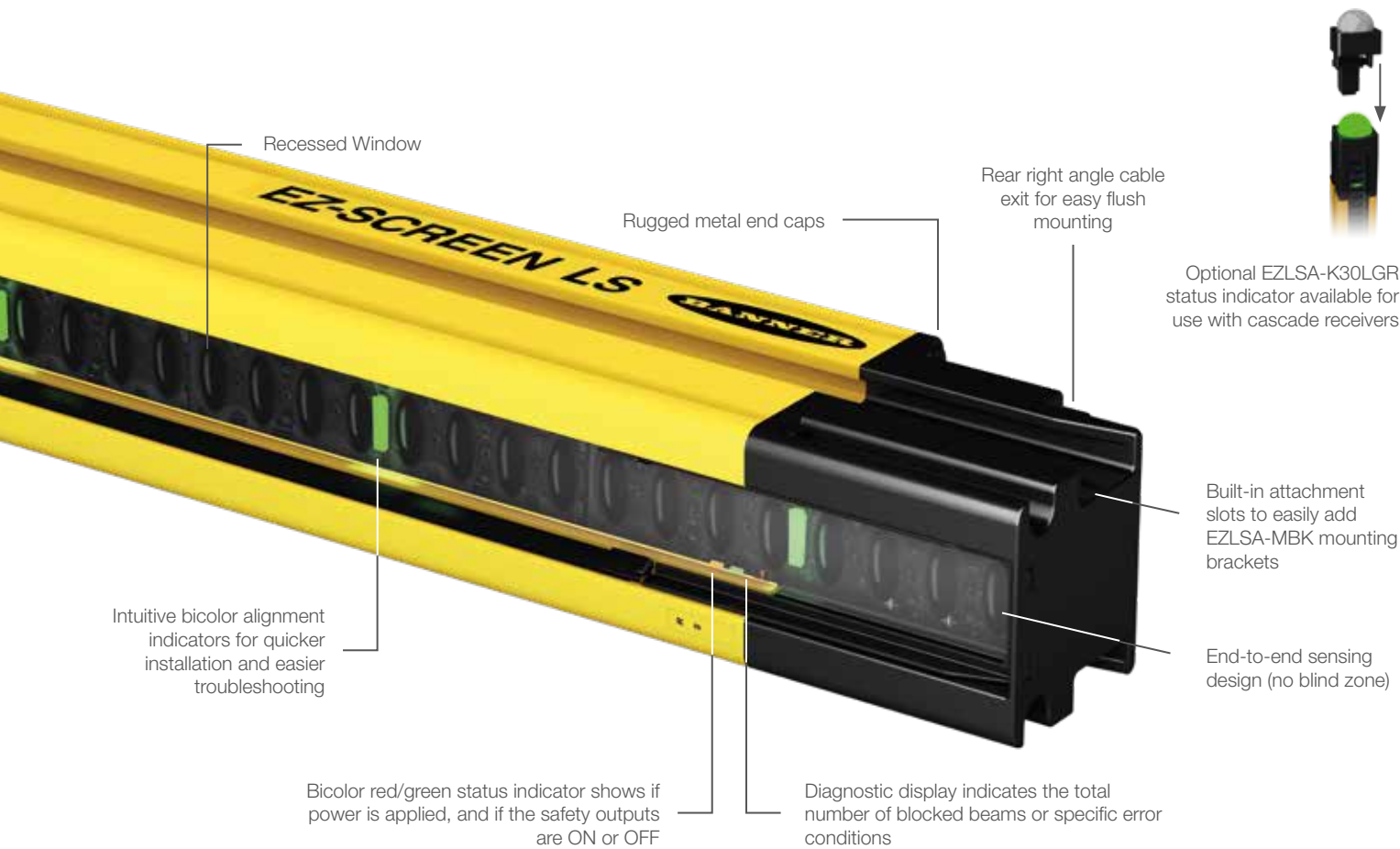## Robust safety light curtains for harsh industrial environments

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.
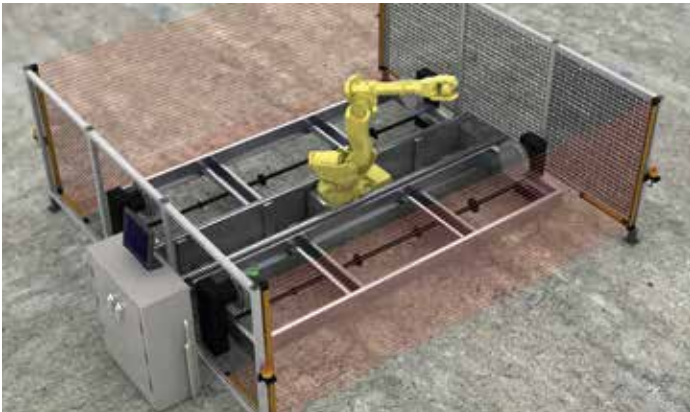
Due to its robust design, the EZ-SCREEN LS is the perfect fit in large robotic cell applications that require sturdy safety devices and heavy duty enclosures.


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


Recessed Window

Rear right angle cable exit for easy flush mounting

Rugged metal end caps

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

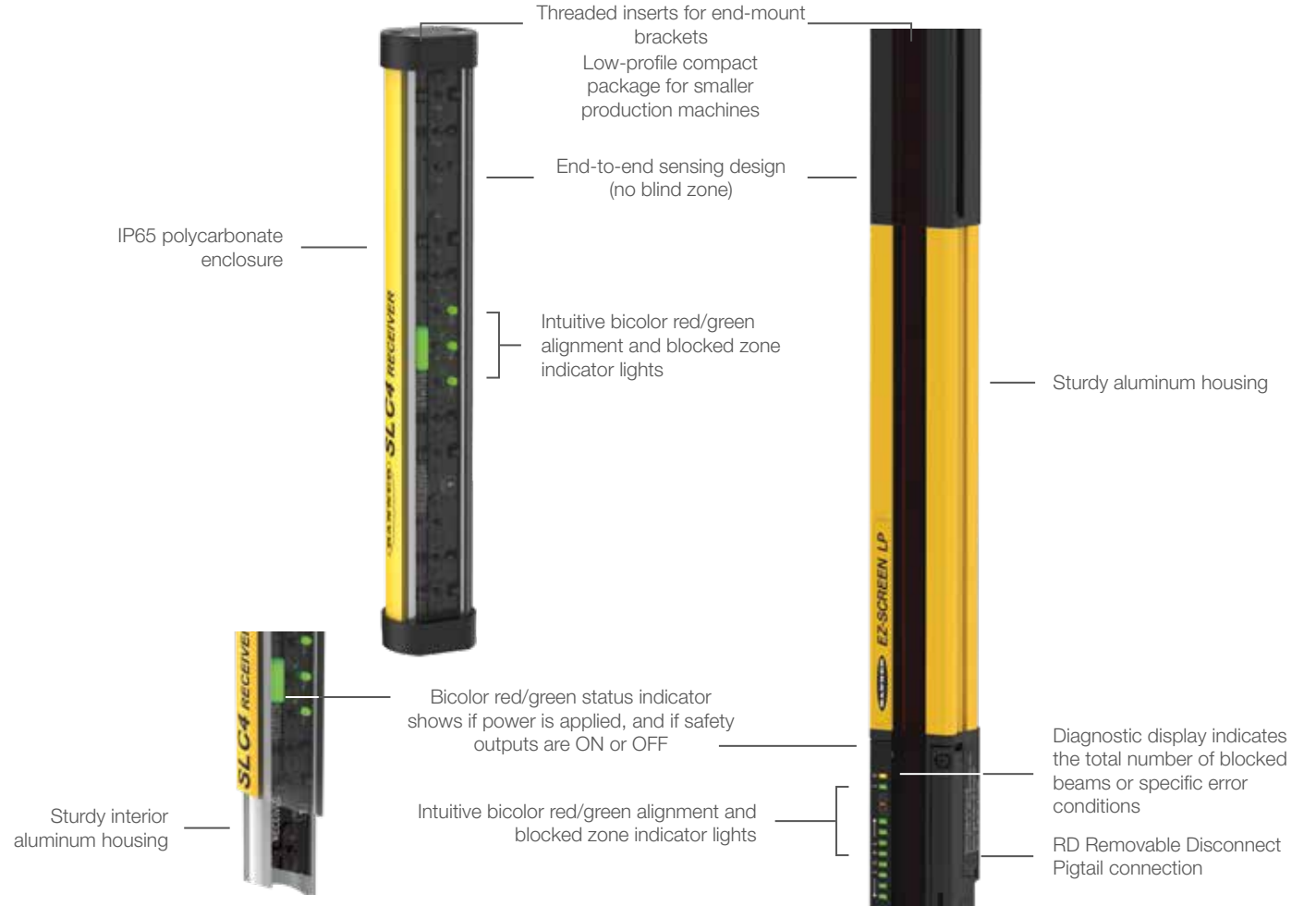## Compact safety light curtains for safety in tight spaces

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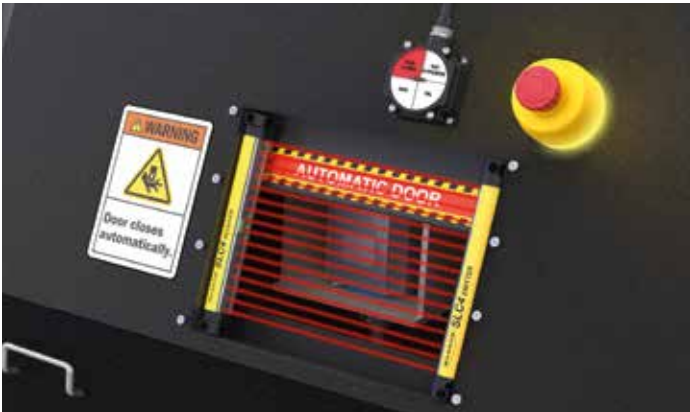
SLC4 are Type 4 safety light curtains specifically designed to safeguard smaller points of operation and access on compact machines.
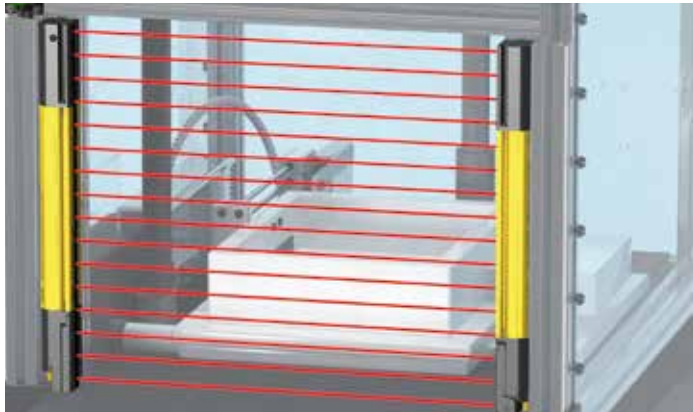
The EZ-SCREEN LP safety light screen is compact and mounts in tight spaces with its continual end-to-end sensing that leaves no gaps.
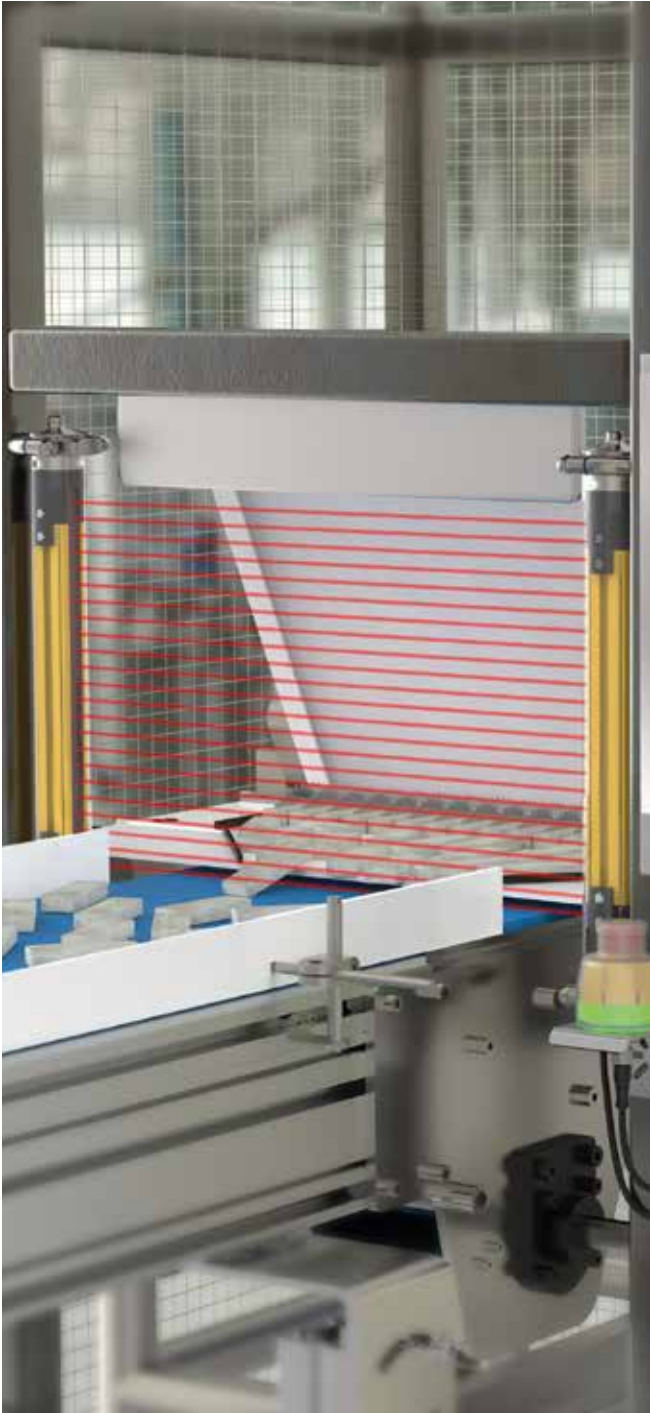

Threaded inserts for end-mount brackets

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	EZ-SCREEN	EZ-SCREEN
Finger Detection	▨	▨	▨	▨	▨	▨	
Hand Detection	▨	▨	▨	▨	▨	▨	▨
Muting / Presence Detection				📦	🚶		
Family	SLC4	SLPVA	SLP	SLPMP	SLL	SLS	LS2
Type IEC 61496-1, -2	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 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 45.2	25.4 x 31.8
Resolution (mm)	14, 24 mm	14, 25 mm	14, 25 mm	14, 25 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 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	280 to 2380 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	70 mm	150 mm	150 mm
Functions							
Reset	–	–	✓	✓	–	✓	✓
EDM	–	–	✓	✓	✓	✓	✓
Scan Code	–	–	✓	✓	✓	✓	–
Reduced Resolution	–	–	✓	✓	–	✓	–
Fixed Blanking	–	–	✓	✓	✓	✓	–
Integrated Muting	–	–	–	✓	See page 15	–	–
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 / 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	–

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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)

SLC4 Brackets

SLC4A-MBK-10	SLC4A-MBK-11	SLC4A-MBK-12
■ End Mount Bracket ■ Rotation: +/- 20° ■ Includes 4 brackets and hardware ■ 14 ga. steel, black zinc-plated	■ End Mount Bracket ■ Rotation: Fixed ■ Includes 4 brackets and hardware ■ Glass-filled polycarbonate	■ Side mount bracket ■ Rotation: +/- 15° ■ Includes 2 brackets ■ Glass-filled polycarbonate

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

EZ-SCREEN LP Basic Cables

RD to M12 Pigtail (required)	
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**   830 = 830 mm
410 = 410 mm   970 = 970 mm
550 = 550 mm   1110 = 1110 mm
690 = 690 mm   1250 = 1250 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)
Blank = no pigtail, RD connection (for RDLP-8..D cordset)

* 8-pin connection required for cascade models and to enable EDM, Aux Output and Reset features
** Not available in cascade models

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   830 = 830 mm
550 = 550 mm   970 = 970 mm
690 = 690 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

LP Brackets

LP Cascade

LPA-MBK-10	LPA-MBK-11	LPA-MBK-12	LPA-MBK-16	LPA-MBK-21
■ End mount bracket ■ Rotation: 40° ■ Includes 2 brackets and hardware ■ 14 ga. steel, black zinc-plated	■ Standard end mount bracket ■ Rotation: 360° ■ Includes 2 brackets and hardware ■ 14 ga. steel, black zinc-plated	■ Standard side mount bracket ■ Rotation: +10° and -30° ■ Includes 1 bracket and hardware ■ 14 ga. steel, black zinc-plated	■ Side mount bracket ■ Rotation: +15° and -20° ■ Includes 1 bracket and hardware ■ Black zinc die-cast	■ Pivoting cascade mounting bracket ■ Includes 2 brackets and hardware ■ 14 ga. steel, black zinc-plated

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Safety Light Curtains – Model Keys

Heavy-Duty Type 4: EZ-SCREEN LS

Family	Cascade	System Type	Resolution	Defined Area			Termination
SLL		E	14	—	910	—	S

Cascade
Blank = Standard
C = Cascade

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

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

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	2100L = 2100 mm**
		2380L = 2380 mm**

* Not available in cascade models
** 23 mm resolution, IP65, 10 m range

Standard model, short delivery time

S = no pigtail, RD connection (contains individual Emitter or Receiver only; brackets and cables ordered separately)

SLLCE23-1190-S

Special 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)

SLLCE23-1190P5

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)

SLLCE23-1190P8

Blank = no pigtail, RD connection (for RDLS-8..D or RDLS-5..D cordset)

SLLCE23-1190

EZ-SCREEN LS Cables

DELSE-51D (5-Pin)	DELSE-81D (8-Pin)	RDLS-515D (5-Pin)	RDLS-815D (8-Pin)	Cascade
■ Plug-and-play M12 connection for easy connection ■ Fast/error free swap out with M12 connector or connector at light curtain ■ Complete the connection with QDE-515D (5-pin) or QDE-815D (8-pin) cordsets. ■ 0.3 m (1 ft) in length		■ Single cable run from light curtain directly to cabinet ■ Quick, error-free swap out connector at light curtain ■ Single-ended flying leads cordset ■ 5 m (15 ft) in length		■ Double-Ended RD to RD cordsets for Cascade systems

	RDLS-515D 4.6 m (15')	RDLS-815D 4.6 m (15') RDLS-825D 8 m (26') RDLS-850D 15.3 m (50')	DELS-110E 0.05 m (0.2') DELS-111E 0.3 m (1') DELS-113E 1 m (3.3') DELS-118E 2.5 m (8.2')	DELS-1115E 4.6 m (15.1') DELS-1125E 8 m (26.2') DELS-1150E 15.3 m (50.2')

Safety Light Curtains – Accessories

LS Brackets

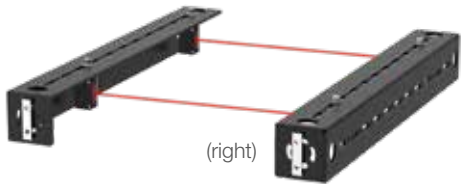| EZLSA-MBK-11	EZLSA-MBK-12	EZLSA-MBK-16	EZLSA-MBK-20
■ End mount steel bracket ■ 360° rotation in 23° increments ■ Two supplied with each sensor ■ Not included with IP69 Hygienic models	■ Center mount steel bracket ■ Rotation: +/- 15° ■ One supplied with each sensor ≥ 980 mm ■ Not included with IP69 Hygienic models	■ Side mount die-cast bracket ■ Rotation: +15° and -20° ■ One bracket per optional kit	■ 8-ga. black cold-rolled steel ■ Optional end-mount bracket for slotted aluminum framing ■ (Needs EZLSA-MBK-11 bracket)

LS Mute Arm Kits

Create a turn-key muting solution for your EZ-SCREEN LS Safety Light Curtain
■ With a 300 mm (1 ft) PVC cable with a 8-pin M12 male quick disconnect
■ Needs EZ-SCREEN LS Hardware Adaptor Kit EZLSA-MCB-HW

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

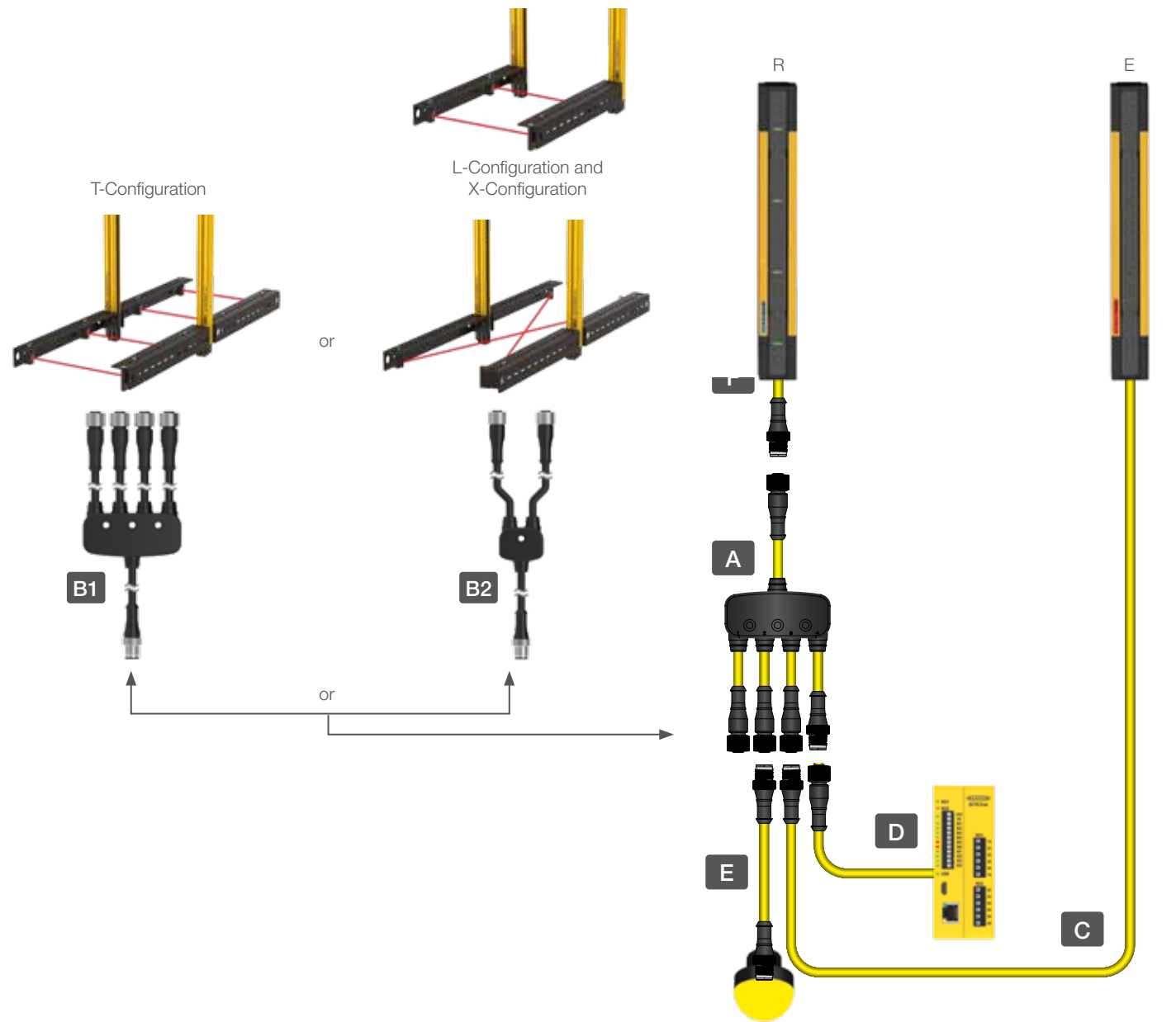### X-Configuration

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

EZ-SCREEN LS-S Muting System Diagram

T-Configuration

L-Configuration and
X-Configuration

or

B1

B2

R

E

A

D

E

C

or

Connection cables

A	**CSM4-M1281M1251M1281** LS muting connection cable
B	SGS mute arm kit connection cable (select one) B1: T-Muting: **CSA4-M1251M1251M1251M1251** B2: L-Muting or X-Muting: **CSA-M1241M1241**
C	**DEE2R-8xxD** LS emitter connection cable (xx is the length in feet)
D	**QDEG-12xxE** Safety controller connection cable (xx is the length in feet)
F	**DELSE-81D (8-Pin)** LS receiver connection cable (M12)

Mute lights and cables

E1	Mute light (see page 19)
E2	**DEE2R-5xx** Mute light cable (xx is the length in feet)

Interface options

Interface modules (see page 44)

EZ-LIGHT® Mute Lights

Model	Construction	LED Function
TL50WQ **TL50YQ**	- Bases and covers: ABS – Light segment: polycarbonate - 30 mm base mount - IP67 - Indicates mute status	White Yellow
K50LWXXPQ **K50LYXXPQ**	- Polycarbonate housing, 50 mm thermoplastic dome, 30 mm base mount - Fully encapsulated, IP67 - Indicates mute status	White Yellow
K50FLWXXPQPMA **K50FLYXXPQPMA**	- Polycarbonate base, translucent polycarbonate dome, flat mount - Fully encapsulated, IP67, IP69K - Indicates mute status	White Yellow
K80LWXXPQPMA **K80LYXXPQPMA**	- Polycarbonate housing, 50 mm thermoplastic dome, flat or DIN mount - Fully encapsulated, IP67 - Indicates mute status	White Yellow
Connection/recommended cordset: DEE2R-5xxxD (where xxx is the length in feet)		

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 = 7.6 m (25 ft), 8-wire high
durometer PVC cordset
F = Remote Fixed Blanking Receiver model
with additional 7.6 m (25 ft) cordset for
blanking configuration

LS Brackets

EZLSA-MBK-HTE-1	**EZLSA-MBK-HTE-2**
■ Stamped stainless steel bracket ■ 360° rotation for IP69 enclosure models ■ Two brackets per optional kit	■ Hygienic stainless steel bracket ■ 360° rotation for IP69 enclosure models ■ Two brackets per optional kit

Safety Light Curtains – Model Keys

Heavy-Duty Type 4: EZ-SCREEN

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

Cascade
C = Cascade
Blank = No cascading

System Type
E = Emitter
R = Receiver
P = Pair

Resolution
14 = 14 mm
30 = 30 mm

Defined Area

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

* Not available in cascade models
** Only available in 30 mm resolution

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

Brackets

EZA-MBK-11	EZA-MBK-12	EZA-MBK-20	EZA-MBK-21
▪ Standard Mounting L-Bracket	▪ Center Mounting Bracket	▪ Retrofit bracket for mounting to engineered/slotted aluminum framing	▪ Mounting bracket system for L configuration of two cascaded light screens ▪ One EZA-MBK-21 kit contains brackets for one side of an L-mounting configuration

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Safety Light Curtains – Model Keys

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

LS2 Brackets

USMB-5	USMB-6	USMB-8
▪ Retrofit mounting bracket ▪ 2.3 mm thickness, black zinc-plated, chromate dip finish ▪ Mounting hardware included: 1 kit required per emitter or receiver	▪ Universal mounting bracket kit ▪ 2.3 mm thickness, black zinc-plated, chromate dip finish ▪ Mounting hardware included: 1 kit required per emitter or receiver	▪ Low profile mounting plate for 90°sensor direction ▪ Black anodized aluminum ▪ Uses two M4 screws (user supplied) for through-hole mounting ▪ 1 kit required per emitter or receiver

Safety Light Curtains Cables

5-Pin M12		8-Pin M12	
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')	

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Type 4 Safety Light Grids

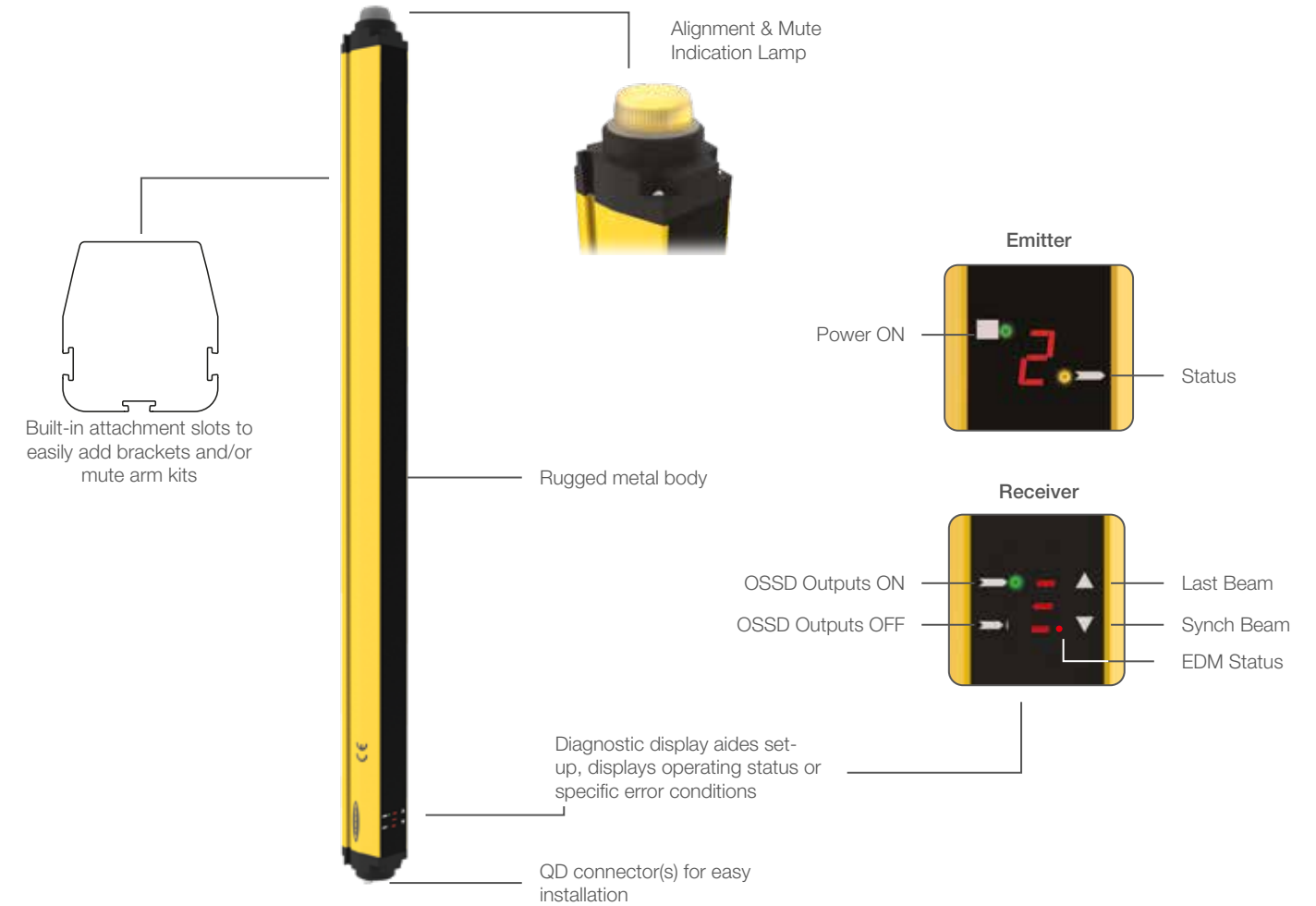## Easy-to-use, heavy-duty Type 4 grids for perimeter guarding

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.

- Alignment & Mute Indication Lamp
- Built-in attachment slots to easily add brackets and/or mute arm kits
- Rugged metal body

Emitter
- Power ON
- Status

Receiver
- OSSD Outputs ON
- OSSD Outputs OFF
- Last Beam
- Synch Beam
- EDM Status
- Diagnostic display aides set-up, displays operating status or specific error conditions
- QD connector(s) for easy installation

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

	Perimeter Guarding Type 4					
	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
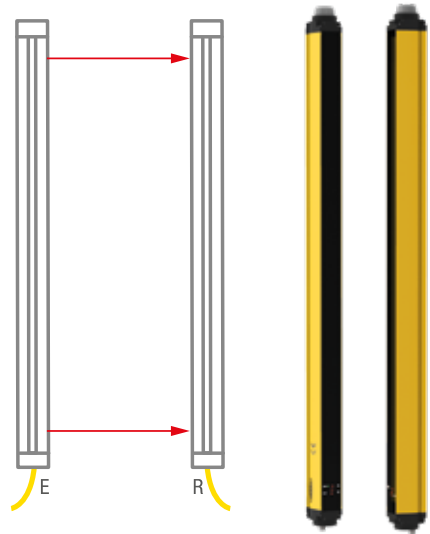
Type	Protective Height (mm)	Range (m)	Integral Muting	Model
Emitter & Receiver	500 (2 beams)	6 to 60	No	SGSXP2-500Q88
	800 (3 beams)			SGSXP3-400Q88
	900 (4 beams)			SGSXP4-300Q88
	1200 (4 beams)			SGSXP4-400Q88
Emitter & Receiver	500 (2 beams)	0.5 to 30	No	SGSSP2-500Q88
	800 (3 beams)			SGSSP3-400Q88
	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

SGS Active/Passive

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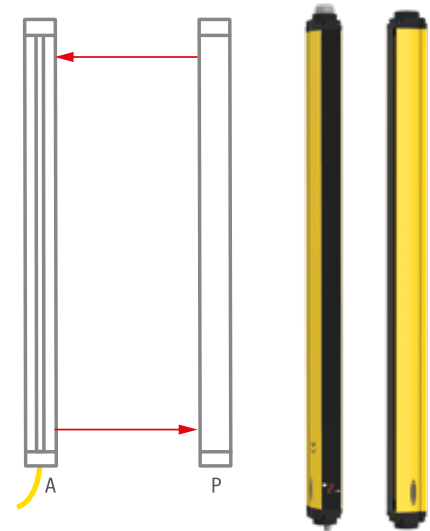
Type	Protective Height (mm)	Range (m)	Integral Muting	Model
Active Transceiver	500 (2 beams)	0.5 to 8	No	SGSSA2-500Q8
	800 (3 beams)	0.5 to 8		SGSSA3-400Q8
	900 (4 beams)	0.5 to 6.5		SGSSA4-300Q8
	1200 (4 beams)	0.5 to 8		SGSSA4-400Q8
Active Transceiver	500 (2 beams)	0.5 to 8	Yes	SGSMA2-500Q12
	800 (3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

Connection Options

8-Pin M12	
QDEG-815D 4.5 m (15')	QDEG-875D 22.8 m (75')
QDEG-825D 7.6 m (25')	QDEG-8100D 30.4 m (100')
QDEG-850D 15.2 m (50')	

12-Pin M12	
QDEG-1215E 4.5 m (15')	QDEG-1275E 22.8 m (75')
QDEG-1225E 7.6 m (25')	QDEG-12100E 30.4 m (100')
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

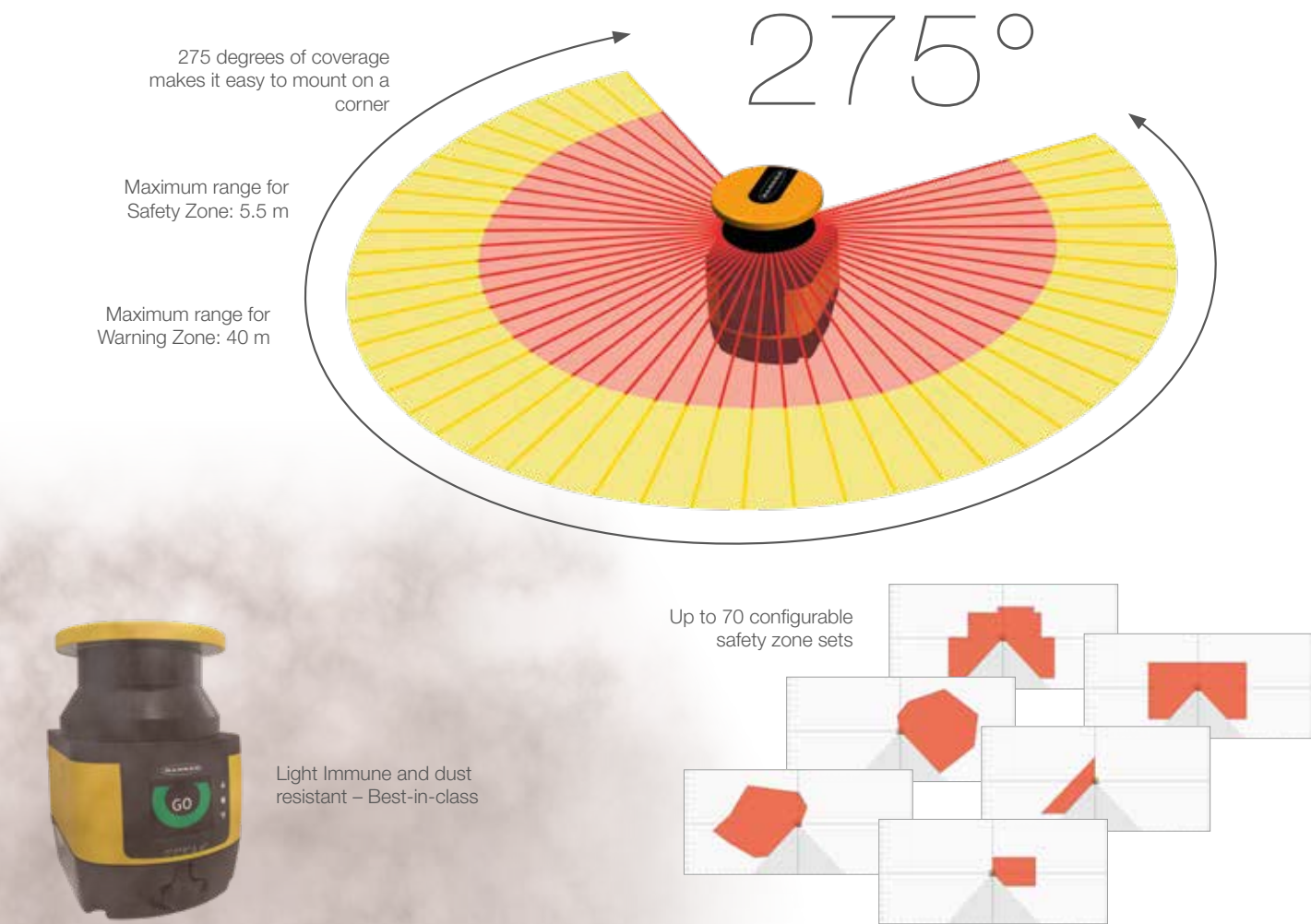## Horizontal or vertical monitoring of both personnel and stationary or mobile systems

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 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 70 configurable safety zone sets

Safety Scanner System

Increased Machine Uptime

The SX5 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.
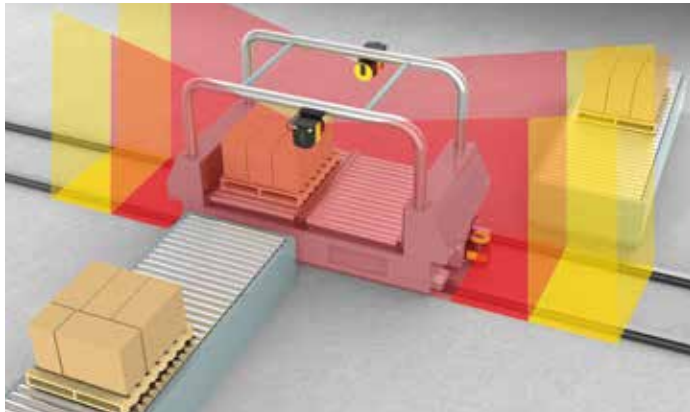
An alert is triggered if an object enters the warning zone and equipment will come to a stop if the safety zone is breached.

Rugged design for reliable industrial use

Numerous status, diagnostic, warning and error displays

Dynamic Muting available and selectable detection capability for vertical applications

Keypad

M12 Ethernet connector cover for standalone models

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)

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Safety Scanner System

Removable memory for fast scanner replacement

The system configuration is backed up in a removable memory unit. Install your replacement scanner fast and easy, without needing to reconfigure your system.
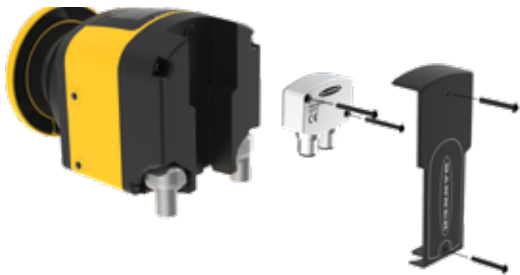
Master and Remote connection reduces wiring

For applications that require monitoring multiple sides of an AGV, up to four scanners can be easily connected through an Ethernet-based safe communications bus, working as a single system.

Each remote unit is connected to the master by a single cable that provides them with power, and the memory of the entire system is stored in the master.
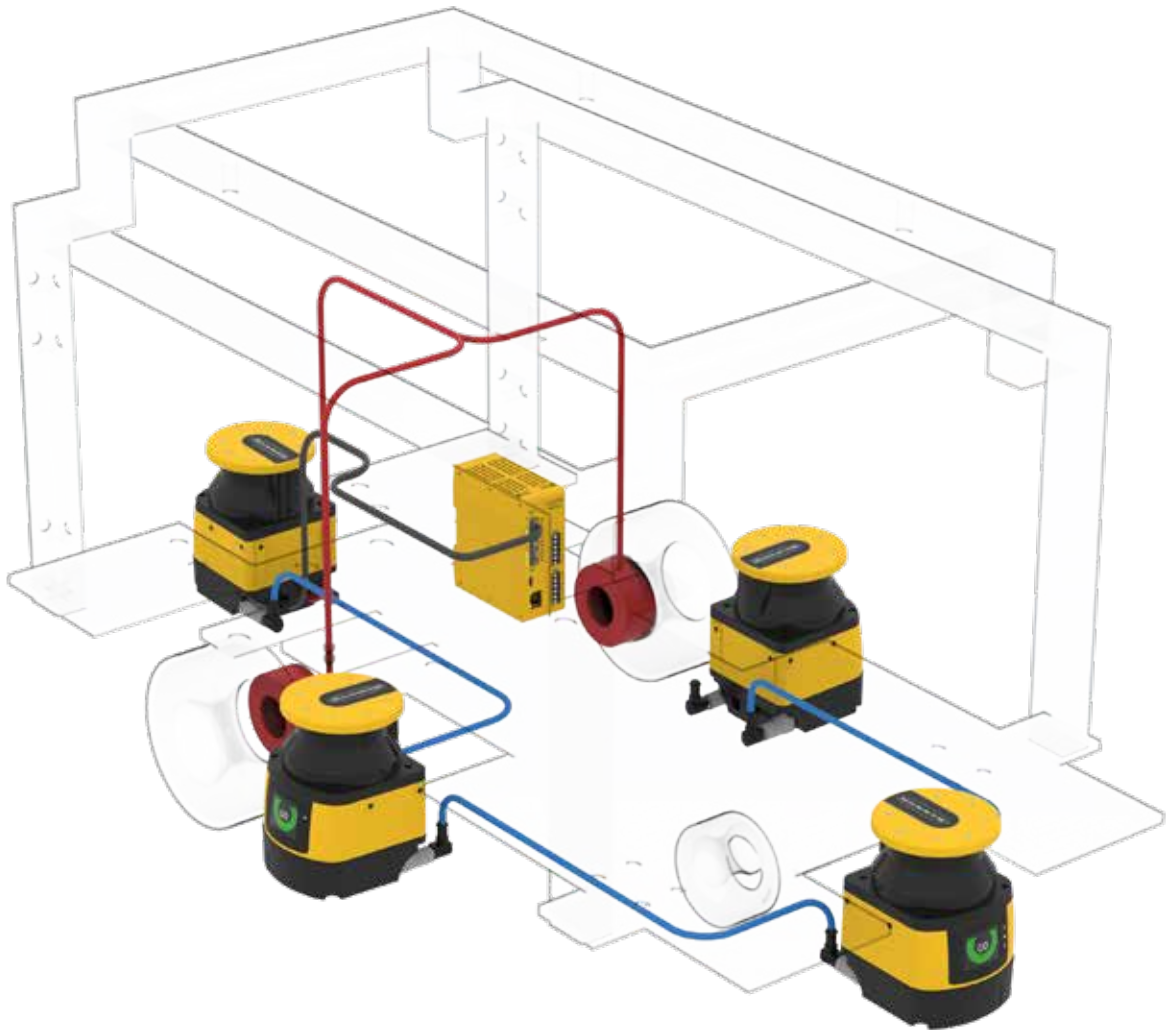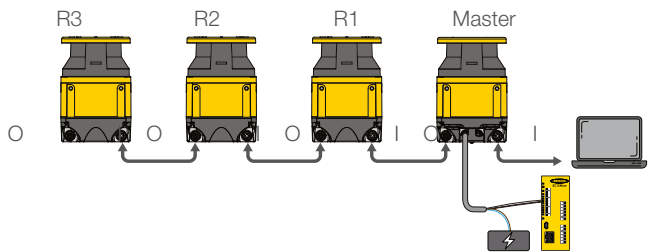
Safety Scanner System – Software

Simple Setup for Rapid Deployment

The SX5 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.
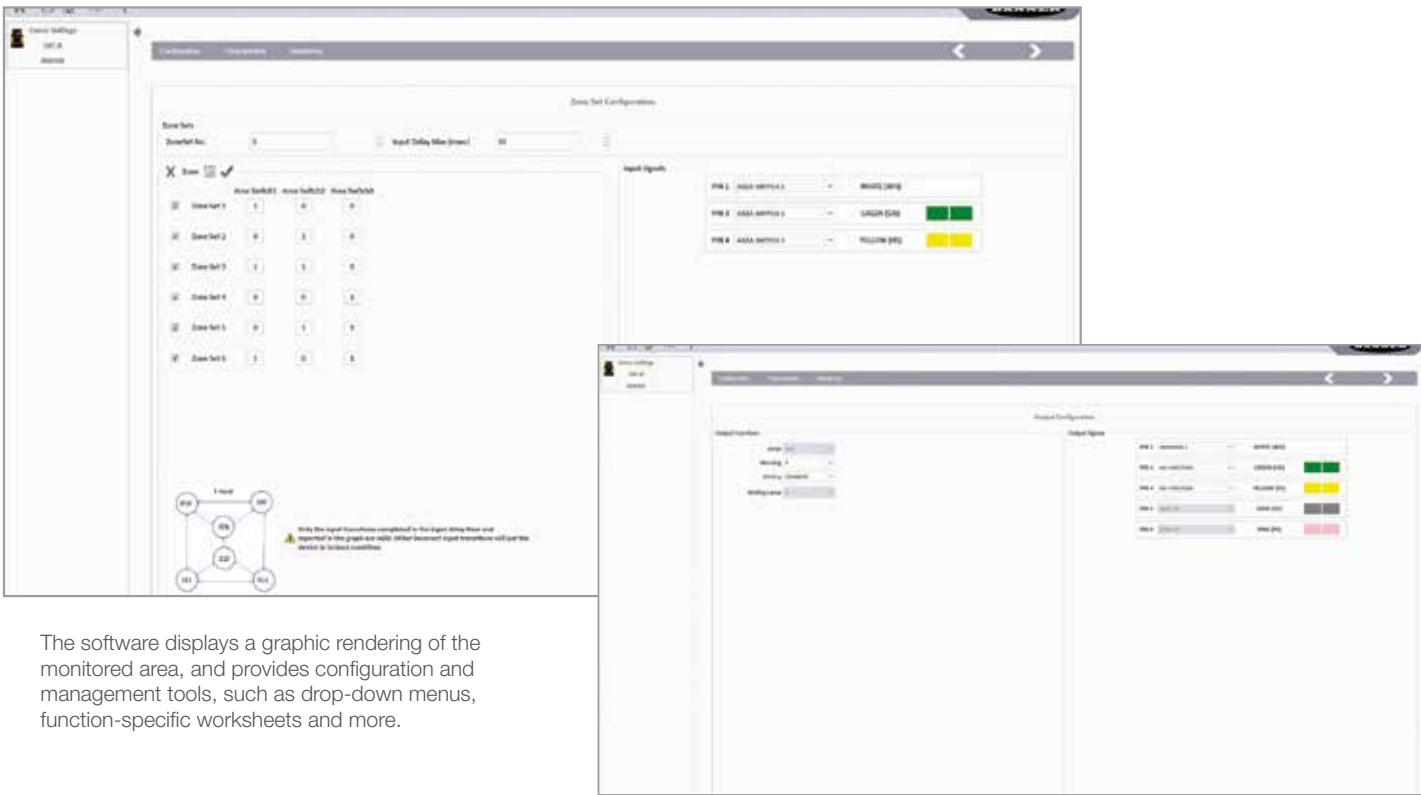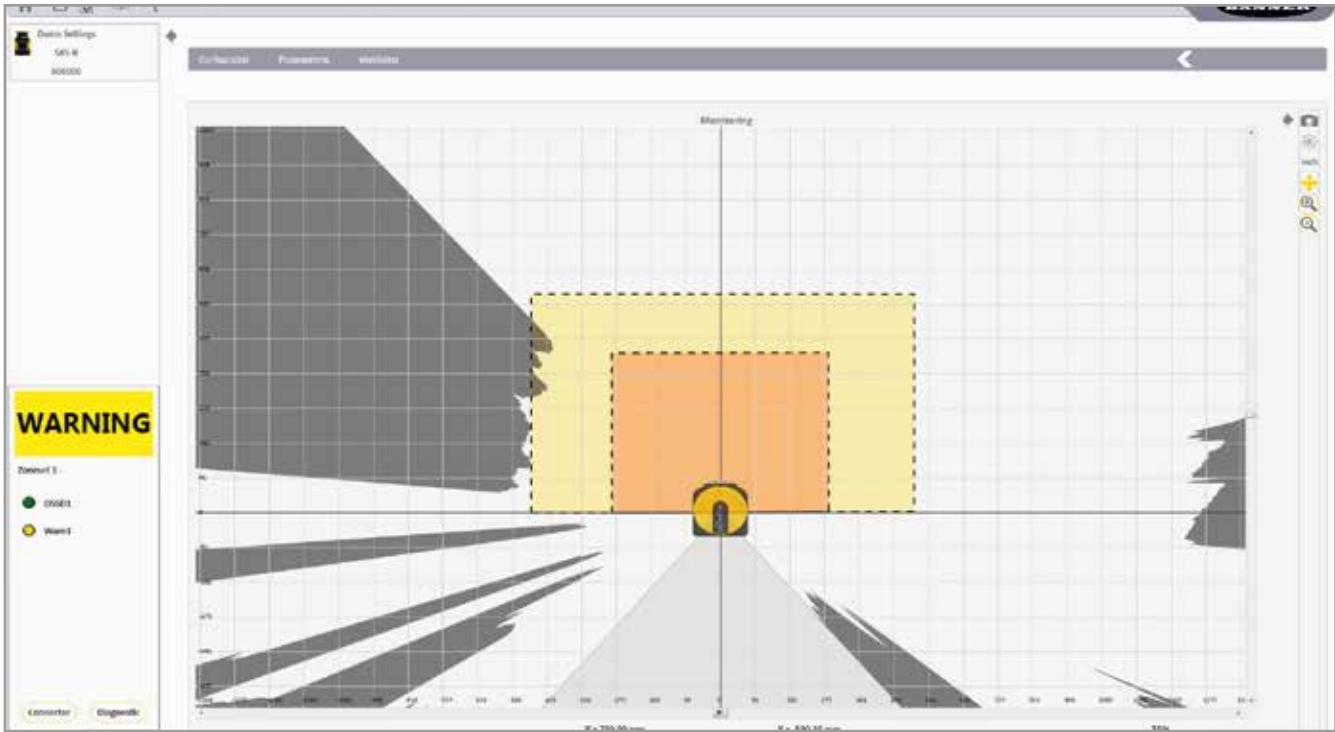
The software displays a graphic rendering of the monitored area, and provides configuration and management tools, such as drop-down menus, function-specific worksheets and more.

Safety Scanner – Fixed Applications

Fixed applications / stationary area guarding

Stationary area guarding uses sensing fields such as safety or warning zones to continually sense an individual within a safeguarded area. Stationary area guarding can reduce or eliminate the possibility of a pass-through hazard that could result in an individual being exposed to unexpected machine startup or motion.

Single-zone safeguarding

The safety scanner detects when a person approaches a hazard. When the person enters a warning zone, the hazardous motion is controlled safely. When the person enters the safety zone, the hazard is stopped.

Multi-zone safeguarding

Up to three safety zones can be monitored simultaneously and independently. This way, safety in the entire plant is optimized, ensuring increased productivity and improved ergonomics in the entire plant.

Multi-zone safeguarding via master-remote

Manage multiple areas with master-remote architecture. Multiple safety zones stop different parts of the dangerous machine, without the need of an external controller.
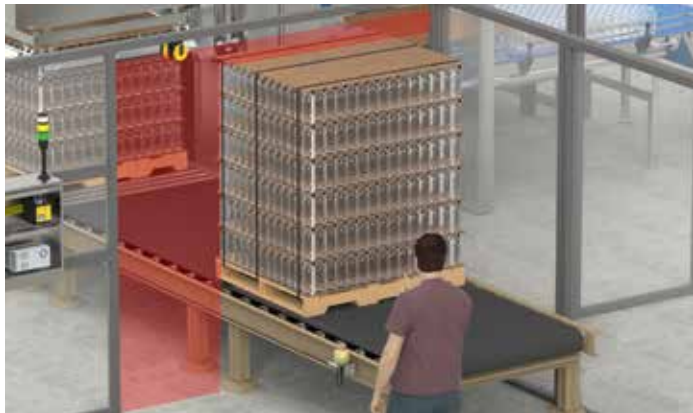
Safeguarding with dynamic and partial muting

Muting sensors can be directly connected to the SX5, creating a tightly protected area around the muted object while muting is active. Each safety output can be configured with its own muting requirements.

Safety Scanner – Mobile Applications

Mobile applications / mobile area guarding

On mobile applications, the SX5 monitors the area directly ahead of the vehicle using both the warning and the safety zones. The vehicle slows down if something is detected in the warning zone and the vehicle stops when something is detected in the safety zone. If the speed increases or decreases, alternate zone sets can be used to adjust for varying stopping distances.
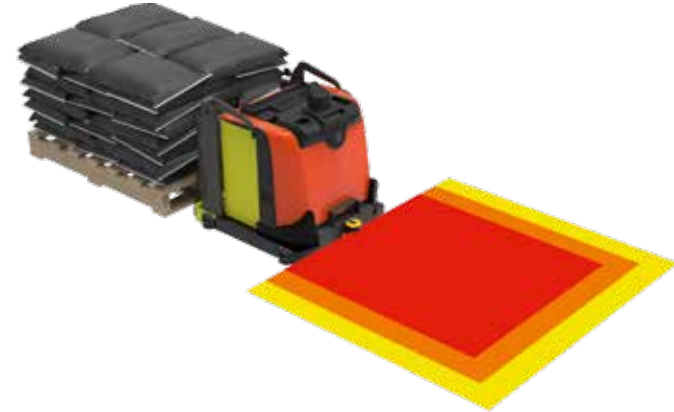
Automated Guided Vehicle collision avoidance

Warning and safety zones can be used to alert operators, slow down the vehicle or stop it. Up to 70 different zones can be set and activated per position, speed and movement of the vehicle.
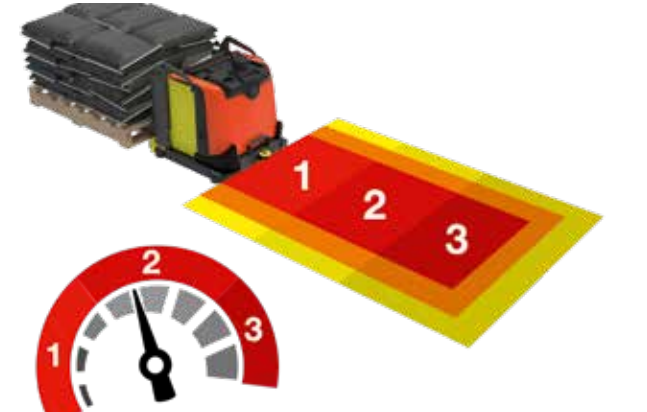
Safe speed monitoring

Incremental encoders inputs can be directly read by the SX5 scanner in order to select the appropriate slow-down and stopping areas, based on the speed of the vehicle.

Advanced measurement data for direct navigation

The SX5 has a direct transmission protocol over Ethernet. It can be used to read measurement data for vehicle navigation. Data includes active zone, I/O status, measured speed, intensity of beams and diagnostic.


Collaborative robot monitoring

Mobile collaborative robots (cobots) have built-in safety features that enable them to work alongside humans. Cobots can be programmed to slow down or stop when a human enters the warning or safety zone.

Safety Scanner Selection

		SX5-ME70	SX5-M70	SX5-M10	SX5-R	SX5-B6
Presence Detection		50/70 mm	50/70 mm	50/70 mm	50/70 mm	50/70 mm
Hand Detection		30/40 mm	30/40 mm	30/40 mm	30/40 mm	30/40 mm
Body Detection		70/150 mm	70/150 mm	70/150 mm	70/150 mm	70/150 mm
Range (depending on resolution)		30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m
Max. Zone Sets (depending on configuration)		70	70	10	depending on master	6
Master Remote		Master Up to 3 Remote	Master Up to 3 Remote	Master Up to 3 Remote	Remote	
Removable Memory		SXA-RM-70	SXA-RM-70	SXA-RM-10		
Speed Monitoring		✓				
Max. OSSD Outputs (depending on configuration)		3x 2 OSSD	3x 2 OSSD	2x 2 OSSD		1x 2 OSSD
Connection		M12 – 17-pin and M12 – 8-pin	M12 – 17-pin and M12 – 8-pin	M12 – 12-pin or M12 – 8-pin		M12 – 8-pin
Inter Device Connection		M12 – 8-pin	M12 – 8-pin	M12 – 8-pin	M12 – 8-pin	
Muting		✓	✓	✓	✓	✓
Programmable dust filter		✓	✓	✓	✓	✓
Measurement Data		✓	✓	✓	✓	✓
Field-replaceable Window		✓	✓	✓	✓	✓

Accessories

SXA-MBK-1 / SXA-MBK-2	SXA-WIN	SXA-RM-10 / SXA-RM-70	8-Pin M12 Straight	12-Pin M12 Straight	17-Pin M12 Straight	8-Pin Threaded M12 – Male to Male
▪ Pitch and roll angle adjustment bracket ▪ Protection bracket	▪ Window Replacement Kit	▪ Removable Memory SX..M10 ▪ Removable Memory SX..M*70	**SXA-815D** 4.5 m (15') **SXA-825D** 7.6 m (25') **SXA-850D** 15.2 m (50') **SXA-8100D** 30.4 m (100')	**SXA-1215D** 4.5 m (15') **SXA-1225D** 7.6 m (25') **SXA-1250D** 15.2 m (50') **SXA-12100D** 30.4 m (100')	**SXA-1715D** 4.5 m (15') **SXA-1725D** 7.6 m (25') **SXA-1750D** 15.2 m (50') **SXA-17100D** 30.4 m (100')	**SXA-DEE2M-810F** 3 m (9.8') **SXA-DEE2M-815F** 5 m (16.4') **SXA-DEE2M-830F** 10 m (32.8') **SXA-DEE2M-850F** 15 m (49.2') **SXA-DEE2M-880F** 25 m (82')

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Safety Relays and Safety Controllers

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.
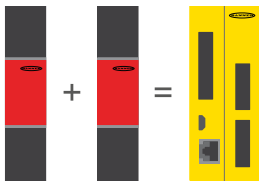

Safety controllers can be tailored for a wide variety of machines, including machines with multiple processes.
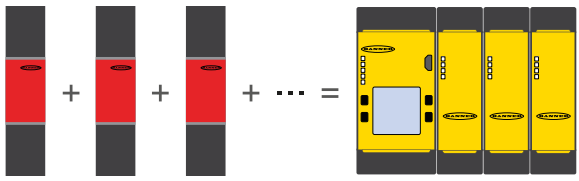
Configurable controllers monitor multiple safety devices, such as E-stop buttons, safety switches, safety light screens, two-hand controls and rope pull switches.
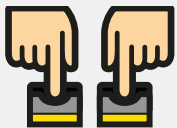

Connect safety devices easily to the safety controller

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
- Choose from a variety of models:
  - Universal input safety relays
  - E-Stop monitoring safety relays
  - Muting safety relays
  - Safe speed monitoring relays
  - Safety mat relays
  - Safety extension relays
  - Interface relays

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 70 with ISD
- Independently controlled Safety Outputs: 2; 6A each
- Convertible Safety Inputs: 4
- Terminal LEDs for easy troubleshooting
- Industrial Ethernet
- Each output contacts 3 NO redundant safety contacts

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

ISD PCCC **Modbus** TCP/IP **PROFINET** **EtherNet/IP**

ISD PCCC **Modbus** TCP/IP **PROFINET** **EtherNet/IP**

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 (potential free contacts)		✓	✓			✓					✓	✓
RFID Gate Switch (OSSD contacts)			✓			✓					✓	✓
ISD Functionality											✓ (2 chains)	✓ (8 chains)
Safety Mat Monitoring				✓								
Two-Hand Control					✓						✓	✓
Enabling Device		✓	✓								✓	✓
Expandable										✓		✓
Muting						✓					✓	✓
ON/OFF Delay										OFF Delay available	✓	✓
Speed Monitoring						✓						
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

Safety Controllers

XS26 Expandable Safety Controller

26 to 154
Safety Inputs

Safety Outputs
Safety Zones: 2 to 64
- 6A Relay 2 NO
- 0.5A Solid State

Industrial Ethernet

EtherNet/IP   Modbus TCP/IP

- 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
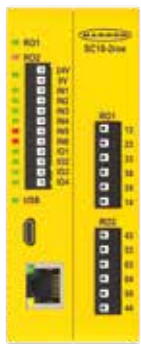- Controller and input modules allow safety inputs to be converted to status outputs for efficient terminal use

SC10 Safety Controller

10 Safety
Inputs

Safety Outputs
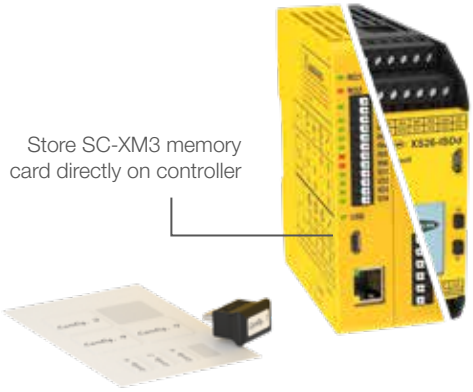Safety Zone 1: 6A Relay 3 NO

Safety Zone 2: 6A Relay 3 NO

- 10 safety inputs
- 4 safety inputs allowed to be converted to status outputs for efficient terminal use
- 2 redundant safety outputs
- LED indication next to each output
- Industrial Ethernet two-way communication
- Programmable via USB connection
- In-Series Diagnostic capable

Industrial Ethernet

EtherNet/IP   Modbus TCP/IP

Easy to Configure and Integrate with a PLC

Store SC-XM3 memory card directly on controller

SC-XM3 Fast Programming and Swapout
- Backup copy of configuration, password, network settings
- Download configuration without a PC
- Save time during panel build
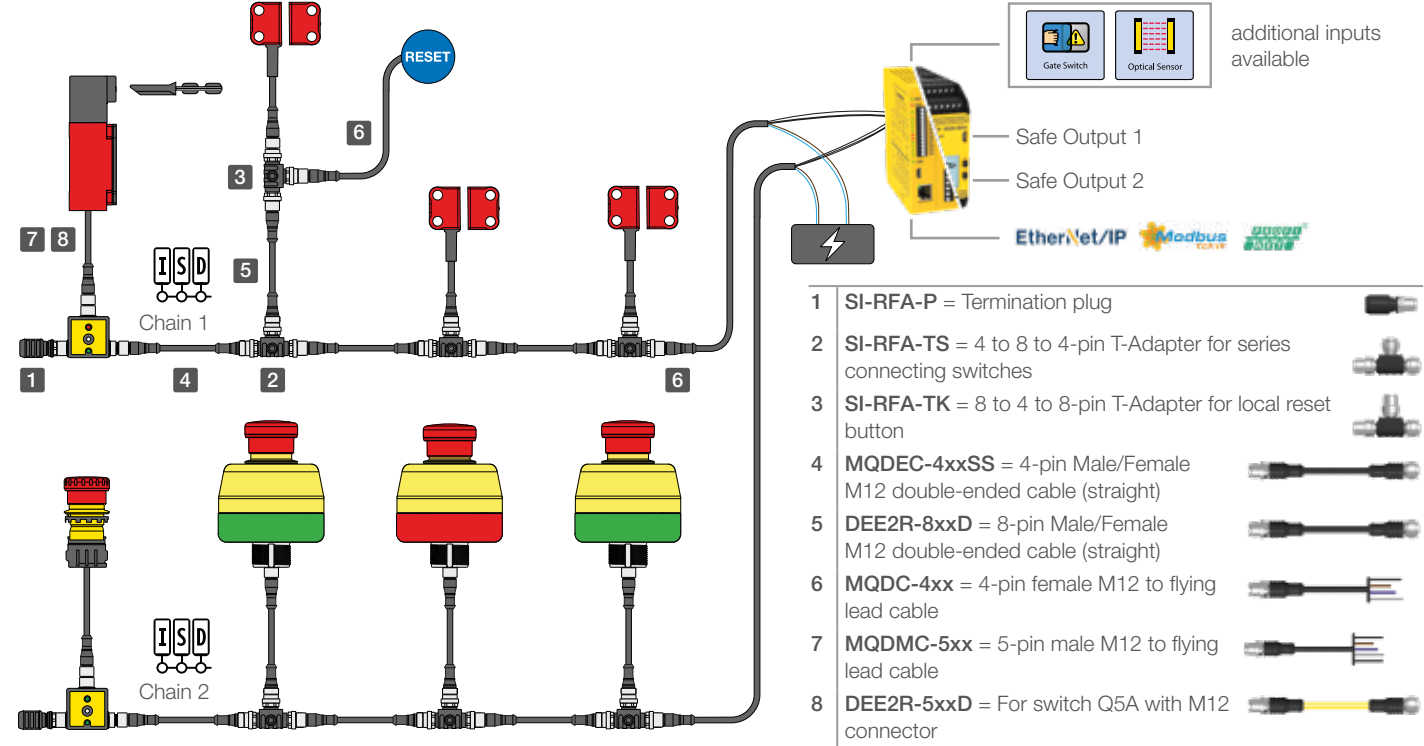- Fast swapout allows to minimize downtime

- Free Software
- Intuitive PLC Integration

In-Series Diagnostics Functionality

In-Series Diagnostics allows you to connect up to 32 devices with one in-series connection and communicate directly with the most commonly used PLCs. Achieves up to CAT4, SIL3, PLe safety rating.

additional inputs available

Safe Output 1
Safe Output 2

EtherNet/IP   Modbus TCP/IP

Chain 1

Chain 2

1	**SI-RFA-P** = Termination plug	
2	**SI-RFA-TS** = 4 to 8 to 4-pin T-Adapter for series connecting switches	
3	**SI-RFA-TK** = 8 to 4 to 8-pin T-Adapter for local reset button	
4	**MQDEC-4xxSS** = 4-pin Male/Female M12 double-ended cable (straight)	
5	**DEE2R-8xxD** = 8-pin Male/Female M12 double-ended cable (straight)	
6	**MQDC-4xx** = 4-pin female M12 to flying lead cable	
7	**MQDMC-5xx** = 5-pin male M12 to flying lead cable	
8	**DEE2R-5xxD** = For switch Q5A with M12 connector	

Compatible Devices

Family	System Type	Reset		Coding	Connection
SI-RF	**D**	**T**	–	**U**	**P8**
RFID Safety Door Switch	**D** = Cascade with (ISD)	**T** = Automatic (Trip) **L** = Manual (Latch)		**L** = Low **H** = High **U** = Unique	**P8** = 250 mm pigtail, M12 8-pin QD

Family	Color Armed	Color Pressed	Options		Outputs	Enclosure Style	Reset
SSA-EB1PL	**Y**	**R**		–	**0D**	**ECQ8**	**R**
Illuminated E-Stop	**X** = Off **Y** = Yellow Solid **G** = Green Solid	**R** = Red Flashing	**Blank** = Standard **S1** = Shroud Style 1		**0D** = OSSD Outputs with ISD	**ECQ8** = 30 mm Round **ED1Q8** = Flush Mount (square)	**Blank** = Without Local Reset **R** = With Local Reset

Family	Device Input Type	Input Pin Configuration
SSA-ISD	**TC**	**A**
ISD Connect ISD Connect Compatible Devices available, see page 41	**TC** = 2 NC Sets of Dry Contacts	**A** = 5-Pin Config A

		Pin				
Config		1	2	3	4	5
A		Ch1a	Ch1b	N/C	Ch2a	Ch2b

Configure your system in minutes

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.
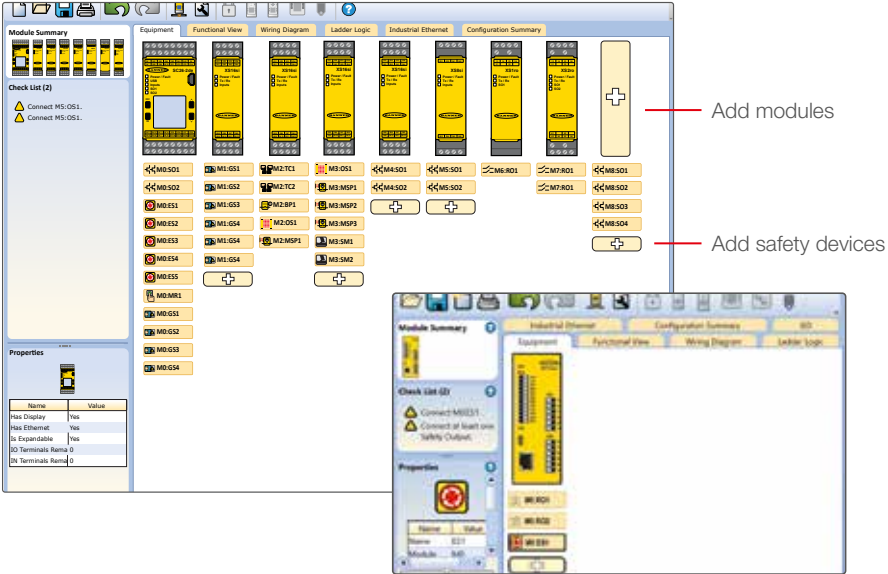
- Complex configurations made easy
- Simulate configurations before implementation
- Auto configure Industrial Ethernet for remote monitoring and diagnostics

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

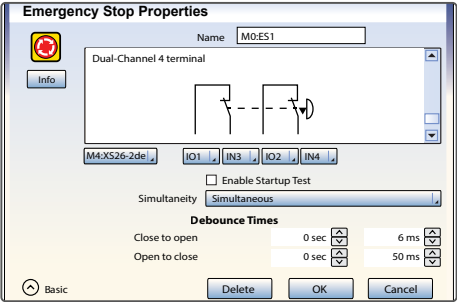### 1. Choose Controller

2. Equipment View

Add modules
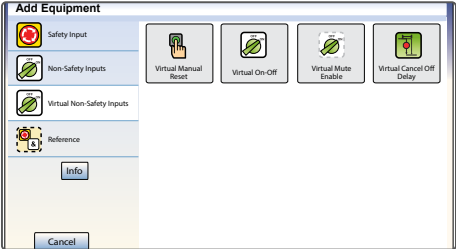
Add safety devices

3. Add safety devices
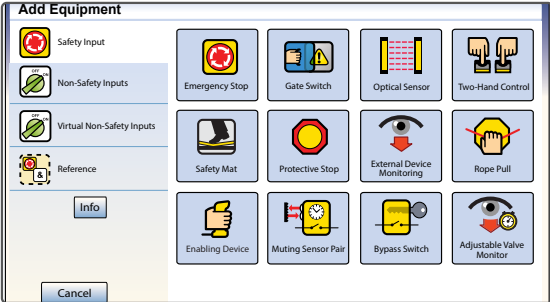
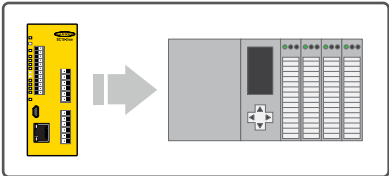### 4. Select safety device properties
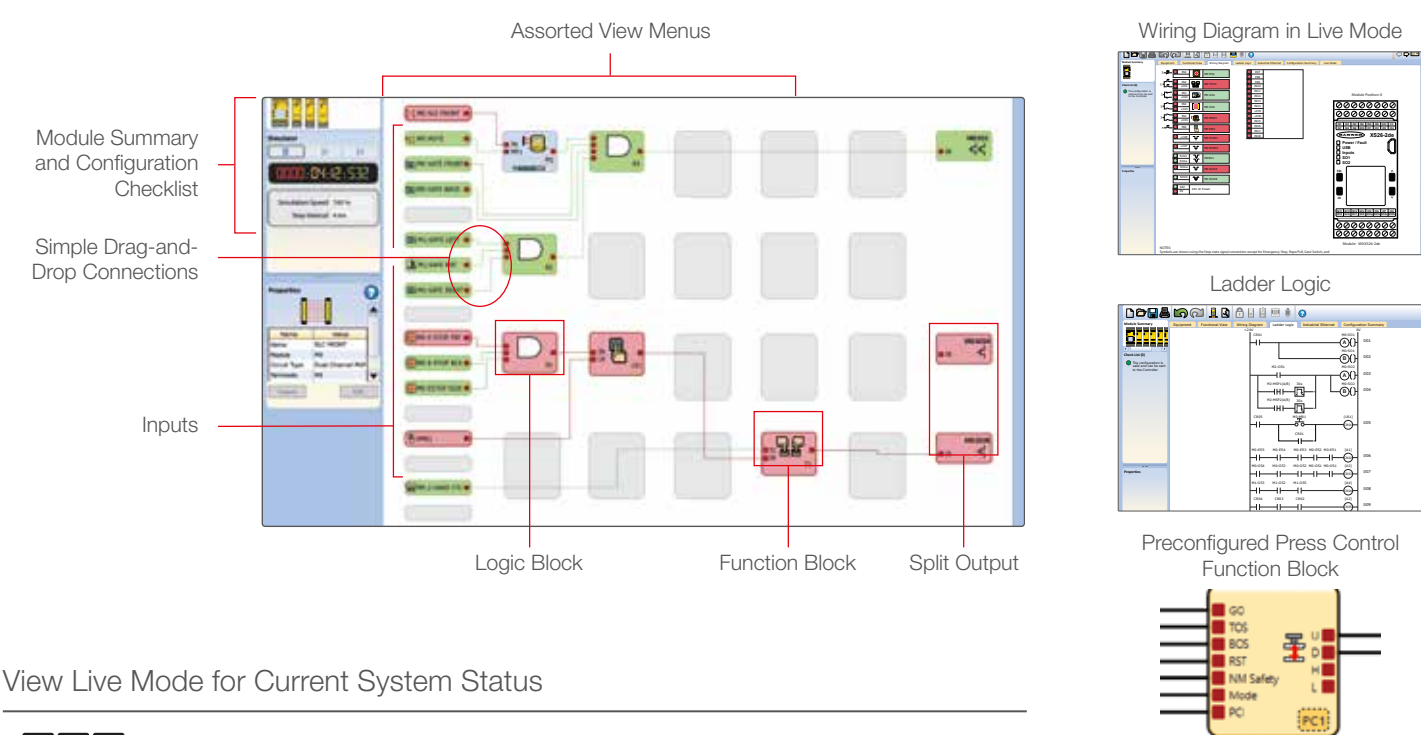

5. Add virtual non-safety inputs

Intuitive setup and PLC integration

- Expedite PLC Integration with Tag Export Feature
- Eliminates error-prone manual entries
- Import tags to PLC via .csv or .xml files
- Defines actionable In-Series Diagnostic data within the PLC
- For more information visit
  bannerengineering.com/safetycontroller

System Software

Assorted View Menus

Module Summary and Configuration Checklist

Simple Drag-and-Drop Connections

Inputs

Logic Block   Function Block   Split Output

Wiring Diagram in Live Mode

Ladder Logic

Preconfigured Press Control Function Block

View Live Mode for Current System Status

Prevent Downtime:

Marginal — Alert to check Door 1 for misalignment **before** it causes downtime

Warning — Alert to check E-Stop 1 for low voltage **before** it causes downtime

Troubleshooting Made Easy:
Terminator missing

Actuator not taught

Up to 32 ISD safety devices in any order per chain

Reduce Downtime:
Local operator guidance to activated E-Stop

Additional uses for ISD

Rotation/Indexing

Tool Identification

Position Verification

Safety Relays – Models

E-Stop and Guard Safety Modules

Model	Supply Voltage	Inputs	Safety Outputs	Aux. Outputs	Output Rating	Output Response Time
GM-FA-10J	24 V ac/dc	1 NC & 1 NO (single or dual)	2 NO	–	6 A	35 ms
ES-FA-9AA	24 V ac/dc	1 NC (single) or 2 NC (dual)	3 NO	–	6 A	25 ms
ES-FA-11AA	24 V ac/dc	1 NC (single) or 2 NC (dual)	2 NO	1 NC	7 A	25 ms
ES-FA-6G	24 V ac/dc	1 NC (single)	3 NO	1 NC	6 A	35 ms
ES-UA-5A	115 V ac & 12-24 V dc	1 NC (single) or 2 NC (dual)	4 NO	1 NC & 2 PNP	6 A	25 ms
ES-VA-5A	230 V ac & 12-24 V dc	1 NC (single) or 2 NC (dual)	4 NO	1 NC & 2 PNP	6 A	25 ms

Universal Safety Input Modules

Model (24 V ac/dc)	Inputs	Safety Outputs	Aux. Output	Output Rating	Output Response Time
UM-FA-9A	1 NC (single) or 2 NC (dual) or 2 PNP	3 NO	–	6 A	25 ms
UM-FA-11A	1 NC (single) or 2 NC (dual) or 2 PNP	2 NO	1 NC	7 A	25 ms

Modules for Specific Monitoring Applications

Model	Supply Voltage	Inputs	Safety Outputs	Aux. Outputs	Output Rating	Output Response Time
SM-GA-5A	115 V ac & 12-24 V dc	1 (or multiple in series) 4-wire **Safety Mat**	4 NO	1 NC & 2 PNP	6 A	50 ms
SM-HA-5A	230 V ac & 12-24 V dc	1 (or multiple in series) 4-wire **Safety Mat**	4 NO	1 NC & 2 PNP	6 A	50 ms
AT-FM-10K	24 V ac/dc	1 (2x 2 complementary) for **Two-Hand Control**	2 NO	/	6 A	35 ms

Muting Modules

Model (24 V dc)	Input Device	Inputs	Safety Outputs	Aux. Outputs	Output Rating	Output Response Time
MMD-TA-12B	Electromechanical & Solid State	2 NC Muteable (dual) & 2 NC SSI (dual)	2 PNP OSSD	1 PNP	0.5 A	10 ms
MMD-TA-11B	Electromechanical & Solid State	2 NC Muteable (dual) & 2 NC SSI (dual)	2 NO	1 NC	6 A	20 ms

Safe Speed Monitoring Modules

Model	Supply Voltage	Inputs	Safety Outputs	Aux. Outputs	Ranges (impulses/minute)	Output Rating
SSM-FM-11A10	24 V ac/dc	2 PNP	2 NO	1 NC	5-40, 35-340, 300-2700, 1200-10500	4 A
SSM-FM-11A20	24 V ac/dc	2 PNP	2 NO	1 NC	10-80, 80-650, 600-5300, 2400-20000	4 A

Interface Modules

Models	Supply Voltage	Inputs	Safety Outputs	Aux. Outputs	Output Rating	Output Response Time
SR-IM-9A	24 V dc	2 NC	3 NO	–	6 A	20 ms
SR-IM-11A	24 V dc	2 NC	2 NO	1 NC	6 A	20 ms
IM-T-9A	24 V dc	2 NC	3 NO	–	6 A	20 ms
IM-T-11A	24 V dc	2 NC	2 NO	1 NC	6 A	20 ms

Safety Controllers – Models

Non-expandable 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
SC10-2roe	Base Controller	115 x 45 x 100	10/4	2 Dual Channel Relays	2x 3 NO: 6A 250V ac / 24V dc

Expandable 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
XS26-ISDd	Base Controller, expandable, with LCD	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 (2.5A)
XS2ro	Safety Relay Output Module	W: 22.5 mm	/	2 Dual Channel Relays	6A; 2x 2 NO, 2x 1 NC Aux (2.5A)

Expansion Modules

Model	Supply Voltage	Inputs	Safety Outputs	Output Rating	Aux. Outputs	Output Response Time	Delay
EM-T-7A	24 V dc	1 NC (single) or 2 NC (dual)	4 NO	6 A	–	20 ms	–
EM-F-7G	24 V ac/dc	1 NC (single)	4 NO	6 A	–	35 ms	–
EM-FD-7G2	24 V ac/dc	1 NC (single)	4 NO w/delay	6 A	–	–	0.5 s
EM-FD-7G3	24 V ac/dc	1 NC (single)	4 NO w/delay	6 A	–	–	1.0 s
EM-FD-7G4	24 V ac/dc	1 NC (single)	4 NO w/delay	6 A	–	–	2.0 s

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

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

Non-Contact Switches

- Two-piece design where sensor and actuator do not contact
- Coded magnets/tags minimize the potential for intentional defeat
- A single pair can achieve up to Category 4/PLe safety rating
- Accommodating to misalignment
- Non contact solution minimizes device wear and tear, even in applications with persistent use
- Up to IP69 solutions available

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

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

Limit Switches

- Cost effective one piece sensor
- No actuator allows for fewer alignment issues
- Hideable making them more tamper-resistant
- Mechanically coded actuators use two independent operating elements to minimize intentional tampering or defeat
- Rotating head and top or side engagement allows for eight different actuator positions
- Design meets positive opening requirements for safety switches

Non-Contact RFID 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 highest level of safety
- 4-pin QD connections for cost-effective, simple, error-free installation
- RFID Cascade with In-Series Diagnostics available

Safety Switches Selection

Choose a safety switch.

- RFID Safety Switches
- 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					Limit Switches		Hinge Switches		
	Magnetic	RFID		Lockable						Hinge		Rotating Head
	SI-MAG	SI-RF	SI-LS	SI-QS	SI-LM40	SI-GL42	SI-LS42	SI-LM40	SI-LS31/83	SI-HG63	SI-HG80	SI-LS31
Non-Locking	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
Locking						✓	✓					
Position	✓	✓						Plunger Roller Spindle-mount Lever	Plunger Roller Spindle-mount Lever			✓
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 NO 1 NC 1 NC/1 NO 2 NC 2 NC/1 NO 3 NC	1 NC/1 NO 2 NC/1 NO 1 NC 2 NC 3 NC	1 NC/1 NO 2 NC 2 NC/1 NO	1 NC/1 NO 2 NC 2 NC/1 NO	2 NC/1 NO	SPDT	1 NC/1 NO 2 NC
Locking or Unlocking Power						24V ac/dc	24V ac/dc 110V ac/ 230V 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	Uncoded	Uncoded	Uncoded	Uncoded	Uncoded
Housing Material	Plastic	Plastic	Plastic	Plastic	Metal	Head: Metal Body: Plastic	Plastic	Metal	Plastic	Metal	Metal	Metal
Locking						Spring lock Solenoid lock	Spring lock Solenoid lock					
Actuation Extraction Force			10 N	10 N High-Force models: adjust. from 50-100 N	10 N/20 N	1500 N when locked	2000 N when locked					10 N/15 N

Safety Switches – Model Keys

Magnetic Switches

Family	Housing	Device Type	Connection Orientation	Connection
SI-MAGB	1	SM		

Housing
1 = Rectangular
2 = Small
3 = Round

Device Type
SM = Sensor
MM = Magnet

Connection Orientation
Blank = Standard
CO = Opposite

Connection
Blank = 3 m cable
QD = 4-pin QD
-W/30 = 9 m cable

NOTE: When ordering housing 1 or 2 with a QD connection, you will receive an M8 Pico connector. When ordering housing 3 with a QD connection you will receive an M12 Euro connector.

RFID Switches

Family	System Type	Reset	Coding	Connection
SI-RF	P	T	— U	P8

SI-RF-A or **SI-RF-A2** actuator is required to complete a sensor solution (ordered separately).

SI-RF-A2

System Type
P = Single
S = Cascade
D = Cascade with ISD

Reset
T = Automatic (Trip)
L = Manual (Latch)

Coding
L = Low
H = High
U = Unique

Connection
P8 = 250 mm pigtail, M12 8-pin QD
2M = 2 m cordset*
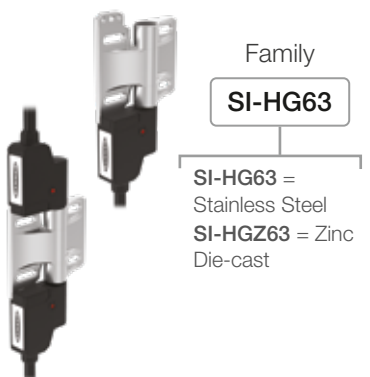P5 = 250 mm, M12 5-pin QD*

* Available on single models only

Tamper Resistant Coding

Low (L): The SI-RF Safety Switch accepts any SI-RF-A actuator

High (H): The SI-RF Safety Switch only accepts the last taught-in actuator, a maximum of 12 teach-in processes are possible

Unique (U): The SI-RF Safety Switch only accepts the taught-in actuator, and only one teach-in process is possible

Hinge Switches

Family	Contact Configuration	Connection	Switch Position	Connection Exit	Washdown Rating
SI-HG63	F	QD	R		-W

Family
SI-HG63 = Stainless Steel
SI-HGZ63 = Zinc Die-cast

Contact Configuration
F = 2 NC / 1 NO

Connection
QD = 6-pin Micro-style QD
5M = 5 m cable with flying leads

Switch Position
R = Switch mounted on right side of hinge
L = Switch mounted on left side of hinge
B = Switches mounted on both sides of hinge*

Connection Exit
Blank = In-line QD/Cable
R = Right angle QD/Cable

Washdown Rating
Blank = IP67
-W = IP69 Washdown*

* Stainless steel models only

SI-HG80DQD
In-line QD Fitting

SI-HG80DQDR
Right-angle QD Fitting

SI-HG80A
Blank Hinge

SI-HG63A
Blank Hinge

Adaptor Cable

MQEAC-601-Q5A
SI-HG63 to ISD Connect adaptor cable

Safety Switches – Model Keys

Mechanical Switches

Family	Body Style	Contact Configuration	Connection
SI-LS	83	D	

Body Style
83 = 83 mm
100 = 100 mm

Contact Configuration
D = 1 NO/1 NC (83 mm models only)
E = 2 NC (83 mm models only)
F = 2 NC/1 NO (100 mm models only)

Connection
Blank = Screw terminals
Q5A = M12 connector; ISD Connect Compatible (SI-LS83E-Q5A and SI-LS100F-Q5A only)

SI-QS-SSA-2
Straight Rigid In-Line actuator

SI-QS-SSA-3
Right-Angle Rigid In-Line actuator

SI-QS-SSU
Flexible In-Line actuator

Family	Body Style	Contact Configuration	Connection
SI-LM	40MKH	D	

Body Style
MKH = In-line actuator
MKV = Trumpet actuator

Contact Configuration
D = 1 NO/1 NC
E = 2 NC
F = 2 NC/1 NO

Connection
Blank = Screw terminals
Q5A = M12 connector; ISD Connect Compatible (SI-LM40KHE-Q5A only)

SI-QM-SSA
Straight Rigid In-Line actuator

SI-QM-SMFA
Flexible In-Line actuator

SI-QM-90A
Flexible In-Line actuator for SI-LM40MKVE

Family	Body Style	Contact Configuration	Force	Connection
SI-QS	90M	D		

Body Style
75M = 75 mm
90M = 90 mm*

Contact Configuration
C = 1 NO**
D = 1 NO/1 NC
E = 2 NC
F = 2 NC/1 NO

Force
Blank = Std Force
-100 = High Force

Connection
Blank = Screw terminals
Q5A = M12 connector; ISD Connect Compatible (SI-QS90E-Q5A only)

* 90MF = Straight actuator with F contacts
90MFF = Flexible actuator with F contacts
** Available with 75M models only

SI-QS-SSA
Straight Rigid In-Line actuator

SI-QS-SSA-4
Stamped Straight Rigid In-Line actuator

SI-QS-SSU
Flexible In-Line actuator

www.mfcp.com

Safety Switches

The SI-GL42D fail-safe guard locking switch has several guard locking options: manual, spring-to-lock or power-to-lock.

The safety switch can manually be unlocked using a tool, in case of maintenance work. Emergency or escape release are additional functions that allow for quick intervention when required.

In spring-to-lock models, the guard is locked by spring force. To unlock, the solenoid must be energized.

In power-to-lock models, the guard is locked when the solenoid is energized. To unlock, power must be switched off.

Rotatable actuator heads enable a variety of mounting positions: standard, vertical, horizontal, slight vertical/horizontal offset, small actuating radius

Lock/unlock mechanism

Emergency release enables immediate opening from outside dangerous area

M12 connector options are available

Escape release enables immediate opening from within the dangerous area

20 mm

40 mm

Escape release extensions

Safety Switches – Model Keys

Locking Switches
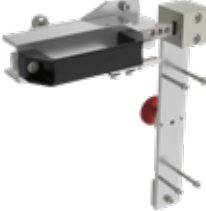
Family	Lock/Unlock	Actuator Contacts	Solenoid Monitors Contacts	Connection
SI-GL42D	S	01	10	

S = Power to Unlock
M = Power to Lock

01 = 1 NO
10 = 1 NC
11 = 1 NC/1 NO
20 = 2 NC
21 = 2 NC/1 NO
30 = 3 NC

10 = 1 NC
11 = 1 NC/1 NO
20 = 2 NC
21 = 2 NC/1 NO

Blank = Screw terminals
Q13 = M12 bottom connector; ISD Connect Compatible and M12 side connector for lock/unlock function (SI-GL42DM01-20Q13 and SI-GL42DS01-20Q13 only)

Actuators

SI-QM-SSA-2	SI-QM-SSA-2RA	SI-QM-SMFA-2	SI-QM-SMFA-3
▪ Straight rigid actuator for sliding or removable guards	▪ Flat rigid actuator for sliding or removable guards	▪ Flexible actuator for small hinged guards 150 mm or larger	▪ Flexible actuator for small hinged guards 400 mm or larger

Unlock Mechanism

SI-QM-SSA-SH	SI-GL42-ERS-F-1	SI-GL42-ERS-B-1	SI-GL42-ERBD-B-1	SI-GL42-EM20-1	SI-GL42-EM40-1
▪ Sliding door handle ▪ SHER model with emergency release	▪ Front mount emergency release lever	▪ Back mount emergency release lever	▪ Back mount escape release mechanism	▪ 20 mm extension for escape release mechanism	▪ 40 mm extension for escape release mechanism

Family	Solenoid Voltage	Lock/Unlock	Contact Configuration
SI-LS42	D	S	G

D = 24 V ac/dc
W = 110 V/230 V ac

S = Power to Unlock
M = Power to Lock

Actuator	Solenoid
G = 1 NO/1 NC	1 NO/1 NC
H = 2 NC	1 NO/1 NC
I = 2 NC/1 NO	1 NC
J = 3 NC	1 NC

SI-QM-SSA	SI-QM-SMFA
▪ Straight Rigid In-Line actuator	▪ Flexible In-Line actuator

Limit Switches

Family	Body Style	Actuator Type	Contact Configuration
SI-LM	40	PB	D

PB = Plunger
RC18 = Roller
LA18 = Spindle-mount lever (18 mm roller)
L20 = Lever (20 mm roller)

D = 1 NO/1 NC
E = 2 NC
F = 2 NC/1 NO

Family	Body Style	Actuator Type	Contact Configuration
SI-LS	31	PB	D

PB = Plunger
RC10 = Roller
LA18 = Spindle-mount lever (18 mm roller)
LE11 = Lever (11 mm roller)
L22 = Lever (22 mm roller)

D = 1 NO/1 NC
E = 2 NC
F = 2 NC/1 NO

Family	Body Style	Actuator Type	Contact Configuration
SI-LS	83	PB	D

PB = Plunger
RC10 = Roller
LA18 = Spindle-mount lever (18 mm roller)
LE13 = Lever (13 mm roller)

D = 1 NO/1 NC
E = 2 NC

Hinge Switches

Family	Body Style	Actuator Type	Contact Configuration
SI-LS	31	HG	D

HG = Vertical hinged lever ±90°
HGR = Right-hand hinged lever 180°
HGL = Left-hand hinged lever 180°

D = 1 NO/1 NC
E = 2 NC

Family	Body Style	Actuator Type	Contact Configuration
SI-LS	31	RT	D

RT = Rotary shaft

D = 1 NO/1 NC
E = 2 NC

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.

Handheld grip-styled switches are 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					

Two Hand Control Run Bars

Run Bars with STBVP6					
Model	IP Rating	Model	IP Rating	Connection	E-Stop
STBVP6-RB1	IP20	STBVP6-RB2	IP65	Terminal strip	Not included
STBVP6-RB1Q8	IP20	STBVP6-RB2Q8	IP65	8-pin 7/8 QD	Not included
STBVP6-RB1E02	IP20	STBVP6-RB2E02	IP65	Terminal strip	SSA-EBM-02L

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

E-Stop Devices Selection

Choose an E-Stop; Safely Start and Stop Machines.

- Emergency Stop Buttons
- Illuminated Emergency Stop Button
- Rope Pulls and Domed Indicators

	SSA-EBM	SSA-EB	Emergency Stop Switches			Rope Pull Emergency Stop Switches				
			SSA-EB1PL	SSA-EB1P	SSA-EB1M	RP-RM83	RP-LS42	RP-QM(T)72	RP-LM40	RP-QM90
E-Stop	✓	✓	✓	✓	✓	✓	✓ (specific models)			
Rope Pull						✓	✓	✓ (only stop control)	✓ (only stop control)	✓
Button Size (mm)	40 mm	40 / 44 / 60 mm	40 / 60 mm	40 / 60 mm	44 mm	32 mm	32 mm			
Illuminated Housing			✓	✓						
Illuminated Button		✓	✓ (specific models)	✓ (specific models)						
Release	✓	✓	✓	✓	✓	✓				
Lock/Unlock Button		✓ (SSA-EB1M only)			✓					
Rope Length (m)						38 m 70 m	25 m 37.2 m 75 m	6 m 12 m 20 m	6 m	50 + 50 m
Rope Connection						Built-in turnbuckle / Ring connection	Built-in turnbuckle / Ring connection	Ring connection	Ring connection	Ring connection
ISD (In-Series Diagnostics)			✓	✓						
Safety Contacts	1 NC 2 NC	1 NC 2 NC 3 NC 4 NC	1 NC 2 NC 4 NC	1 NC 2 NC 4 NC	1 NC 2 NC 4 NC	2 NC	2 NC	2 NC 4 NC	2 NC	2 NC
Auxiliary Contacts	1 NO	1 NO 2 NO	1 NO 2 NO	1 NO 2 NO	1 NO 2 NO	2 NO	2 NO	1 NO (specific models)		2 NO
OSSD Outputs			✓	✓						
Connection	Screw terminals	Screw terminals	M12 / Screw terminals	M12 / Screw terminals	M12 / Screw terminals	Screw terminals	Screw terminals	Screw terminals	Screw terminals	Screw terminals
Panel/Bracket Hole (mm)	22 mm	30 mm	30 mm	30 mm						

BANNER

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E-Stop Devices – Model Keys

E-Stop Buttons

| SSA–E | B1 | M | | | – 02 | EC | | | |

Version
B1 = Palm Button, 40/44 mm button, 30 mm hole
B2 = Palm Button, 60 mm button, 30 mm hole

Button Body
M = Metal lockable base button
P = Plastic base button

LED Function
Blank = none
L = OFF/red solid
LYR = yellow/red
LGR = green/red
LXR = OFF/red flashing
L2 = Illuminated push button; Push = ON

Termination
Blank = Bottom exit (1x QD)
1 = One side exit (1x male QD if used)

Extension
Blank = none
A = AB 1732DS Safety I/O
B = Siemens ET200pro/Turck
R = External Manual Reset for Solid-state Outputs

Options
Blank = Standard
P = Padlock capable
S1 = Shroud Style 1

Interface/Contact Configuration
02 = 2 NC
04 = 4 NC
11 = 1 NO/1 NC
12 = 1 NO/2 NC
13 = 1 NO/3 NC
22 = 2 NO/2 NC
0D = 2 Solid-state with ISD
0S = 2 Solid-state without ISD

Enclosure
EC = Compact OTB-style enclosure, 30 mm mounting
ED = DX80-style enclosure

Connection
Blank = Connection with terminals
Q# = number of pins/conductors

Accessories

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

SSA-MBK-EEC1

SSA-MBK-EEC2

SSA-MBK-EEC3

Panel Mount E-Stop Buttons

| SSA–E | B1 | M | – | | | 02 | 02 |

Version
B1 = Palm Button, 40/44 mm button, 30 mm hole
B2 = Palm Button, 60 mm button, 30 mm hole

Button Body
M = Metal lockable base button
P = Plastic base button

LED Function
Blank = none
L1 = Illuminated push button Independent wire

Options
Blank = Standard
P = Padlock capable
S1 = Shroud Style 1

Interface/Contact Configuration
02 = 2 NC
04 = 4 NC
11 = 1 NO/1 NC
12 = 1 NO/2 NC
13 = 1 NO/3 NC
22 = 2 NO/2 NC

Connection
Blank = Screw terminals
A01 = M12 QD; ISD Connect Compatible (SSA-EB1P-02-A01 only)

E-Stop Devices – Model Keys

E-Stop Buttons Kits

| SSA–E | B | M | – | 02 | L |

Version
B = Palm Button, 40 mm button, 22 mm hole

Button Body
M = Metal base button

Interface/Contact Configuration
02 = 2 NC
04 = 4 NC
11 = 1 NO/1 NC
12 = 1 NO/2 NC
13 = 1 NO/3 NC
22 = 2 NO/2 NC

Enclosure
L = Yellow ring label "Emergency Stop", without enclousre
E = Yellow ring label "Emergency Stop", with enclosure

Rope Pull E-Stop Devices

Model	Maximum Rope Length	Safety Contacts	Auxiliary Contacts	Actuation	Housing Material
RP-RM83F-..L..	38 m – 75 m	2 NC in	2 NO in	Latch	Metal, IP67

Models with **T** suffix have a built-in turnbuckle for rope
Models with **R** suffix have a ring connection to rope
Models with **E** suffix have an auxiliary status output

Model	Maximum Rope Length	Safety Contacts	Auxiliary Contacts	Actuation	Housing Material
RP-LS42F-..LE	25 m – 37.5 m – 75 m	2 NC in	2 NO in	Latch	Plastic

Models with **LE** suffix have a built-in turnbuckle for rope

Rope Pull Switches

Model	Maximum Rope Length	Safety Contacts	Auxiliary Contacts	Actuation	Housing Material
RP-LS42F-..L RP-LS42F-..LF	25 m – 37.5 m – 75 m	2 NC in	2 NO in	Latch	Plastic
RP-QM72D-6L RP-QM72D-12L RP-QM72D-20L	6 m 12 m 20 m	2 NC in	/	Latch	Metal
RP-QMT72F-12L RP-QMT72E-12L	12 m	4 NC in 2 NC in	/ 1 NO in	Latch	Metal
RP-LM40D-6 RP-LM40D-6L	6 m	2 NC in	/	Trip Latch	Metal
RP-QM90F-100L	100 m (50 m each side)	2 NC in	2 NO in	Latch	Metal

Models with **LF** suffix have a built-in turnbuckle for rope
Models with **L** suffix have a ring connection to rope

Components for Wire Rope Assembly

RPA-C
- Wire Ropes

RPA-T
- Thimbles

RPA-CC
- Clamps

RPA-TA
- Turnbuckles

RPA-EB
- Eye Bolts

RPA-P
- Pulleys

RPA-DP
- Deflection Pulleys

RPA-S
- Tensioning Springs

Hardware kits are available (RPAK)

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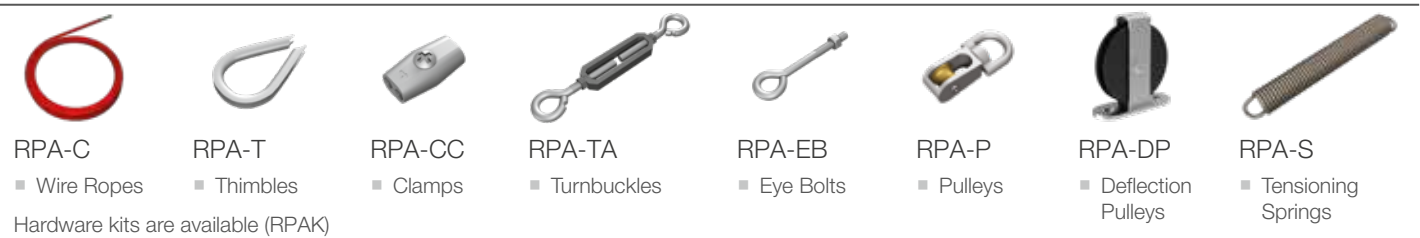
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