



# S30B-3011GB

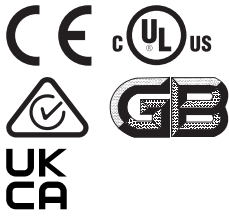
## S300

SAFETY LASER SCANNERS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Sub product family | Model                      | Scanning angle | Protective field range | Number of fields | Type        | Part no. |
|--------------------|----------------------------|----------------|------------------------|------------------|-------------|----------|
| S300 Expert        | Sensor without system plug | 270°           | 3 m                    | 48               | S30B-3011GB | 1057641  |

The system plug has to be ordered separately. For details, see "Accessories, plug connectors and cables".

Other models and accessories → [www.sick.com/S300](http://www.sick.com/S300)

## Detailed technical data

### Features

|                                |                                    |
|--------------------------------|------------------------------------|
| Sub product family             | S300 Expert                        |
| Model                          | Sensor without system plug         |
| Application                    | Indoor                             |
| Protective field range         | 3 m                                |
| Warning field range            | 8 m (at 15 % reflectivity)         |
| Distance measuring range       | 30 m                               |
| Type of field set              | Triple field sets                  |
| Number of field sets           | 16                                 |
| Number of fields               | 48                                 |
| Number of monitoring cases     | 32 <sup>1)</sup>                   |
| Scanning angle                 | 270°                               |
| Resolution (can be configured) | 30 mm, 40 mm, 50 mm, 70 mm, 150 mm |
| Angular resolution             | 0.5°                               |
| Response time                  | 80 ms <sup>2)</sup>                |
| Protective field supplement    | 100 mm                             |
| Number of multiple samplings   | 2 ... 16, configurable             |
| Delay of automatic reset       | 2 s ... 60 s, configurable         |

<sup>1)</sup> In combination with an additional static input via EFL or using the dynamic inputs on the device. Otherwise eight.

<sup>2)</sup> Depending on basic response time and multiple sampling.

### Safety-related parameters

|                        |                    |
|------------------------|--------------------|
| Type                   | Type 3 (IEC 61496) |
| Safety integrity level | SIL 2 (IEC 61508)  |

|                                                                           |                                        |
|---------------------------------------------------------------------------|----------------------------------------|
| <b>Category</b>                                                           | Category 3 (EN ISO 13849)              |
| <b>Performance level</b>                                                  | PL d (EN ISO 13849)                    |
| <b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b> | $8.0 \times 10^{-8}$                   |
| <b>T<sub>M</sub> (mission time)</b>                                       | 20 years (EN ISO 13849)                |
| <b>Safe state in the event of a fault</b>                                 | At least one OSSD is in the OFF state. |

## Functions

|                                               |   |
|-----------------------------------------------|---|
| <b>Restart interlock</b>                      | ✓ |
| <b>External device monitoring (EDM)</b>       | ✓ |
| <b>Multiple sampling</b>                      | ✓ |
| <b>Monitoring case switching</b>              | ✓ |
| <b>Static protective field switching</b>      | ✓ |
| <b>Dynamic protective field switching</b>     | ✓ |
| <b>Contour as a reference</b>                 | ✓ |
| <b>Integrated configuration memory</b>        | ✓ |
| <b>Safe SICK device communication via EFI</b> | ✓ |

## Interfaces

|                                                |                                                     |
|------------------------------------------------|-----------------------------------------------------|
| <b>Connection type</b>                         | System plug with or without connecting cable        |
| <b>Universal I/Os</b>                          | 5 <sup>1)</sup>                                     |
| <b>Inputs</b>                                  |                                                     |
| External device monitoring (EDM)               | 1 <sup>2)</sup>                                     |
| Reset/restart                                  | 1 <sup>2)</sup>                                     |
| Static control inputs                          | 3 <sup>3)</sup>                                     |
| Static control inputs with EFI                 | 5 <sup>4)</sup>                                     |
| Dynamic control inputs (incremental encoder)   | 2 <sup>5)</sup>                                     |
| Standby                                        | 1                                                   |
| <b>Outputs</b>                                 |                                                     |
| OSSD pairs                                     | 1                                                   |
| Application diagnostic outputs                 | 3 <sup>6)</sup>                                     |
| <b>Configuration method</b>                    | PC with CDS (Configuration and Diagnostic Software) |
| <b>Configuration and diagnostics interface</b> | RS-232                                              |
| Transmission rate                              | 38.4 kBaud                                          |
| <b>Data interface</b>                          | RS-422                                              |
| Transmission rate                              | ≤ 500 kBaud                                         |
| <b>Safe SICK device communication via EFI</b>  |                                                     |
| Transmission rate                              | ≤ 500 kBaud                                         |

<sup>1)</sup> Freely programmable, e.g., external device monitoring input, reset input, contamination warning, reset required.

<sup>2)</sup> Availability depends on the configuration of the universal I/Os.

<sup>3)</sup> 2+1; additional input is only available if reset and reset required are not being used.

<sup>4)</sup> In combination with an EFI device (Flexi Soft or EFI gateway) five static control inputs are available. Otherwise three.

<sup>5)</sup> Two of the static switching signals can be used either as dynamic or as static switching signals.

<sup>6)</sup> Freely programmable, e.g. warning field, contamination, reset required.

|                         |                      |
|-------------------------|----------------------|
| Length of cable         | ≤ 50 m               |
| Conductor cross section | 0.22 mm <sup>2</sup> |

- <sup>1)</sup> Freely programmable, e.g., external device monitoring input, reset input, contamination warning, reset required.  
<sup>2)</sup> Availability depends on the configuration of the universal I/Os.  
<sup>3)</sup> 2+1; additional input is only available if reset and reset required are not being used.  
<sup>4)</sup> In combination with an EFI device (Flexi Soft or EFI gateway) five static control inputs are available. Otherwise three.  
<sup>5)</sup> Two of the static swithcing signals can be used either as dynamic or as static switching signals.  
<sup>6)</sup> Freely programmable, e.g. warning field, contamination, reset required.

Electrical data

|                                         |                                             |
|-----------------------------------------|---------------------------------------------|
| <b>Protection class</b>                 | III (EN 50178, EN 60950)                    |
| <b>Supply voltage V<sub>s</sub></b>     | 24 V DC (16.8 V DC ... 30 V DC)             |
| <b>Power consumption</b>                | 0.33 A <sup>1)</sup><br>1.7 A <sup>2)</sup> |
| <b>Outputs</b>                          |                                             |
| Output signal switching devices (OSSDs) | 2 x 250 mA                                  |
| Application diagnostic outputs          | 3 x 100 mA <sup>3)</sup>                    |

- <sup>1)</sup> At 24 V DC without output load.  
<sup>2)</sup> At 24 V DC including maximum output load.  
<sup>3)</sup> Freely programmable, e.g. warning field, contamination, reset required.

Mechanical data

|                                    |                                        |
|------------------------------------|----------------------------------------|
| <b>Dimensions (W x H x D)</b>      | 102 mm x 152 mm x 106 mm               |
| <b>Weight</b>                      | 1.2 kg                                 |
| <b>Housing material</b>            | Aluminum die cast                      |
| <b>Housing color</b>               | RAL 1021 (yellow)                      |
| <b>Optics cover material</b>       | Polycarbonate                          |
| <b>Optics cover surface finish</b> | Outside with scratch-resistant coating |

Ambient data

|                                      |                                                                             |
|--------------------------------------|-----------------------------------------------------------------------------|
| <b>Enclosure rating</b>              | IP65 (EN 60529)                                                             |
| <b>Ambient operating temperature</b> | -10 °C ... +50 °C                                                           |
| <b>Storage temperature</b>           | -25 °C ... +50 °C                                                           |
| <b>Vibration resistance</b>          | IEC 60068-2-6, IEC 60068-2-64, IEC 60721-3-5, IEC TR 60721-4-5, IEC 61496-3 |
| Class                                | 5M1 (IEC 60721-3-5)                                                         |
| <b>Shock resistance</b>              | IEC 60068-2-27, IEC 60721-3-5, IEC TR 60721-4-5, IEC 61496-3                |
| Class                                | 5M1 (IEC 60721-3-5)                                                         |
| Continuous shock                     | 50 m/s <sup>2</sup> , 11 ms<br>100 m/s <sup>2</sup> , 16 ms                 |

Other information

|                                    |                                             |
|------------------------------------|---------------------------------------------|
| <b>Type of light</b>               | Pulsed laser diode                          |
| <b>Wave length</b>                 | 905 nm                                      |
| <b>Detectable remission factor</b> | 1.8 % ... > 1,000 %, reflectors             |
| <b>Laser class</b>                 | 1 (21 CFR 1040.10 and 1040.11, IEC 60825-1) |

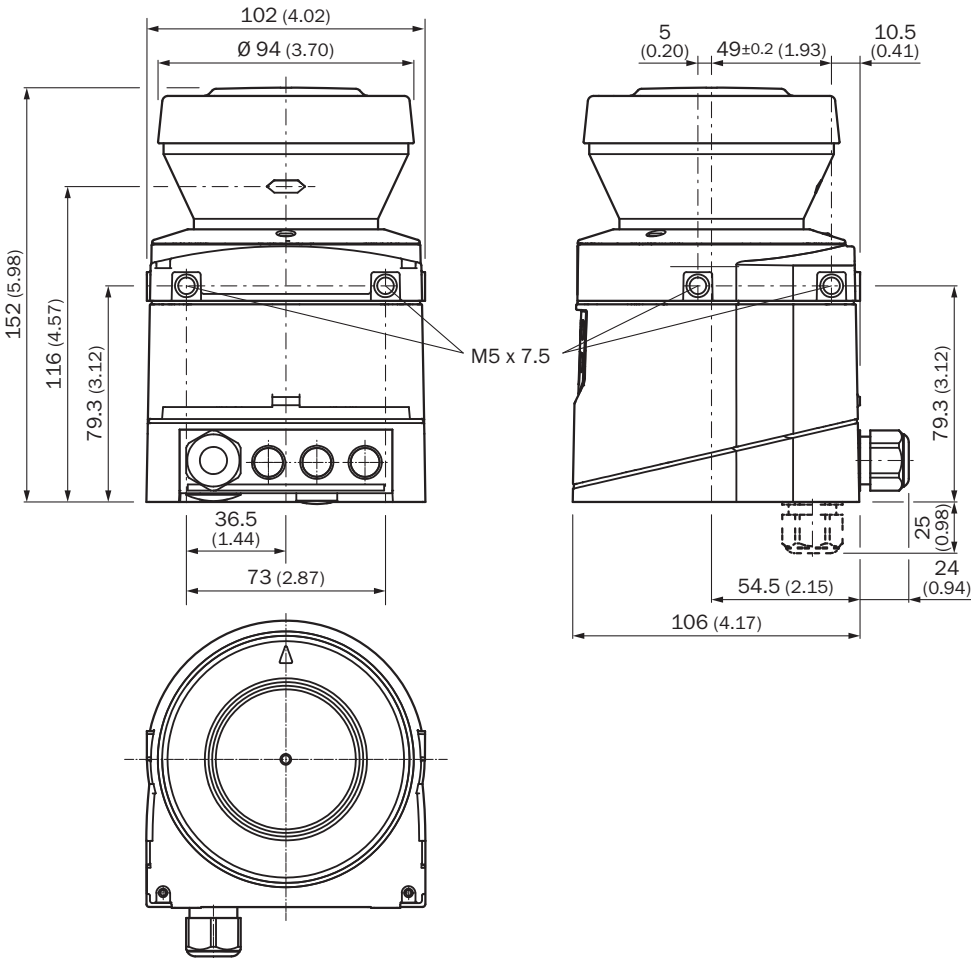
Classifications

|                   |          |
|-------------------|----------|
| <b>ECLASS 5.0</b> | 27272705 |
|-------------------|----------|

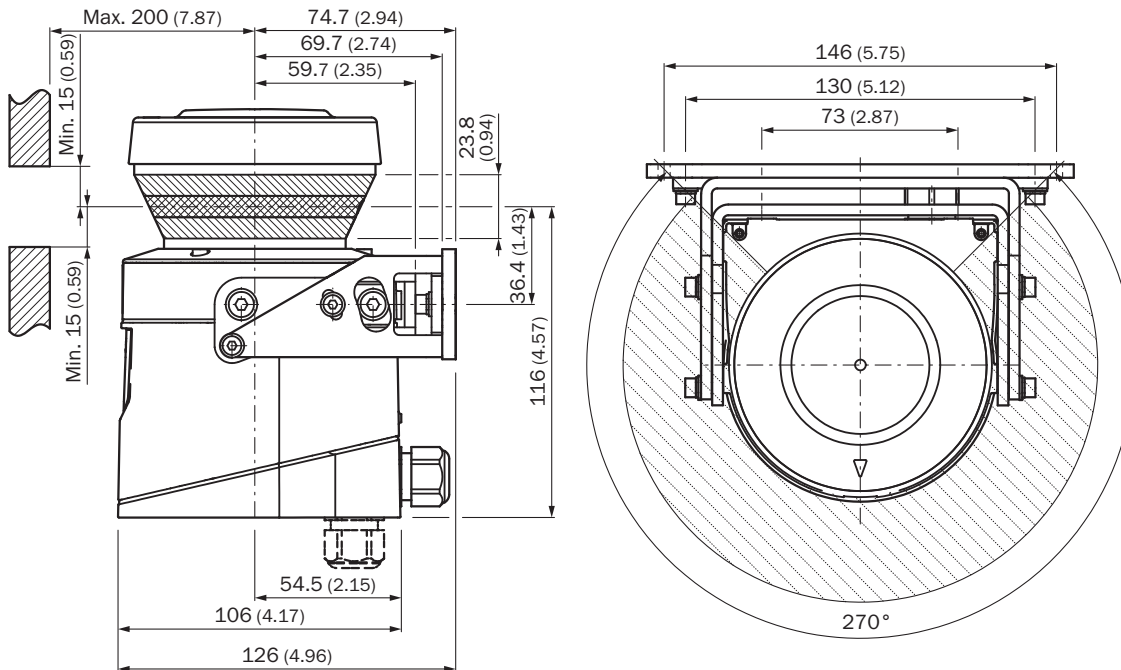
|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.1.4</b>   | 27272705 |
| <b>ECLASS 6.0</b>     | 27272705 |
| <b>ECLASS 6.2</b>     | 27272705 |
| <b>ECLASS 7.0</b>     | 27272705 |
| <b>ECLASS 8.0</b>     | 27272705 |
| <b>ECLASS 8.1</b>     | 27272705 |
| <b>ECLASS 9.0</b>     | 27272705 |
| <b>ECLASS 10.0</b>    | 27272705 |
| <b>ECLASS 11.0</b>    | 27272705 |
| <b>ECLASS 12.0</b>    | 27272705 |
| <b>ETIM 5.0</b>       | EC002550 |
| <b>ETIM 6.0</b>       | EC002550 |
| <b>ETIM 7.0</b>       | EC002550 |
| <b>ETIM 8.0</b>       | EC002550 |
| <b>UNSPSC 16.0901</b> | 39121528 |

Dimensional drawing (Dimensions in mm (inch))

Laser scanner

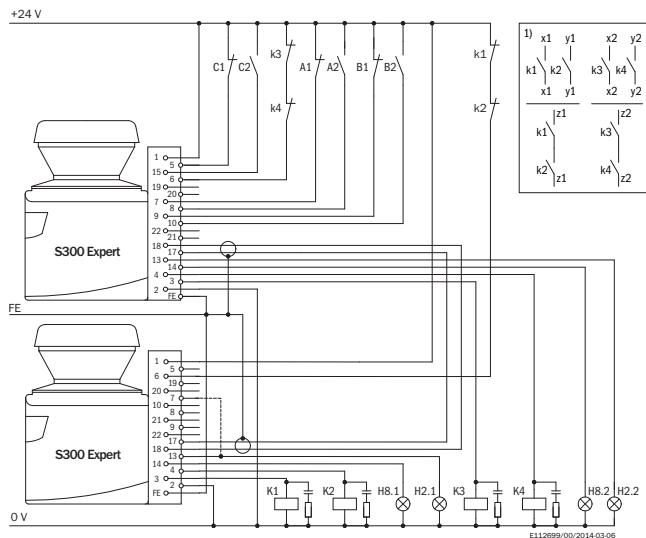


## Scan plane origin



## Connection diagram

S300 Expert with S300 Expert in host/guest connection with relays/contactors



S300 Expert with S300 Expert in host/guest connection with relays/contactors

Operating mode: with external device monitoring and without restart interlock

Static protective field switching using the control inputs A, B and C

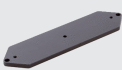
The protective fields affect the related OSSDs on host or guest

### Comments

<sup>1)</sup> Output circuits: These contacts are to be connected to the controller such that, with the output circuit open, the dangerous state is disabled. For categories 4 and 3, this integration must be dual-channel (x/y paths). Single-channel insertion in the control (z path) is only possible with a single-channel control and by taking the risk analysis into account.

### Recommended accessories

Other models and accessories → [www.sick.com/S300](http://www.sick.com/S300)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                     | Type               | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Mounting brackets and plates                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |          |
|    | 1 piece, mounting bracket for rear mounting on wall or machine                                                                                                                                                                                                                                                                                                                                                                        | Mounting kit 1a    | 2034324  |
|    | 1 piece, mounting bracket for rear mounting on wall or machine with protection of optics hood                                                                                                                                                                                                                                                                                                                                         | Mounting kit 1b    | 2034325  |
|    | 1 piece, mounting bracket, adjustable lateral axis, only in conjunction with mounting kit 1a (2034324) or 1b (2034325)                                                                                                                                                                                                                                                                                                                | Mounting kit 2     | 2039302  |
|    | 1 piece, mounting plate, adjustable longitudinal axis, only in conjunction with mounting kit 2 (2039302)                                                                                                                                                                                                                                                                                                                              | Mounting kit 3     | 2039303  |
| Others                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |          |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M8, 4-pin, straight</li> <li><b>Connection type head B:</b> Male connector, USB-A, straight</li> <li><b>Cable:</b> 2 m, 4-wire, PVC</li> <li><b>Description:</b> Unshielded, Configuration cable with integrated RS-232 transducer on USB for connecting a sensor configuration connection (M8, 4-pin) to the USB interface of a PC</li> </ul>  | DSL-8U04G02M025KM1 | 6034574  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M8, 4-pin, straight</li> <li><b>Connection type head B:</b> Male connector, USB-A, straight</li> <li><b>Cable:</b> 10 m, 4-wire, PVC</li> <li><b>Description:</b> Unshielded, Configuration cable with integrated RS-232 transducer on USB for connecting a sensor configuration connection (M8, 4-pin) to the USB interface of a PC</li> </ul> | DSL-8U04G10M025KM1 | 6034575  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> System plug</li> <li><b>Description:</b> Without cable, Not for use of incremental encoders, integrated configuration storage, For S300 Standard, Advanced, Expert and Professional</li> </ul>                                                                                                                                                                  | SX0B-A0000G        | 2032807  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Flying leads</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Cable:</b> 15-wire, AWG20, PVC</li> <li><b>Description:</b> Unshielded</li> <li><b>Note:</b> On 100 m reel</li> </ul>                                                                                                                                                             | Connecting cable   | 6030795  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> System plug</li> <li><b>Cable:</b> 5 m, 15-wire, PVC</li> <li><b>Description:</b> Pre-assembled, Not for use of incremental encoders, integrated configuration storage, unshielded, For S300 Advanced, Expert and Professional</li> <li><b>Connection systems:</b> Flying leads</li> </ul>                                                                      | SX0B-B1505G        | 2034264  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> System plug</li> <li><b>Cable:</b> 10 m, 15-wire, PVC</li> <li><b>Description:</b> Pre-assembled, Not for use of incremental encoders, integrated configuration storage, unshielded, For S300 Advanced, Expert and Professional</li> <li><b>Connection systems:</b> Flying leads</li> </ul>                                                                     | SX0B-B1510G        | 2034265  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> System plug</li> <li><b>Description:</b> Without cable, For use of incremental encoders, integrated configuration storage, For S300 Expert and Professional</li> </ul>                                                                                                                                                                                          | SX0B-A0000J        | 2032856  |

|                                                                                                                                                                                                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                     | Type                 | Part no. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------|
| <br><br><br><br> | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> System plug</li> <li>• <b>Cable:</b> 5 m, 11-wire, PVC</li> <li>• <b>Description:</b> Pre-assembled, For use of incremental encoders, integrated configuration storage, unshielded, For S300 Advanced, Expert and Professional</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>  | SX0B-B1105J          | 2032857  |
|                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> System plug</li> <li>• <b>Cable:</b> 10 m, 11-wire, PVC</li> <li>• <b>Description:</b> Pre-assembled, For use of incremental encoders, integrated configuration storage, unshielded, For S300 Advanced, Expert and Professional</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul> | SX0B-B1110J          | 2032858  |
|                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Flying leads</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Cable:</b> 2-wire, twisted pair, 120 Ohm, PVC</li> <li>• <b>Description:</b> Shielded</li> <li>• <b>Note:</b> Fitting for EFI connections</li> </ul>                                                        | EFI connecting cable | 6029448  |

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)