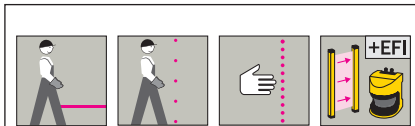




## S3000 Expert Safety Laser Scanners

Close safety gaps with 64 fields: Checkmate!

Close safety gaps with 64 fields:  
Checkmate!



### Product description

S3000 Expert constitutes the consequential extension of the successful S3000 product family. Without refraining from the usual reliability of the S3000, many more protecting tasks can be accomplished. Prospectively by activating the new triple mode three fields can be activated at the same time – one protective field and two warning fields. Therefore stationary and mobile applications can be implemented efficiently. Nearly unlimited performance will be provided when using 64 fields, which can be used as dual or triple mode. While being ide-

ally expandable with other safety laser scanners and safety controllers form SICK, S3000 Expert comes with extended interoperability with other devices. All around safety of autonomous guided vehicles (AGV) can be realized and adapted safety fields depending on the speed can be activated. Integrated CMS functionality combines protection of human beings and contour measurement. In the area of logistics and manufacturing the system will allow trend-setting solutions.

### At a glance

- Protective field range of 4 m, 5.5 m or 7 m
- 21 triple or 32 dual field sets (up to 64 fields)
- 32 static or dynamic monitoring cases
- Speed ranges configurable of scanner system solutions with Flexi Soft
- Configurable measurement data up to 49 m warning field range
- Measurement data and landmark recognition
- Speed monitoring can be used for odometry
- Device configuration memory stored in the system plug

### Your benefits

- Powerful – vehicle protection with 64 fields in one device offers ideal flexibility for any route
- Just to be on the safe side, highest flexibility with 32 monitoring cases
- Variable protective fields for change in vehicle speed
- Integration of safety laser scanners and control systems provides complete vehicle protection – all from one source
- High level availability realized by shut-off prevention
- Personnel protection and navigation in one device
- Full interoperability between safety laser scanner and safety controller provides safety without reduced productivity
- Less downtime due to fast diagnostics and easy commissioning of replaced devices



### Additional information

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## Detailed technical data

You can find more detailed data in the operating instructions. Download at [→ www.mysick.com](http://www.mysick.com)

### General data

<b>Laser protection class</b>	1, (21 CFR 1040.10 and 1040.11, IEC 60825-1)
<b>Enclosure rating</b>	IP 65 (EN 60529)
<b>Protection class</b>	II (EN 50178)
<b>Safety related parameters</b>	
Type	Type 3 (IEC/EN 61496-3)
Safety integrity level	SIL2 (IEC 61508), SILCL2 (EN 62061)
Category	Category 3 (EN ISO 13849)
Performance level	PL d (EN ISO 13849)
PFHd (mean probability of a dangerous failure per hour)	$8.0 \times 10^{-8}$ (EN ISO 13849)
T <sub>M</sub> (Mission Time)	20 years (EN ISO 13849)
<b>Ambient operating temperature from ... to</b>	-10 °C ... +50 °C
<b>Type of light</b>	Pulsed laser diode
<b>Wave length</b>	905 nm
<b>Housing color</b>	RAL 1021 (yellow)
<b>Housing material</b>	Aluminum diecast
<b>Front screen material</b>	Polycarbonat
<b>Front screen surface finish</b>	Outside with scratch-resistant coating
<b>System plug</b>	With ESD protected configuration memory
<b>Dimensions (W x H x D)</b>	155 mm x 185 mm x 160 mm
<b>Weight</b>	3.3 kg

### Functional data

<b>Scan angle</b>	190°
<b>Protective field range, radial</b>	4 m, 5.5 m, 7 m (depending on type)
<b>Reflectivity</b>	1.8 % ... > 1,000 %, reflectors
<b>Response time</b>	60 ms, 120 ms <sup>1)</sup>
<b>Resolution</b>	30 mm, 40 mm, 50 mm, 70 mm, 150 mm, selectable
<b>Angular resolution</b>	0.5°, 0.25°, depending on range and resolution
<b>Protective field supplement</b>	100 mm
<b>Warning field range</b>	49 m (20 m at 20 % reflectivity)
<b>Distance measuring range</b>	49 m
<b>Number of multiple samplings</b>	2 ... 16, configurable via CDS
<b>Delay of automatic reset</b>	2 s ... 60 s, configurable

<sup>1)</sup> Depending on basic response time and multiple sampling.

## Electrical data

<b>Connection type</b>	Plug-in connection housing with screw, screw-type terminals
<b>Supply voltage <math>V_s</math></b>	24 V DC (16.8 V DC ... 28.8 V DC)
<b>Power consumption</b>	0.8 A (24 V DC), 2.3 A <sup>1)</sup>
<b>Number of inputs</b>	
EDM	1
Restart/Reset	1
Static switching signals	4
Static switching signals (with EFI)	5 <sup>2)</sup>
Dynamic encoder signals (incremental encoder)	2 <sup>3)</sup>
<b>Number of outputs</b>	
Safety outputs (OSSD)	2 (500 mA)
Diagnostic output	3 x 100 mA <sup>4)</sup>
<b>Configuration and diagnostics interface</b>	RS-232
Transmission rate	9.6 kBaud, 19.2 kBaud, 38.4 kBaud
<b>Data interface</b>	RS-422 ( $\leq$ 500 kBaud)
<b>Safe device communication via EFI/SDL</b>	
Transmission rate	$\leq$ 500 kBaud
Cable length	50 m
Connection conductor cross-section	0.34 mm <sup>2</sup>

<sup>1)</sup> Including maximum output load.

<sup>2)</sup> Only in conjunction with a Flexi Soft safety controller or with EFI gateways.

<sup>3)</sup> Two of the static switching signals can be used either as dynamic or as static switching signals.

<sup>4)</sup> Freely programmable, e.g., warning field, reset required.

## Ordering information

Delivery S3000 systems:

- Sensor head with I/O module mounted
- Operating instructions and CDS (Configuration & Diagnostic Software) on CD-ROM
- Adhesive label "Important information"

The system plug has to be ordered separately!

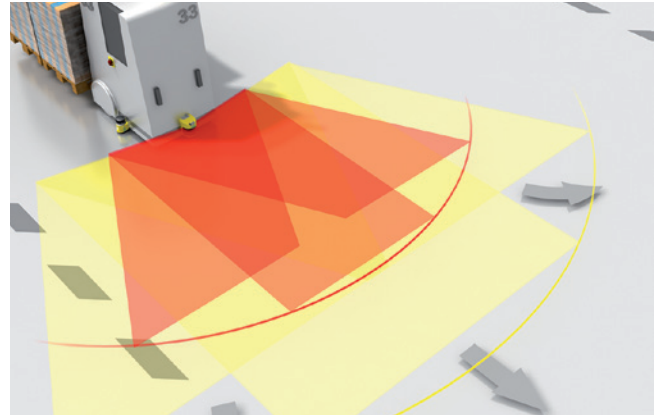
System part	Protective field range	Type	Part No.
Sensor head with I/O module	4 m	S30A-4011GB	1052107
	5.5 m	S30A-6011GB	1052108
	7 m	S30A-7011GB	1052109
Sensor head	4 m	Sensor head short range	2034999
	5.5 m	Sensor head medium range	2022972
	7 m	Sensor head long range	2026747
I/O module	-	I/O module Expert	2057645

## Applications

### Triple mode and 64 fields

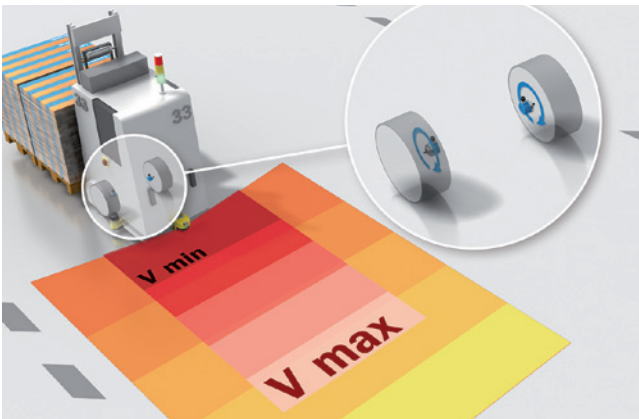


Two field set modes can be selected with S3000 Expert. With triple mode a second warning field is available. Thereby pedestrians passing by an automated guided vehicle could be warned with an acoustic sound and additionally by a visual signal when being further approached by the vehicle. The dual-field mode with only one warning field can be also selected.

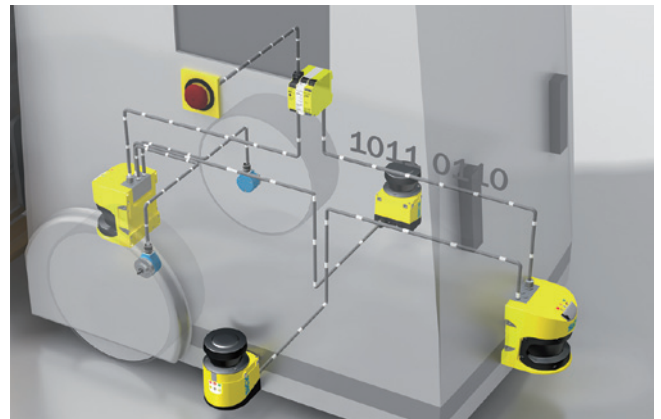


Different steering angles and payload conditions of automated guided vehicles can be easily realized with 64 fields. A 5th input is available additionally via Flexi Soft or EFI gateway to activate 32 monitoring cases.

### 32 monitoring cases and expanded functionality with Flexi Soft

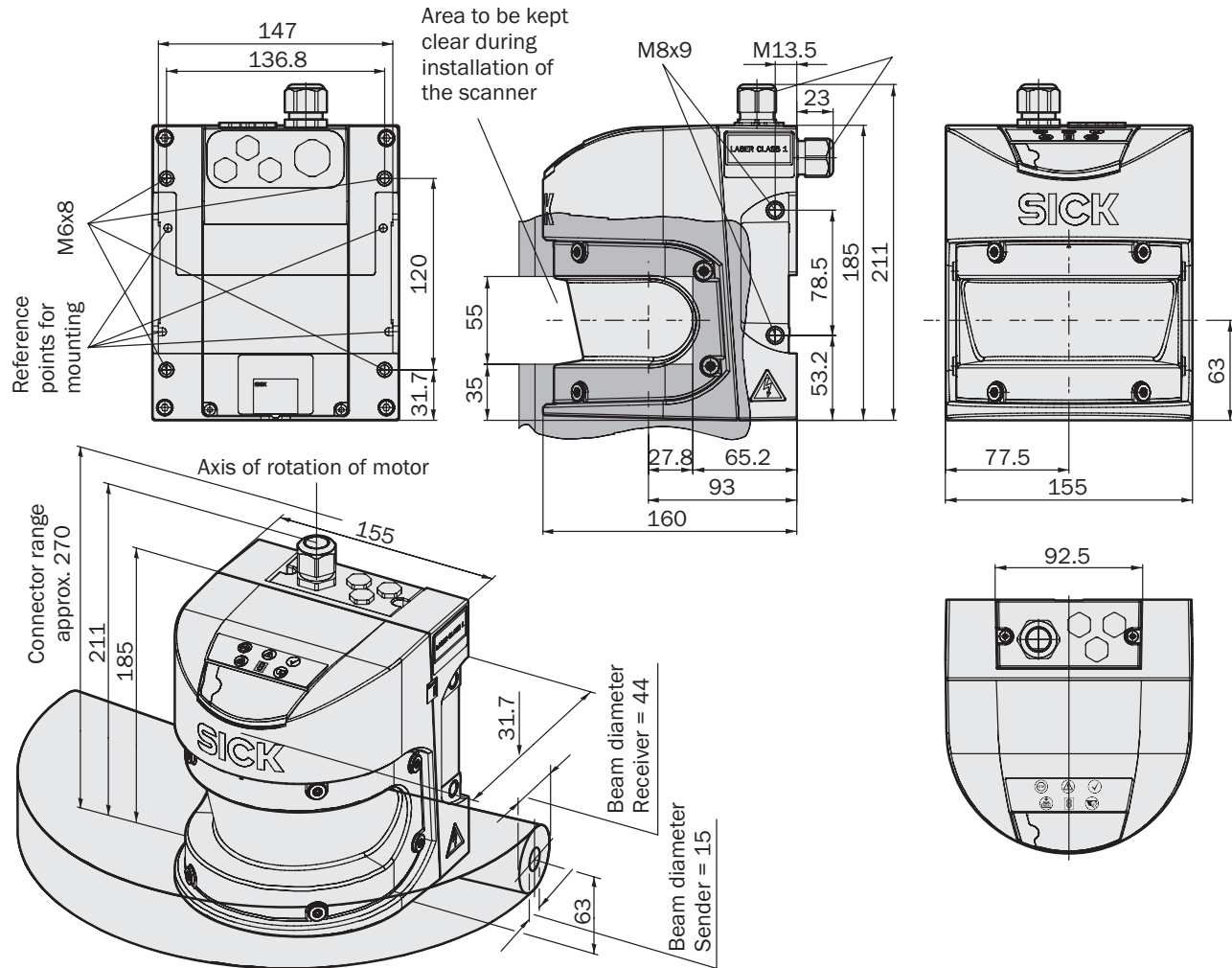


For each speed the right protective field. Dynamic field switching: Speeds which are required to activate protective and warning fields are provided via incremental encoders. Up to 32 monitoring cases or speeds can be configured.



A perfect all around safeguarding of automated guided vehicles can be created, when S3000 Expert is combined with a Flexi Soft safety controller. Speed signals of incremental encoders are routed to all safety laser scanners.

Dimensional drawing



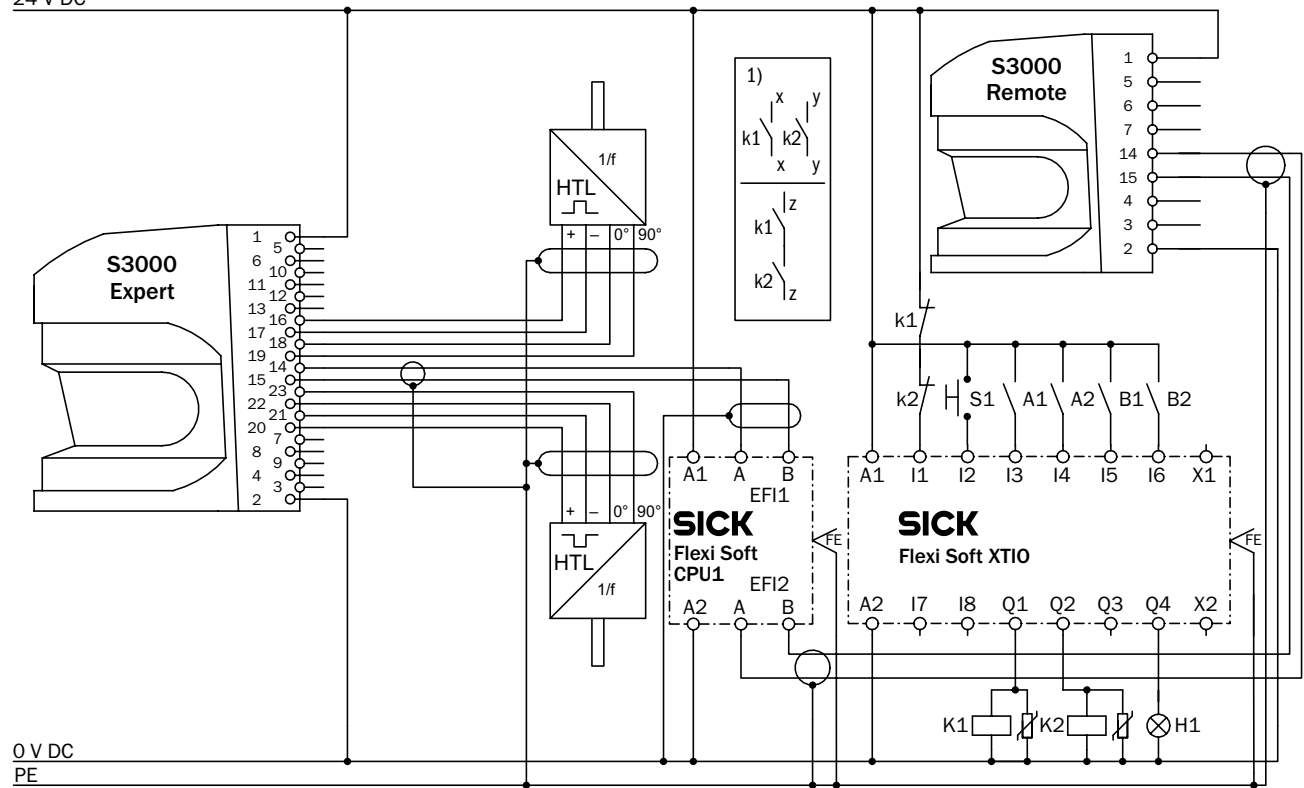
All dimensions in mm

## Connection diagrams

You can find more connection diagrams at → [www.mysick.com](http://www.mysick.com)

### Switching of safety fields with static and dynamic inputs

24 V DC







- Combine and link safety solutions with Flexi Soft: Extended safety with S3000 Expert safety laser scanners, Flexi Soft safety controller and incremental encoders.
- S3000 Expert with incremental encoders (x2) for safe field switching based on dynamic input signals (speed)
- Switching of safety fields with static and dynamic inputs of two scanners connected with Flexi Soft safety controller via EFI (Enhanced Functional Interface)
- Speed signals are routed from scanner 1 to scanner 2 via EFI and Flexi Soft







## Accessories


### Mounting systems

	Property	Assembly	Adjustment	Note	Type	Part No.
	Mounting brackets	For mounting at the rear on wall or machine	No adjustment facility	-	Mounting kit 1	2015623
			Longitudinal and cross-wise adjustment possible	Only in conjunction with mounting kit 1	Mounting kit 2	2015624
		Mounting at the rear or below on wall, floor or machine	Longitudinal and cross-wise adjustment possible	Only in conjunction with mounting kit 1 and 2	Mounting kit 3	2015625
	Mounting bracket, rugged design, with protective cover	Floor mounting	Height adjustment possible	-	Mounting bracket	7087514


### System plugs

	Direction of cable outlet	Usage	Connection type	Number of cores	Cable length	Type	Part No.
	Upward	For use with incremental encoders	Without cable	-	-	SX0A-A0000D	2023310
			Pre-assembled	13	5 m	SX0A-B1305D	2027176
					10 m	SX0A-B1310D	2027177
		Not for use with incremental encoders	Without cable	-	-	SX0A-A0000B	2023797
			Pre-assembled	17	5 m	SX0A-B1705B	2027174
					10 m	SX0A-B1710B	2027175
				20 m	SX0A-B1720B	2027816	


### Connecting cables

	Cable type	Number of cores	Type	Part No.
	By the meter	17	Connection cable	6025730
		13	Connection cable	6025729
4		Connection cable	6030921	
		Connection cable	6030756	
-		EFI connection cable	6029448	


## SDL connection cables

	Note	Direction of cable outlet	Connection type	Number of cores	Cable length	Part No.
	For the connection of safety bus modules to S3000	Straight	Interconnectron plug M23 x 12	12	2.5 m	2029337
					5 m	2029338
					10 m	2029339
					15 m	2029340


## Cable glands

	Usage	Size of the cable gland	Permissible cable diameter	Description	Part No.	
	For EFI connections	M12	3 mm ... 6.5 mm	-	5308757	
				For quick and easy shield connection	5314772	
	For system plug S3000	M20	10 mm ... 14 mm	For quick and easy shield connection	5314774	
				7 mm ... 12 mm	-	5308762
				10 mm ... 14 mm	-	5318531

## Configuration connection cables

	Note	Connection type	Cable length	Type	Part No.
	For connecting the configuration connection to the PC	M8 x 4, SUB-D 9-pin	2 m	DSL-8D04G02M025KM1	6021195
			10 m	DSL-8D04G10M025KM1	2027649


## Power supply units

	Input voltage	Output voltage	Maximum output current	Type	Part No.
	100 V AC ... 240 V AC	24 V DC	2.1 A	Power supply	7028789
			3.9 A	Power supply	7028790


## Configuration software

	Description	Type	Part No.
	CDS (Configuration & Diagnostic Software)	CDS	2032314

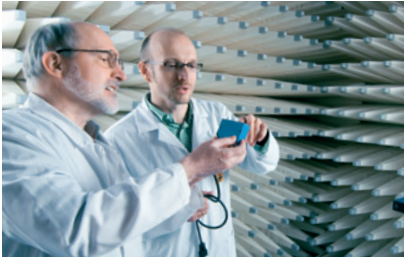
## Cleaning agent

	Description	Type	Part No.
	Plastic cleaner and care product, anti-static	Plastic cleaner	5600006

## Other

	Description	Items supplied	Type	Part No.
	Front screen replacement kit	With replacement seal and screws	Front screen replacement kit	2027180
	Cloth for cleaning the front screen	-	Optical cleaning cloth	4003353

## SICK at a glance



### Leading technologies

With a staff of more than 5,000 and over 50 subsidiaries and representations worldwide, SICK is one of the leading and most successful manufacturers of sensor technology. The power of innovation and solution competency have made SICK the global market leader. No matter what the project and industry may be, talking with an expert from SICK will provide you with an ideal basis for your plans – there is no need to settle for anything less than the best.



### Unique product range

- Non-contact detecting, counting, classifying, positioning and measuring of any type of object or media
- Accident and operator protection with sensors, safety software and services
- Automatic identification with bar code and RFID readers
- Laser measurement technology for detecting the volume, position and contour of people and objects
- Complete system solutions for analysis and flow measurement of gases and liquids



### Comprehensive services

- SICK LifeTime Services – for safety and productivity
- Application centers in Europe, Asia and North America for the development of system solutions under real-world conditions
- E-Business Partner Portal [www.mysick.com](http://www.mysick.com) – price and availability of products, requests for quotation and online orders

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