



## Safety Laser Scanners

Leading solutions for areaguarding - and more

# Safe solutions - stationary or mobile - horizontal or vertical

*Including  
Laser  
Bumpers™*

SICK Safety laser scanners - used as the industry standard in a wide variety of applications.



## Stationary

- Robot loading and unloading stations
- Robot work cells - welding, material handling, etc.
- Tube bending machines
- Assembly and production lines
- Palletizers
- Presses (including interior and bolster protection)



## Mobile

- Automatic Guided Vehicles (AGVs)
- Automatic Storage and Retrieval Systems (ASRS)
- Narrow aisle vehicles
- Overhead cranes
- Transfer cars
- Service and mobile robots
- Manned fork trucks



# Safety laser scanner family

## Why choose safety laser scanners? Protect your investments

While some applications require safeguarding only at the point of operation or around the perimeter of a hazardous workspace, often an application calls for safeguarding all points within the perimeter. Area safeguarding products can easily protect both personnel and equipment within these large, irregularly shaped areas.

Of all the available safeguarding solutions, a safety laser scanner is the only option with the range and flexibility to protect personnel from hazardous work areas. If the work environment is dirty, slippery or crowded with limited space, SICK's non-contact, robust safety laser scanners are the best choice.

### S3000 Family

- S3000 Standard
- S3000 Advanced
- S3000 Professional
- S3000 Remote
- S3000 Professional CMS **NEW**



**Laser scanners for simple to complex requirements.** These devices can be used for stationary and mobile applications and provide maximum flexibility with maximum safety. Due to its modular design, you only buy what you actually need. The system grows with your requirements. High reliability and safety ensure maximum protection of your investment.

### PLS/LSI Family

- PLS
- PLS with LSI
- PLS short range



**Laser scanners for simple to medium requirements.** These devices can be used for stationary and mobile safety applications and provide flexibility and cost-effectiveness along with maximum safety. Many years of application know-how ensure that you can also rely on maximum efficiency with the PLS family.

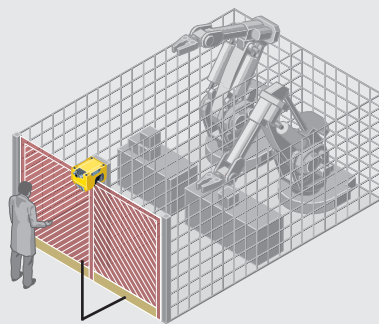
# Area safeguarding that works



## Safety laser scanner basics - what are they and how do they work?




As the industry's leader, SICK has been manufacturing and selling safety laser scanners for more than 10 years. These safety devices monitor hazardous areas for unwanted intrusions by persons or objects. Safety scanners combine a pulsed, eye-safe infrared laser and time-of-flight technology to precisely calculate the location of any detected person or object. This location is then compared with the adaptable Safety and Warning Zones, predefined with the device. If the person or object is present inside the Warning Zone, audible and visible signals can be triggered. If intrusion of the Safety Zone occurs, the scanner promptly sends a stop signal to the hazardous equipment. Safety scanners are used as either the primary or supplementary means (e.g. in addition to light curtains or fences) of safeguarding an area.

### Access safeguarding for a part load/unload robot cell



Additional contour function integrated as a reference in S3000

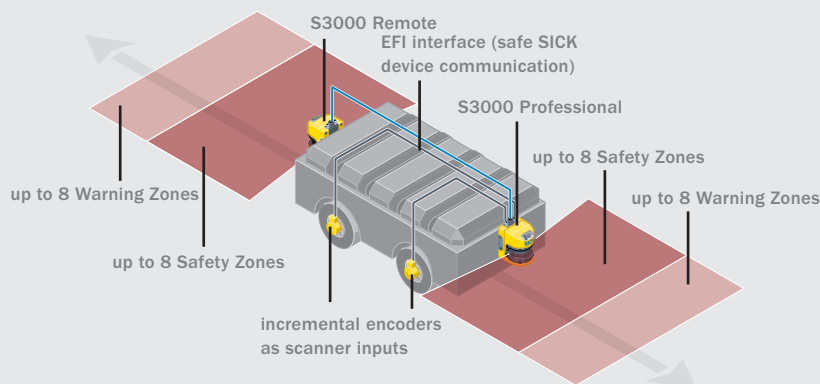
3 Safety Zones:

-  Left safety zone
-  Right safety zone
-  Overall safety zone

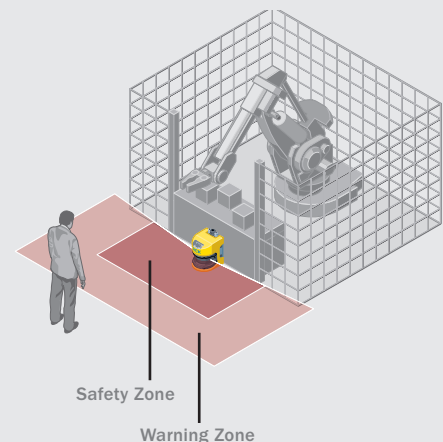
### SICK Scanner Advantages

- Ideal for protection of personnel in stationary and mobile applications
- Area safeguarding solution in horizontal or vertical orientations
- Compact solutions for ease of maintenance
- Control reliable-rated by TUV
- Real-time and detailed diagnostics for quick troubleshooting
- Cloning plug for fast replacements or upgrade
- User-customizable Safety Zones and Warning Zones of any shape for maximum flexibility
- Non-contact solution maximizes safety and productivity for vehicles
- Meets the safety requirements of application standards ANSI B56.5, ANSI B11.19, ANSI B11.20, ANSI/RIA R15.06 and CSA Z434

### Dual-direction AGV with Laser Bumpers™



### Robot cell - area safeguarding



# Safety Laser Scanner Overview



	S3000 STANDARD MEDIUM RANGE	S3000 ADVANCED MEDIUM RANGE	S3000 PROFESSIONAL MEDIUM RANGE
<b>Function</b>			
Area Protection, Stationary	•	•	•
Area Protection, Multiple Fields	• <sup>2)</sup>	•	•
Interior Protection (e.g. presses, work cells)	•	•	•
Point of Operation, Vertical	•	•	•
Access Protection, Vertical	•	•	•
Mobile Vehicle Protection (Laser Bumper™)	•	•	•
Scan Angle	190°	190°	190°
Safety Zone	5.5 m	5.5 m	5.5 m
Warning Zone	49 m	49 m	49 m
Available Resolutions	30, 40, 50, 70, 150 mm	30, 40, 50, 70, 150 mm	30, 40, 50, 70, 150 mm
Minimum Response Time	60...120 ms	60...120 ms	60...120 ms
Maximum Safety Zone Range <sup>1)</sup>			
30 mm Resolution	1.9...2.8 m	1.9...2.8 m	1.9...2.8 m
40 mm Resolution	2.6...3.8 m	2.6...3.8 m	2.6...3.8 m
50 mm Resolution	3.3...4.8 m	3.3...4.8 m	3.3...4.8 m
70 mm Resolution	4.7...5.8 m	4.7...5.8 m	4.7...5.8 m
100 mm Resolution	5.5 m	5.5 m	5.5 m
Safety Zones	1 or 2 <sup>2)</sup>	Up to 4	Up to 8
Warning Zones	1 or 2 <sup>2)</sup>	Up to 4	Up to 8
Number of Monitoring Cases	1	Up to 4	Up to 16
Measuring Error at Max Safety Zone	100 mm	100 mm	100 mm
Weight	3.3 kg	3.3 kg	3.3 kg
Safety Outputs	1 Pair OSSD (PNP) <sup>5)</sup>	1 Pair OSSD (PNP) <sup>5)</sup>	1 Pair OSSD (PNP) <sup>5)</sup>
Restart Interlock			
Automatic Restart	•	•	•
Manual Restart	•	•	•
Restart Required Output	•	•	•
Digital Inputs for Protective Field Switching	N/A	4 (2 dual channel)	8 (4 dual channel)
Incremental Encoder Connections	N/A	N/A	•
Simultaneous Monitoring of 2 Protective Fields	•	•	•
Reflector Mark Detection			
Contour Measurement Data Output, Event Controlled			
Expanded Measure Data Output			
External Device Monitoring (EDM)	•	•	•
7-Segment Diagnostic Display	•	•	•
Connection of 2 Devices of Same Series	• (Via EFI <sup>4)</sup> or UE1000 Series)	• (Via EFI <sup>4)</sup> or UE1000 Series)	• (Via EFI <sup>4)</sup> or UE1000 Series)
Connectivity Options (sold separately)			
UE 10 Series Safety Relay Modules	•	•	•
UE 100 Series intelliface Interfaces	•	•	•
UE 1000 Safety Bus Interfaces	•	•	•
Type Designation per 61496 (ANSI/UL/IEC)	Type 3	Type 3	Type 3
Category Designation per EN 954-1	Category 3	Category 3	Category 3
Safety Integration Level (SIL) per IEC/EN 61508S	SIL 2	SIL 2	SIL 2

1) Dependent on the response time for S3000 Series

2) The second field must be configured as a simultaneous monitoring field

3) EFI = Enhanced Functional Interface and is a protocol used to communicate between device, or in combination with OSSDs, can also be connected to a safety bus via UE1000



S3000 PROFESSIONAL CMS MEDIUM RANGE	S3000 REMOTE MEDIUM RANGE	S3000 STANDARD LONG RANGE	S3000 ADVANCED LONG RANGE	S3000 PROFESSIONAL LONG RANGE
•	• 4)	•	•	•
•	• 4)	• 2)	•	•
•	• 4)	•	•	•
•	• 4)	•	•	•
•	• 4)	•	•	•
•	• 4)	•	•	•
190°	190°	190°	190°	190°
5.5 m	5.5 m	7 m	7 m	7 m
49 m	49 m	49 m	49 m	49 m
30, 40, 50, 70, 150 mm	30, 40, 50, 70, 150 mm	30, 40, 50, 70, 150 mm	30, 40, 50, 70, 150 mm	30, 40, 50, 70, 150 mm
60...120 ms	60...120 ms	60...120 ms	60...120 ms	60...120 ms
1.9...2.8 m	1.9...2.8 m	1.9...2.8 m	1.9...2.8 m	1.9...2.8 m
2.6...3.8 m	2.6...3.8 m	2.6...3.8 m	2.6...3.8 m	2.6...3.8 m
3.3...4.8 m	3.3...4.8 m	3.3...4.8 m	3.3...4.8 m	3.3...4.8 m
4.7...5.8 m	4.7...5.8 m	4.7...5.8 m	4.7...5.8 m	4.7...7 m
5.5 m	5.5 m	7 m	7 m	7 m
Up to 8	Up to 8	1 or 2 <sup>2)</sup>	Up to 4	Up to 8
Up to 8	Up to 8	1 or 2 <sup>2)</sup>	Up to 4	Up to 8
Up to 16	Up to 16	1	Up to 4	Up to 16
100 mm	100 mm	100 mm	100 mm	100 mm
3.3 kg	3.3 kg	3.3 kg	3.3 kg	3.3 kg
1 Pair OSSD (PNP) <sup>5)</sup>	1 Pair OSSD (PNP) <sup>5)</sup>	1 Pair OSSD (PNP) <sup>5)</sup>	1 Pair OSSD (PNP) <sup>5)</sup>	1 Pair OSSD (PNP) <sup>5)</sup>
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
8 (4 dual channel)	(switching via EFI interface) <sup>3)</sup>	N/A	4 (2 dual channel)	8 (4 dual channel)
•	(switching via EFI interface) <sup>3)</sup>	N/A	N/A	•
•	•	•	•	•
•				
•				
•	•	•	•	•
•	•	•	•	•
• (Via EFI <sup>4)</sup> or UE1000 Series)	• (Via EFI <sup>4)</sup> or UE1000 Series)	• (Via EFI <sup>4)</sup> or UE1000 Series)	• (Via EFI <sup>4)</sup> or UE1000 Series)	• (Via EFI <sup>4)</sup> or UE1000 Series)
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
Type 3	Type 3	Type 3	Type 3	Type 3
Category 3	Category 3	Category 3	Category 3	Category 3
SIL 2	SIL 2	SIL 2	SIL 2	SIL 2

4) Must be connected to another S3000 Scanner

5) A second pair of OSSDs can be added when used w/UE100 Series intelliface Interfaces

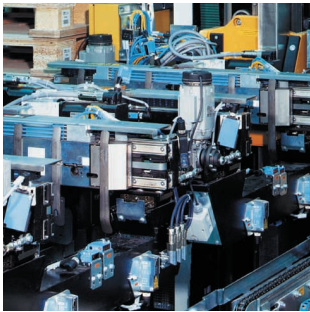


S3000 PROFESSIONAL CMS LONG RANGE	S3000 REMOTE LONG RANGE	PLS	PLS WITH LSI	PLS SHORT RANGE
•	• <sup>4)</sup>	•	•	•
•	• <sup>4)</sup>	N/A	•	N/A
•	• <sup>4)</sup>	•	•	•
•	• <sup>4)</sup>	•	•	•
•	• <sup>4)</sup>	•	•	•
•	• <sup>4)</sup>	•	•	•
190°	190°	180°	180°	180°
7 m	7 m	4 m	4 m	1.5 m
49 m	49 m	50 m	50 m	50 m
30, 40, 50, 70, 150 mm	30, 40, 50, 70, 150 mm	70 mm	70 mm	50 mm
60...120 ms	60...120 ms	80 ms	190 ms	80 ms
1.9...2.8 m	1.9...2.8 m	N/A	N/A	N/A
2.6...3.8 m	2.6...3.8 m	N/A	N/A	N/A
3.3...4.8 m	3.3...4.8 m	3 m	3 m	1.5 m
4.7...7 m	4.7...7 m	4 m	4 m	N/A
7 m	7 m	N/A	N/A	N/A
Up to 8	Up to 8	1	Up to 8	1
Up to 8	Up to 8	1	Up to 8	1
Up to 16	Up to 16	1	Up to 15	1
100 mm	100 mm	131 mm	131 mm	94 mm
3.3 kg	3.3 kg	4.5 kg	5.75 kg	4.5 kg
1 Pair OSSD (PNP) <sup>5)</sup>	1 Pair OSSD (PNP) <sup>5)</sup>	1 Pair OSSD (PNP)	2 Pair OSSD (PNP)	1 Pair OSSD (PNP)
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
8 (4 dual channel)	(switching via EFI interface) <sup>3)</sup>	N/A	8 (2 dual channel)	N/A
•	(switching via EFI interface) <sup>3)</sup>	N/A	•	N/A
•	•	N/A	•	N/A
•				
•				
•	•	N/A	•	N/A
•	•	N/A	N/A	N/A
• (Via EFI <sup>4)</sup> or UE1000 Series)	• (Via EFI <sup>4)</sup> or UE1000 Series)	• (Via LSI or UE1000 Series)	• (Via LSI or UE1000 Series)	• (Via UE1000 Series)
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
Type 3	Type 3	Type 3	Type 3	Type 3
Category 3	Category 3	Category 3	Category 3	Category 3
SIL 2	SIL 2	N/A	N/A	N/A

## RANGE OF EXPERTISE

### INDUSTRIAL SENSORS

SICK is one of the world's leading manufacturers of sensors, safety systems, and automatic identification products for industrial applications. SICK holds more than 450 patents for its innovative products. Through its Industrial Sensors, Safety Systems, Automatic Identification, and Environmental and Process Analysis divisions, the company has operations in 65 countries. SICK North America is headquartered in Minneapolis, MN.



### SAFETY SYSTEMS

Products from SICK provide comprehensive safeguarding of both workers and machinery. As experts in sensor technology, SICK develops and manufactures pioneering products that provide protection in hazardous zones, dangerous locations and for safeguarding access points. By providing services, which encompass all aspects of machine safety and security, SICK is setting new standards in safety technology.



### AUTOMATIC IDENTIFICATION

Our wide range of sensors provides solutions to suit any application in the field of automation. Even under rugged ambient conditions, objects are reliably detected, counted and positioned regardless of their form, location and surface finish.



### ANALYZERS AND PROCESS INSTRUMENTATION

Whether the tasks involve identification, handling, classification or volume measurement, innovative automatic identification systems and laser measurement systems from SICK function reliably, even under rapid cycle times. Products from SICK conform to the latest standards and can be easily integrated in all industrial environments and external applications.



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