

SX Series



Safety Laser Scanners

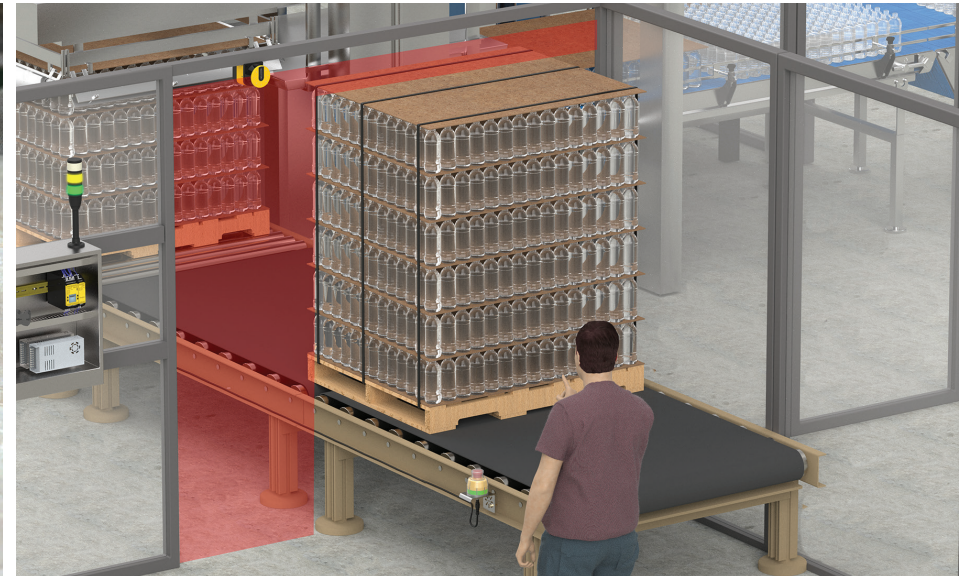
- Master and Remote functionality with simplified setup and wiring
- Protect personnel and equipment with three independent safety outputs
- Ideal solution for complex applications with 70 unique safety zone sets, encoder inputs, and advanced measurement data
- Cost-effective, compact, one-piece design with 275° of monitoring
- Horizontal or vertical detection zones to reliably safeguard mobile vehicles, access points, work areas, and more





Three Independent Safety Outputs

Up to three safety zones can be monitored simultaneously and independently, reducing the need for multiple safety scanners or safety light curtains.



Dynamic and Partial Muting

Mute all or part of a safety zone without the need of an external muting module or controller. Each safety output can have its own zones and muting requirements.



Safeguarding a Work Area

A single SX5 safety laser scanner continuously scans a user-defined area up to 275° to create a two-dimensional protected zone, detecting staff or equipment entering the area.



Vertical Applications and Zone Switching

Easy-to-use software allows for simple zone configuration and zone switching in vertical applications, such as forklift conveyor access.



Challenges

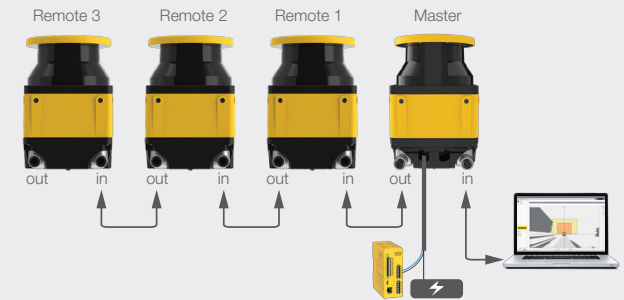
- Monitor multiple sides of an AGV or other mobile equipment
- Protect personnel and equipment with a moving environment and changing safety parameters
- Reduce hardware required for direct vehicle navigation
- Reduce cabling in mobile applications

Solution:

- With master/remote functionality, up to four SX5 safety laser scanners can be connected in a single system to guard all sides of a vehicle
- Up to 70 unique safety zone sets can be configured and activated based on the position, speed, and motion of the vehicle
- Encoder inputs and advanced measurement data output reduce the amount of hardware required and allow for direct vehicle navigation
- Remotes are each connected to the master by a single cable, reducing cable management and simplifying wiring

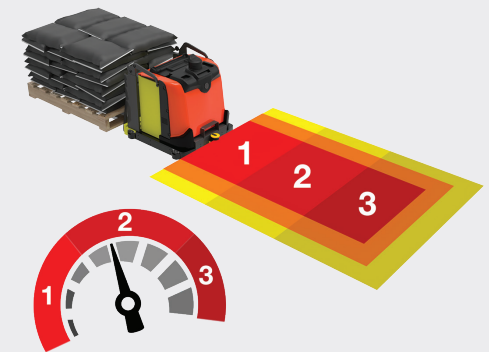
Master/Remote Functionality

Guard all sides of a vehicle and configure up to 70 unique safety zone sets to monitor the changing safety parameters of a mobile application.



Safe Speed Monitoring

Incremental encoder inputs can be read directly by the scanner to select the appropriate safety zone based on the speed of the vehicle, reducing cost and eliminating the need for functions typically required by additional hardware like a safety PLC.



Dependable and Flexible Industrial Safeguarding

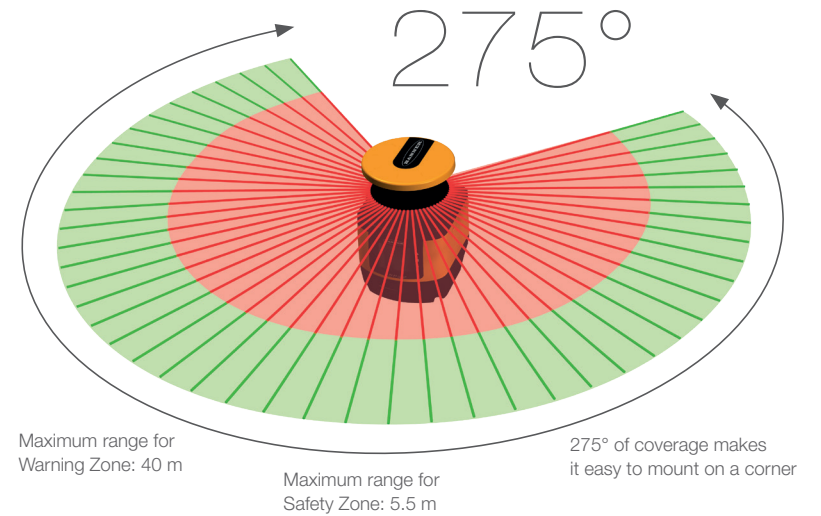
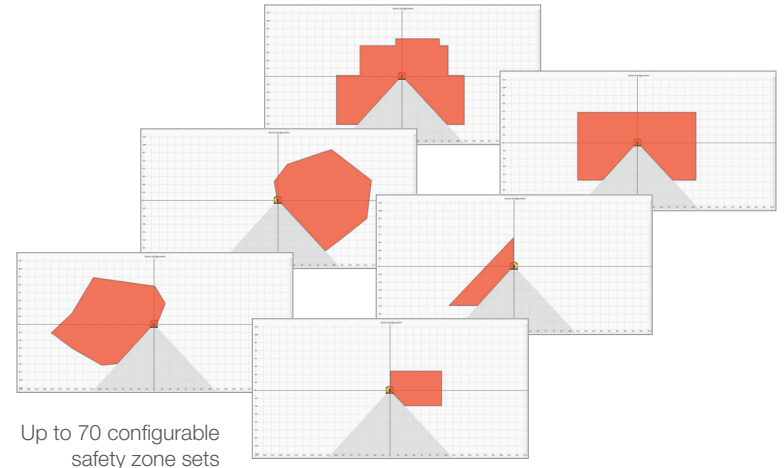
Horizontal or vertical monitoring of both personnel and stationary or mobile systems



A variety of status, diagnostic, warning and error displays



- 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)



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.

WARNING

Zoneset 1 -

- OSDD1
- Warn1

| Zone Set | Area Switch 1 | Area Switch 2 | Area Switch 3 |
|------------|---------------|---------------|---------------|
| Zone Set 1 | 1 | 0 | 0 |
| Zone Set 2 | 0 | 1 | 0 |
| Zone Set 3 | 1 | 1 | 0 |
| Zone Set 4 | 0 | 0 | 1 |
| Zone Set 5 | 0 | 1 | 1 |
| Zone Set 6 | 1 | 0 | 1 |

Input Signals

| Pin | Area Switch | Signal |
|-------|---------------|-------------|
| PIN 1 | AREA SWITCH 1 | WHITE (OHD) |
| PIN 3 | AREA SWITCH 2 | GREEN (ON) |
| PIN 4 | AREA SWITCH 3 | YELLOW (YE) |

Output Configuration

| Signal | Color |
|-----------|-------------|
| OSD | WHITE (OHD) |
| Warning 1 | GREEN (ON) |
| Warning 2 | YELLOW (YE) |
| Warning 3 | RED (RE) |

Monitoring

X = 730,00 mm Y = -500,36 mm 55%

SCANNER SPEED: MONITORING ORIGINAL OPERATION: MONITORING

Zone Set Configuration

Zone Sets

ZoneSet No. 6 Input Delay Max [msec] 30

Input Signals

Only the input transitions completed in the input delay time and controlled in the graph are added. Other triggered input transitions will put the device in locked condition.

Output Configuration

OSD

Warning 1

Warning 2

Warning 3

OSDD1

Warn1

OSDD1

Warn1




















OSDD1

Warn1

The software displays a graphic rendering of the monitored area, and provides configuration and management tools, such as drop-down menus and 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

Select a Scanner

| | | SX5-ME70 | SX5-M70 | SX5-M10 | SX5-R | SX5-B |
|---|---|---|---|---|---|---|
| | |  |  |  |  |  |
| Presence Detection |  | 50/70 mm | 50/70 mm | 50/70 mm | 50/70 mm | 40/70 mm |
| Hand Detection |  | 30/40 mm | 30/40 mm | 30/40 mm | 30/40 mm | 40 mm |
| Body Detection |  | 70/150 mm | 70/150 mm | 70/150 mm | 70/150 mm | 70 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 | 40 mm = 3 m 70 mm = 5.5 m |
| Max. Zone Sets (depending on configuration) |  | 70 | 70 | 10 | Depends on master | 6 |
| Master Remote |  | Master Add up to 3 Remotes | Master Add up to 3 Remotes | Master Add up to 3 Remotes | Remote | |
| Removable Memory |  | SXA-RM-70 | SXA-RM-70 | SXA-RM-10 | | |
| Max. OSSD Outputs (depending on configuration) |  | 3 x 2 OSSD | 3 x 2 OSSD | 2 x 2 OSSD | | 1 x 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 |
| Speed Monitoring |  | ✓ | | | | |
| Muting |  | ✓ | ✓ | ✓ | ✓ | |
| Programmable Dust Filter |  | ✓ | ✓ | ✓ | ✓ | ✓ |
| Measurement Data |  | ✓ | ✓ | ✓ | ✓ | |
| Field-Replaceable Window |  | ✓ | ✓ | ✓ | ✓ | |

Specifications



Operating Range and Scanning Angle

Safety protective field: up to 5.5 m
Warning field: 40 m
Scanning angle: 275 degrees

Detection Capability

30 mm, 40 mm, 50 mm, 70 mm, 150 mm

OSSD (Safety Output)

All inputs and outputs are protected from short circuits to +24 V dc or dc common

Environmental Rating

IEC IP65

Operating Conditions

SX5-B: 0 to +50 °C (+32 to +122 °F)
All other models: -10 to +50 °C (+14 to +122 °F)

Current Consumption (24 V dc)

Standalone Scanner: No output load (I0) at 24 V DC: 0.3 A
Remote Scanner: No output load (I0) at 24 V DC: 0.3 A plus 0.3 A
Master Scanner: With maximum output load at 24 V DC: I0 plus 0.5 A per OSSD pair used (or warning pair outputs)

Mechanical Data

Housing material: Aluminum Alloy
Housing color: YellowRAL1003
Optics cover material: PC
Optics cover surface: Acrylic

Safety Data

Type 3 (EN 61496-1)
SIL 2 (IEC 61508)
Category 3 (EN ISO 13849-1)
SILCL 2 (EN 62061)
PL d (EN ISO 13849-1)

Optical Data

Wavelength: 905 nm
Pulse duration: 3 nsec
Laser class: CLASS 1 (EN 60825-1)

Certifications



Interface Options



SC26-2
SC26-2d
SC26-2e
SC26-2de

Flexible, efficient safety controller has small footprint and programs easily using icon-based software



SC10-2roe

Safety Controller and ISD to PLC Gateway connects up to 64 ISD devices and has 6 available safe inputs for other devices



SR-IM-9A

Interface Modules provide isolated safety output contacts for a primary safety device (for example, a safety light screen or safety module) with solid-state or hard contact outputs and external device monitoring (EDM) capability



SR-IM-11A

Accessories



SXA-MBK-1
Pitch and roll angle adjustment bracket



SXA-MBK-2
Protection bracket



SXA-RM-10 / SXA-RM-70

- Removable Memory SX..M10
- Removable Memory SX..M*70



SXA-WIN
Window Replacement Kit



8-Pin M12 Straight

SXA-815D
4.5 m (15')
SXA-825D
7.6 m (25')
SXA-850D
15.2 m (50')
SXA-8100D
30.4 m (100')



12-Pin M12 Straight

SXA-1215D
4.5 m (15')
SXA-1225D
7.6 m (25')
SXA-1250D
15.2 m (50')
SXA-12100D
30.4 m (100')



17-Pin M12 Straight

SXA-1715D
4.5 m (15')
SXA-1725D
7.6 m (25')
SXA-1750D
15.2 m (50')
SXA-17100D
30.4 m (100')

8-Pin Threaded M12 – Male to Male

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')

4-Pin M12 D-Code to RJ45

STP-M12D-406
1.83 m (6')
STP-M12D-415
4.5 m (15')
STP-M12D-430
9.14 m (30')

