

AS30 Prime - Extended Field of View

Array sensor

SICK
Sensor Intelligence.



Described product

AS30 Prime - Extended Field of View

Manufacturer

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Original document

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1 About this document

1.1 Information on the operating instructions

These operating instructions provide important information on how to use devices from SICK AG.

Prerequisites for safe work are:

- Compliance with all safety notes and handling instructions supplied
- Compliance with local work safety regulations and general safety regulations for device applications

The operating instructions are intended to be used by qualified personnel and electrical specialists.



NOTE

Read these operating instructions carefully before starting any work on the device, in order to familiarize yourself with the device and its functions.

The instructions constitute an integral part of the product and are to be stored in the immediate vicinity of the device so they remain accessible to staff at all times. Should the device be passed on to a third party, these operating instructions should be handed over with it.

These operating instructions do not provide information on operating the machine in which the device is integrated. For information about this, refer to the operating instructions of the specific machine.

1.2 Scope

These operating instructions serve to incorporate the device into a customer system. Step-by-step instructions are given for all required actions.

These instructions apply to all listed device variants of the product.

Available device variants are listed on the online product page.

www.sick.com/AS30

Commissioning is described using one particular device variant as an example.

Simplified device designation in the document

In the following, the sensor is referred simply as the "AS30 Prime - Extended Field of View" or "device".

1.3 Explanation of symbols

Warnings and important information in this document are labeled with symbols. The warnings are introduced by signal words that indicate the extent of the danger. These warnings must be observed at all times and care must be taken to avoid accidents, personal injury, and material damage.



DANGER

... indicates a situation of imminent danger, which will lead to a fatality or serious injuries if not prevented.

**WARNING**

... indicates a potentially dangerous situation, which may lead to a fatality or serious injuries if not prevented.

**CAUTION**

... indicates a potentially dangerous situation, which may lead to minor/slight injuries if not prevented.

**NOTICE**

... indicates a potentially harmful situation, which may lead to material damage if not prevented.

**NOTE**

... highlights useful tips and recommendations as well as information for efficient and trouble-free operation.

1.4 Additional information

**NOTE**

All the documentation available for the device can be found on the online product page at:

▶ www.sick.com/AS30

The following information is available for download from this page:

- Type-specific online data sheets for device variants, containing technical data and dimensional drawings
 - EU declaration of conformity for the product family
 - Dimensional drawings and 3D CAD dimension models in various electronic formats
 - These operating instructions, available in English and German, and in other languages if necessary
 - Other publications related to the devices described here
 - Publications dealing with accessories
 - IO-Link device description IO-Link, driver file SDD for configuration software SOPAS ET and technical information IO-Link v1.1
-

1.5 Customer service

If you require any technical information, our customer service department will be happy to help. To find your agency, see the final page of this document.

**NOTE**

Before calling, make a note of all type label data such as type code, serial number, etc., to ensure faster processing.

2 Safety information

2.1 Intended use

The Array Sensor AS30 Prime - Extended Field of View is an opto-electronic sensor for the optical, non-contact detection of contrast edges.

The array sensor is designed for mounting and may only be operated according to its intended function. For this reason, the array sensor is not equipped with direct safety devices.

The system designer must provide measures to ensure the safety of persons and systems in accordance with the legal guidelines.

SICK AG assumes no liability for losses or damage arising from the use of the product, either directly or indirectly. This applies in particular to use of the product that does not conform to its intended purpose and is not described in this documentation.

2.2 Improper use

- The device does not constitute a safety-relevant device according to the EC Machinery Directive (2006/42/EC).
- The device must not be used in explosion-hazardous areas.
- Any other use that is not described as intended use is prohibited.
- Any use of accessories not specifically approved by SICK AG is at your own risk.

The device is not suitable for the following applications (this list is not exhaustive):

- As a safety device to protect persons, their hands, or other body parts
- Underwater
- In explosion-hazardous areas
- Outdoors, without additional protection



NOTICE

Danger due to improper use!

Any improper use can result in dangerous situations.

Therefore, observe the following information:

- ▶ The device should be used only in line with intended use specifications.
- ▶ All information in these operating instructions must be strictly complied with.

2.3 Limitation of liability

Applicable standards and regulations, the latest state of technological development, and our many years of knowledge and experience have all been taken into account when assembling the data and information contained in these operating instructions. The manufacturer accepts no liability for damage caused by:

- Failure to observe the operating instructions
- Improper use
- Use by untrained personnel
- Unauthorized conversions
- Technical modifications
- Use of unauthorized spare parts, wear and tear parts, and accessories

With special variants, where optional extras have been ordered, or owing to the latest technical changes, the actual scope of delivery may vary from the features and illustrations shown here.

2.4 Requirements for skilled persons and operating personnel



WARNING

Risk of injury due to insufficient training!

Improper handling of the device may result in considerable personal injury and material damage.

- All work must only ever be carried out by the stipulated persons.

The operating instructions state the following qualification requirements for the various areas of work:

- **Instructed personnel** have been briefed by the operating entity about the tasks assigned to them and about potential dangers arising from improper action.
- **Skilled personnel** have the specialist training, skills, and experience, as well as knowledge of the relevant regulations, to be able to perform tasks assigned to them and to detect and avoid any potential dangers independently.
- **Electricians** have the specialist training, skills, and experience, as well as knowledge of the relevant standards and provisions to be able to carry out work on electrical systems and to detect and avoid any potential dangers independently. In Germany, electricians must meet the specifications of the DGUV V3 Work Safety Regulations (e.g., Master Electrician). Other relevant regulations applicable in other countries must be observed.

The following qualifications are required for various activities:

Activities	Qualification
Mounting, maintenance	<ul style="list-style-type: none"> ■ Basic practical technical training ■ Knowledge of the current safety regulations in the workplace
Electrical installation, device replacement	<ul style="list-style-type: none"> ■ Practical electrical training ■ Knowledge of current electrical safety regulations ■ Knowledge of the operation and control of the devices in their particular application
Commissioning, configuration	<ul style="list-style-type: none"> ■ Basic knowledge of the design and setup of the described connections and interfaces ■ Basic knowledge of data transmission ■ Knowledge of the operation and control of the devices in their particular application
Operation of the devices in their particular application	<ul style="list-style-type: none"> ■ Knowledge of the operation and control of the devices in their particular application ■ Knowledge of the software and hardware environment in the application

2.5 Hazard warnings and operational safety

Please observe the safety notes and the warnings listed here and in other chapters of these operating instructions to reduce the possibility of risks to health and avoid dangerous situations.

2.5.1 Eye safety



CAUTION

The device is equipped with LEDs. The device meets the criteria of risk group 1 according to IEC 62471:2006. No special measures are required (e.g., eye protection).

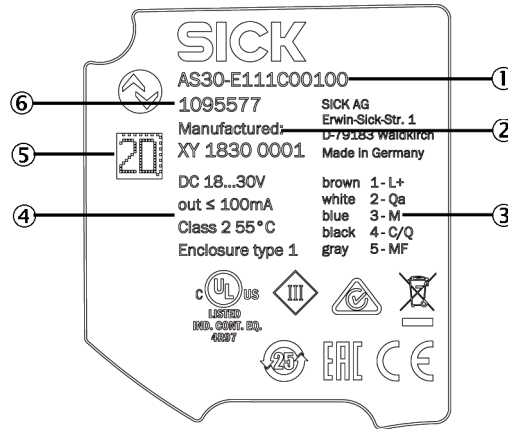
2.6 Repair

The product is replaced if defective. The device is not intended to be repaired. Interference with or modifications to the device on the part of the customer will invalidate any warranty claims against SICK AG.

3 Product description

3.1 Product ID

3.1.1 Type label



- ① device designation
- ② Date of manufacture and serial number
- ③ Pin assignment
- ④ Electrical data and environmental data
- ⑤ 2D-Code
- ⑥ Article number

3.1.2 Type code

Table 1: Type code

1	2	-	3	4	5	6	7	8	9	10	11	12	13	14
AS	30	-	M	B	M	8	3	4	I	3	2	0	A	00

Position	Meaning	
1	Basic type	AS = array sensor
2	Type number	30 = current generation
3	Application	E = edge W = width P = position M = multi-edge
4	Switching output	B = push/pull
5	Type of light	M = white
6	Field of view	3 = 30 mm 4 = 45 mm 5 = 50 mm 8 = 165 mm
7	Distance	1 = 25 mm 3 = 100 mm
8	Connection	4 = M12, 5-pin, Qa, Q, MF
9	Communication	I = IO-Link
10	HMI	1 = LED +3 buttons 2 = TFT +3 buttons 3 = Power + Q-LED

Position	Meaning	
11	Core/Prime/Pro	1 = Core 2 = Prime 3 = Pro
12	Filter	0 = no filter
13	Type of device	M = sample device S = special device A = SMART Task B = special device with SMART Task C = preconfigured Z = standard
14	Sequential no. for SMART task/special/sample	01 = 0 ... (= Increment = 1) 99 = 0 ZZ = standard

3.2 Product features and functions

3.2.1 Device view

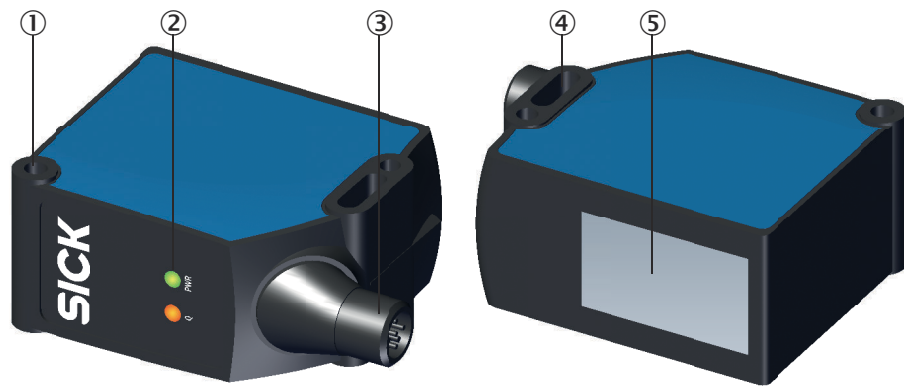


Figure 1: AS30 Prime - Extended Field of View

- ① Fixing hole
- ② Display and control panel
- ③ Connection
- ④ Fixing hole
- ⑤ Light emission

3.2.2 Product characteristics

Array sensors can be used in any application that requires the detection of one (AS30 Prime Edge Mode), two (AS30 Prime Width Mode) or multiple edges (AS30 Prime - Extended Field of View) based on a significant difference in contrast. With the AS30 Prime - Extended Field of View, up to 8 edges can be evaluated. Up to 29 edges are output via IO-Link Index 165. In addition, it is possible to define and monitor functions from individual edges (e.g. distance, center point).

Edges with a low contrast difference on transparent or reflective materials can be detected in the Reflector setting.

4 Mounting

4.1 Scope of delivery

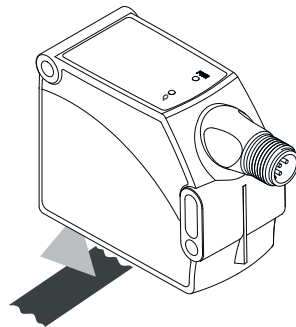
- Array sensor in the type ordered
- Quickstart
- Alignment aid

4.2 Installation requirements

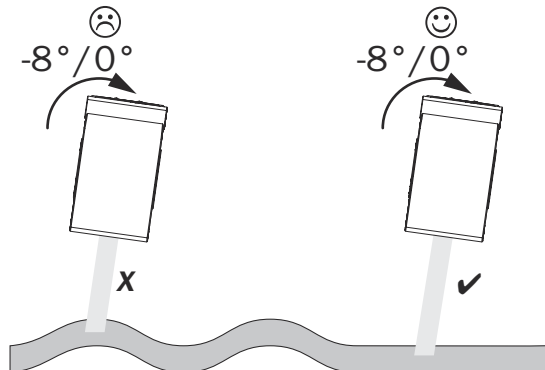
- For the typical space requirements for the device, see the type-specific dimensional drawing, [see "Technical data", page 33](#).
- Comply with technical data, such as the permitted ambient conditions for operation of the device (e.g., temperature range, EMC interference emissions, ground potential).
- To prevent condensation, avoid exposing the device to rapid changes in temperature.
- Protect the device from direct sunlight.
- The device must only be mounted using the pairs of fixing holes provided for this purpose.
- Shock and vibration resistant mounting.

4.3 Mounting the device

1. Install the sensor via the fixing hole so that the light spot is positioned (longitudinally or transversely depending on the operating mode) on the object to be detected. **Observe the sensing range variation and tolerances.**



2. In the case of high-gloss materials, angle the AS30 Prime Edge at $> 8^\circ$ at the side for better detection reliability.



3. When detecting transparent materials, the reflector foil available as an accessory must be positioned behind the object to be detected and the sensor must be used in reflector mode.
4. The AS30 Prime - Extended Field of View has a supporting alignment mode that is accessed via SOPAS. To do so, position the supplied alignment aid in the field of view.

5 Electrical installation

5.1 Notes on electrical installation

**NOTICE****Equipment damage due to incorrect supply voltage!**

An incorrect supply voltage may result in damage to the equipment.

- Only operate the device with safety/protective extra-low voltage (SELV/PELV).
- The sensor is a device of protection class III.

**NOTICE****Equipment damage due to incorrect supply voltage!**

An incorrect supply voltage may result in damage to the equipment.

- Only operate the device with an LPS (limited power source) in accordance with IEC 62368-1 or an NEC Class 2 power supply unit.

**NOTICE****Equipment damage or unpredictable operation due to working with live parts!**

Working with live parts may result in unpredictable operation.

- Only carry out wiring work when the power is off.
- Only connect and disconnect electrical connections when the power is off.

- **The electrical installation must only be performed by electrically qualified personnel.**
- **Standard safety requirements must be observed when working on electrical systems!**
- Only switch on the supply voltage for the device when the connection tasks have been completed and the wiring has been thoroughly checked.
- When using extension cables with open ends, ensure that bare wire ends do not come into contact with each other (risk of short-circuit when supply voltage is switched on!). Wires must be appropriately insulated from each other.
- Wire cross-sections in the supply cable from the user's power system must be selected in accordance with the applicable standards.
- The sensor must be protected with a fuse suitable for the cross-circuit of the connecting cable.
- Only operate the device with an LPS (limited power source) in accordance with IEC 62368-1 or an NEC Class 2 power supply unit.
- All circuits connected to the device must be designed as SELV/PELV circuits.

**NOTE****Layout of data cables**

- Implement the shielding design correctly and completely.
- To avoid interference, e.g., from switching power supplies, motors, clocked drives, and contactors, always use cables and layouts that are suitable for EMC.
- Do not lay cables over long distances in parallel with voltage supply cables and motor cables in cable channels.

The IP enclosure rating for the device is only achieved under the following conditions:

- The cables plugged into the connections are screwed tight.

If these instructions are not complied with, the IP enclosure rating for the device is not guaranteed!

5.2 Note on the swivel connector



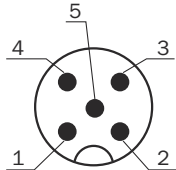
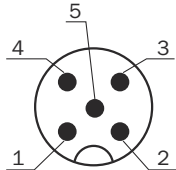
NOTICE

Damage to the connector unit from over-tightening!

The connector unit on the device has two opposite end positions.

- Do not rotate the connector unit from either of the two end positions by more than 270°.

5.3 Pin assignment of the connections

AS30	
1 - BN	L+
2 - WH	Qa
3 - BU	M
4 - BK	C/Q
5 - GY	MF
	

Legend

L+ = Supply voltage

Qa = Analog output (information can be selected via edge 1, edge 2 or width/center line)

M = Ground

C/Q = Communication and switching output

MF = External input, external teach-in, QL1 output, QL2 output, background teach-in, input for changing the reading and searching direction, external illumination, activation of the internal illumination.



NOTICE

Crosstalk can occur on the analog output in IO-Link operation. Simultaneous operation is not recommended.

5.4 Connecting the supply voltage



NOTICE

Risk of damage to the device!

The device can become damaged if it is connected to a voltage supply that is already switched on.

- Only connect the device when the supply cable is de-energized.

The device must be connected to a power supply unit with the following properties:

- Supply voltage DC 18 V – 30 V (SELV/PELV as per currently valid standards)
- Electricity source with at least 3.1 W power

To ensure protection against short-circuits/overload in the customer’s supply cables, the wire cross-sections used must be appropriately selected and protected.

5.5 Wiring the interfaces

5.5.1 Wiring the digital inputs

Voltage level at the input starts the corresponding function of the device.

Electrical values

High: $12\text{ V} \leq U \leq U_V$

Low: $0\text{ V} \leq U \leq 9\text{ V}$

5.5.2 Wiring the digital outputs

In each case, the digital outputs are short-circuit protected and overcurrent protected.

Push/pull switching behavior

Electrical values

The sum current (100 mA) for all digital outputs is identical.

Push/pull

High: $V_S - 3\text{ V}$

Low: $\leq 3\text{ V}$

In the case of a push/pull sensor with PNP behavior, the signal must be inverted in the control system in order to obtain the same result as a sensor with NPN switching behavior.

Multi Edge			
	Output 1: Edge 1 Output 2: Edge 2 Output 3: 0	Output 1: Edge 1 Output 2: Edge 2 Output 3: Edge 3	Output 1: 0 Output 2: 0 Output 3: 0
Q Push-pull ($\leq 100\text{ mA}$)			

6 Commissioning

Detection initially takes place even without teach-in; the first (up to) 8 edges seen from the male connector side in each case are detected in the field of view. Further settings, such as operation mode, sensitivity adjustments, reading direction, etc., can be set via SOPAS ET.

7 Operation

7.1 Control elements

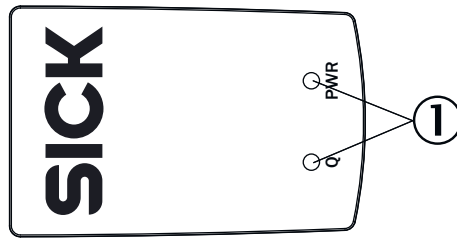


Figure 2: Control elements

Table 2: Control elements and functions

Number	Name	Function
1	PWR LED display	Illuminates when the voltage supply is connected.
1	LED Q display	Lights up when an edge is detected in the field of view.

7.2 Settings via SOPAS



NOTICE

In this section, the operation of the sensor via the SOPAS configuration software is described.

The SOPAS ET software can be downloaded from the following link: <https://www.sick.com/de/en/sopas-engineering-tool/p/p367244>

The driver for this product can be found at www.sick.com/AS30.

7.2.1 Setting up the sensor

The sensor can be set up with the wizard.

The alignment of the sensor (sensing distance, mounting angle) is optimized using the supplied alignment aid.

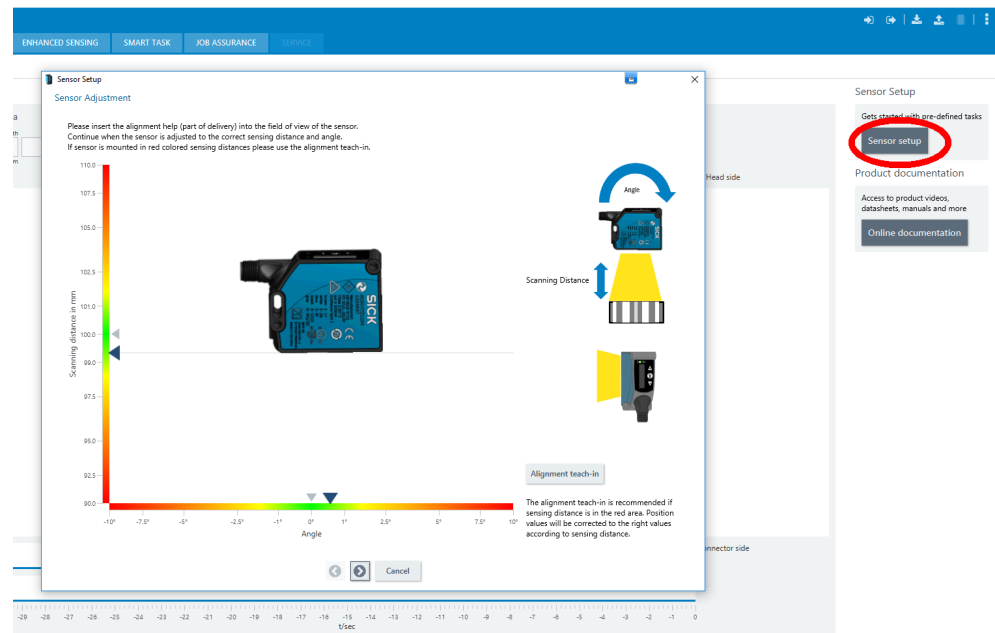


Figure 3: Sensor setup wizard

In SOPAS program

1. Start the wizard with the Sensor setup pushbutton
2. Follow the instructions from the wizard
 - Optimize the sensor alignment (sensing distance and mounting bracket).

7.2.2 Sensor adjustment and diagnostics

The sensor settings can be edited on the “General Device Settings + Diagnostics” tab. These are:

- **Background**
Adjustment of the sensor background between scanning mode, reflector mode and auto setting.
The reflector option is recommended for very glossy or (semi-)transparent objects. With the auto option, the sensor automatically detects a mounted reflector in the background. If this setting is selected during operation, the sensor must be restarted. If an edge is taught in, the background set in the auto option is retained.
- **Reading direction**
AS30 Prime - Extended Field of View offers 2 reading directions. The edge position values are output in the configured direction. The analog output on pin 2 switches accordingly. The options are
 - From the male connector to the head side (default) -
 - From the head side to the male connector
 - Defined by input pin: Select this option to configure the reading direction via the input on pin 5.
- **Pin 2 configuration**
Pin 2 is the analog output of the detected edge and can be configured and deactivated between edge 1 to edge 8 and up to 8 functions of two edges.
- **Pin 5 configuration**
Pin 5 can be configured either as an external input for smart task functions, an output for edge teach-in, a second digital switching output, an input for running a reflector teach or an input for changing the reading direction (activate “Defined by input pin” for this).

- **Other settings (see figure 4)**
 - Activate/deactivate emitted light
 - Set find-me function
 - Set IO-Link events
 - Performing a reflector teach-in
 - Diagnostic display (including operating hours, temperature, or setting the “Quality of Run” alarm threshold)

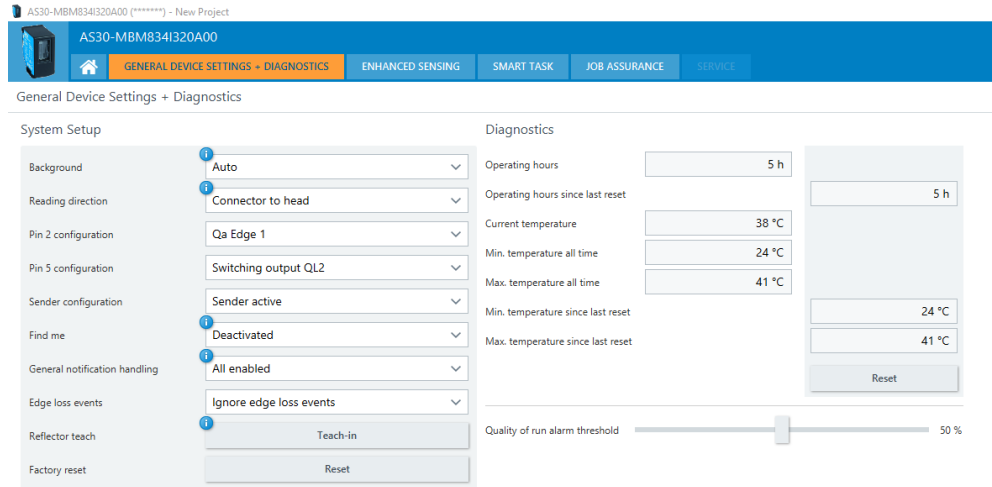


Figure 4: General Device Settings + Diagnostics tab

7.2.3 Process Setup

The Process Setup menu has several functions:

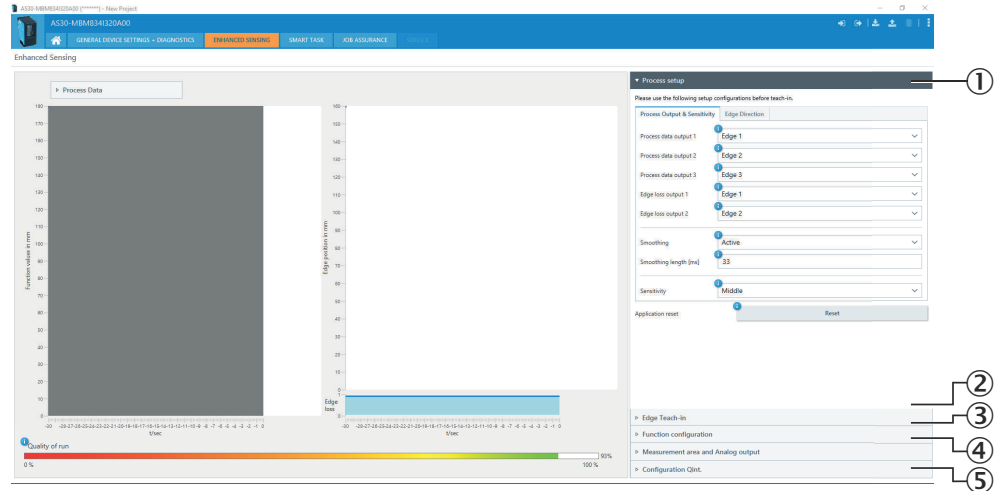


Figure 5: Process Setup

- The parameters of the process data can be set in the “Process Setup” function in the “Process Output & Sensitivity” tab. The AS30 Prime - Extended Field of View offers three pieces of edge information as process data and transmits them in Parameter Output 1 - 3. Edges or functions can be assigned to these three parameters. Example: Here, the position values of the first edge (Edge 1) are output under Process data output 1.
For two output values (edges or functions), an indication can also be given via IO-Link if the edge or function has been lost. Example: The edge position of e.g. 3 edges can be output via Output 1-3 (Edge 1 - 3).
"Edge loss output 1 & 2" defines which of the edges is output as present or lost in the process data. If a function is selected in "Edge loss output 1 & 2", it contains all edges that are used to calculate the function. If one of the two selected edges / functions is not completely present, this is displayed under "Edge loss".
Furthermore, the output values can be smoothed by a defined value in ms. Please note that only even cycle times are possible, it will be rounded down if an odd entry is made. The respective output values are then averaged within this time window.
The sensitivity adjustment of the device can also be set here as a global value.

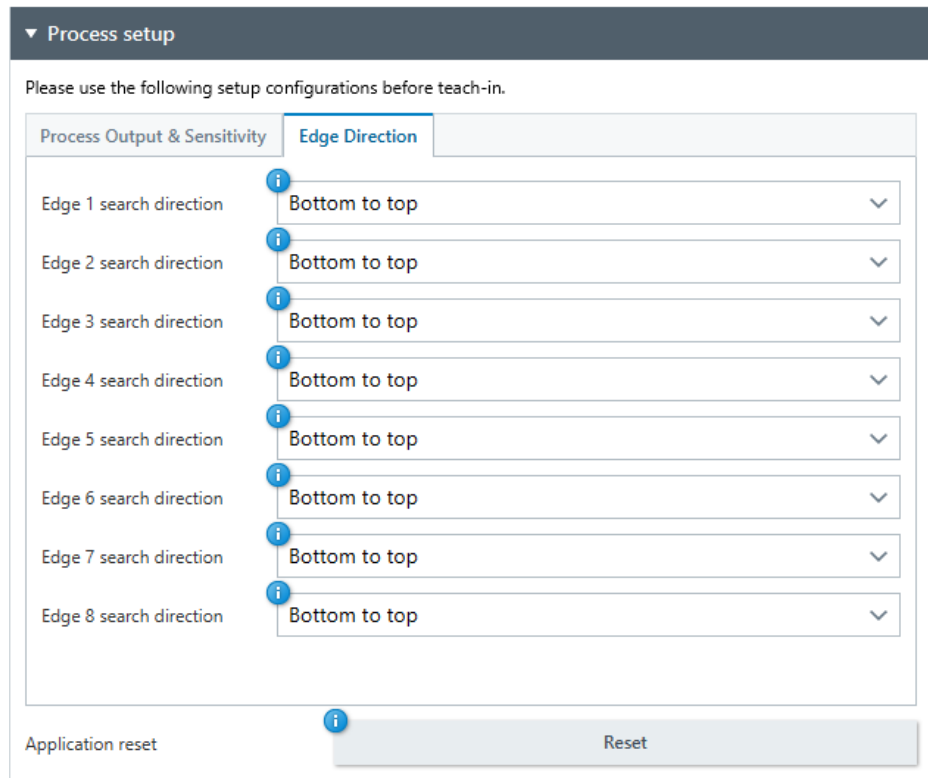
▼ Process setup

Please use the following setup configurations before teach-in.

Process Output & Sensitivity	Edge Direction
Process data output 1	Edge 1
Process data output 2	Edge 2
Process data output 3	Function 3
Edge loss output 1	Edge 1
Edge loss output 2	Edge 2
Smoothing	Active
Smoothing length [ms]	33
Sensitivity	Middle

Application reset
Reset

The edge search directions of the respective detected edges can be determined in the “Edge Direction” tab.



- 2 Several edges can be taught in under "Edge Teach-in". An easy teach-in teaches the detected edges in the reading direction. This ignores other edges and achieves a higher process stability. With an Advanced teach-in, the edges to be taught-in can also be selected from all detected edges.

▸ Process setup

▼ Edge Teach-in

Teach-in tolerance i Auto (Scaled by sensitivity) ▾

Automatic drift control i Active ▾

Device edge search mode i Normal ▾

Search field width in micrometer i 4,000

Easy Teach-in

Teach-in


Teach-in for clear allocation of the desired object and for more robustness against background influences. The sensor will teach-in the first edge in edge search direction.

Advanced Teach-in

Teach-in Wizard

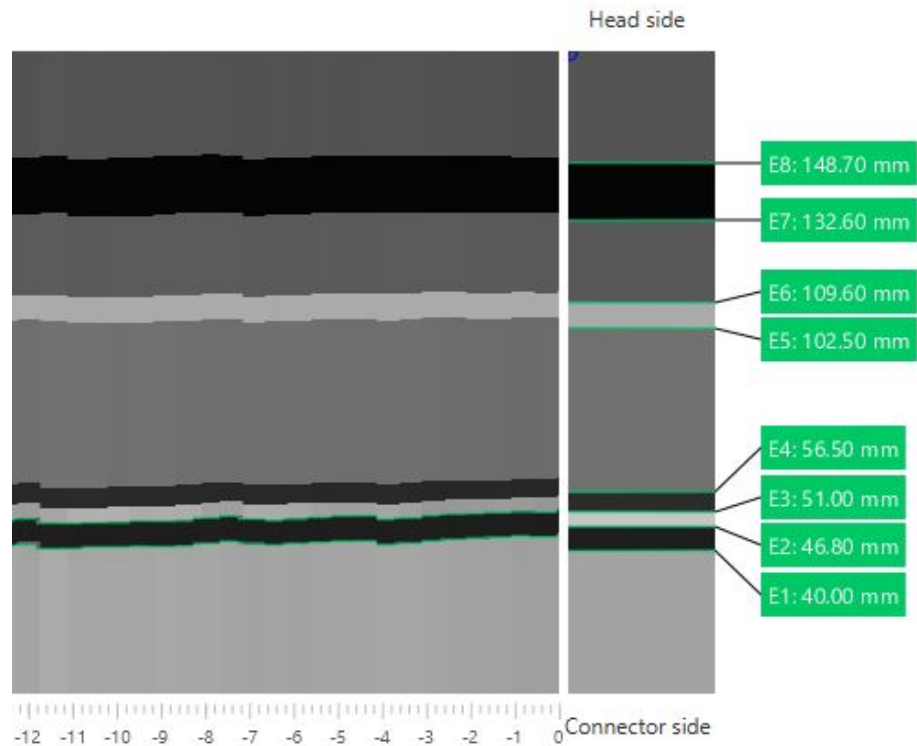
The Teach-in Wizard enables an individual edge selection. The Teach-in for clear allocation of the desired object and for more robustness against background influences

i Quality of teach

 62%

- Teach-in tolerance: Here you can set in three stages how precisely the taught-in edge must be detected in terms of edge width and contrast difference. In the coarse setting, edges that are less similar to the taught edge than in the sensitive setting, for example, are also detected.
- Automatic drift control: If active, the taught-in edge is readjusted over time in the event of contamination.
- Device edge search mode: The use of search fields can be activated here.
- Search field width in micrometer: During teach-in, a search field is placed around the edge position. The width of the search field can be set here beforehand. In the following, only edges within the respective search fields are accepted.

After clicking "Advanced teach-in," a separate dialog window opens. The current edge image can be frozen with "Teach-in snapshot." Up to 8 edges can now be defined for teach-in. The edges selected in each case are highlighted in green. The selection of the edges here corresponds to the reading direction of the sensor and the respective edge search direction per edge (see Process setup).



Teach-in snapshot

- 3 It is possible to define up to 8 functions in the “Function configuration” tab. Functions are links of two edge values or of function values already defined before. An offset is added to the respective function value, for example to prevent the values from becoming negative.

Links are:

“Width”: The width/distance between two edges

“Center”: The center point between two edges

“Sum”: The sum of the two edge or function values

“Subtract”: Subtraction of the two edge or function values

“Smallest”: The smallest of the two edge or function values

“Biggest”: The largest of the two edge or function values

▼ Function configuration

Here you can configure up to eight functions. The result is invalid if the result would be negative or higher than 6553.4. The offset gets applied in the calculation and can be used to avoid negative results. The result of a function can be the input of the next higher function.

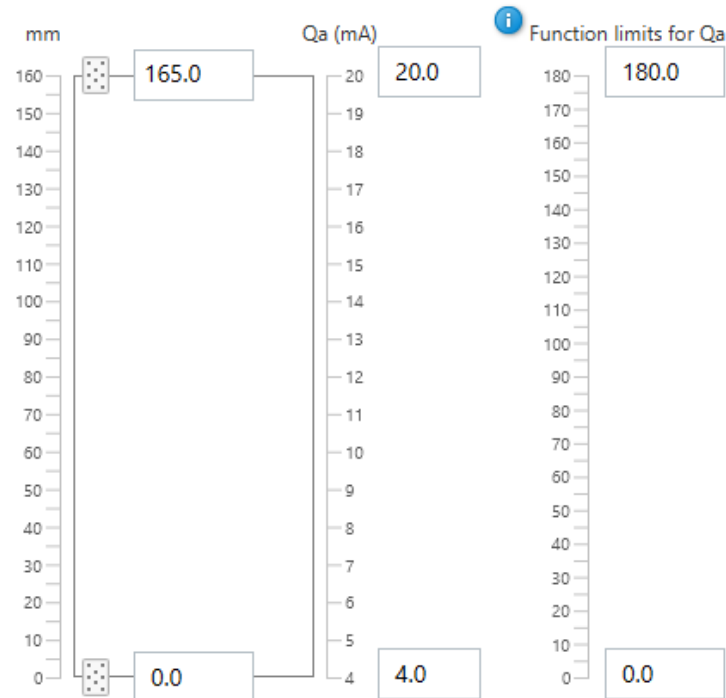
	Enable	Function	Input 1	Input 2	Offset
F1	<input checked="" type="checkbox"/>	Width	Edge 1	Edge 2	0.0
F2	<input checked="" type="checkbox"/>	Width	Edge 3	Edge 4	0.0
F3	<input checked="" type="checkbox"/>	Smallest	Function 1	Function 2	0.0
F4	<input type="checkbox"/>	Width	Edge 1	Edge 1	0.0
F5	<input type="checkbox"/>	Width	Edge 1	Edge 1	0.0
F6	<input type="checkbox"/>	Width	Edge 1	Edge 1	0.0
F7	<input type="checkbox"/>	Width	Edge 1	Edge 1	0.0
F8	<input type="checkbox"/>	Width	Edge 1	Edge 1	0.0

- 4 The field of view and analog output are configured in the “Measurement area and Analog output” area.

The field of view can be restricted from both sides and the analog output can be configured here. Here, different milliampere values (mA) can be defined for the respective events (e.g. “edge lost”). Furthermore, the function values can be assigned to the analog output (see "Sensor adjustment and diagnostics", page 19). This is relevant as soon as the function values are also output via the analog output. The function value can be greater than 165 mm because the function can, for example, be larger than the field of view due to the addition of various edge values. In the example shown, 20 mA is output on the analog output for a function value of 180 mm.

▼ Measurement area and Analog output

Configuration of the measurement area to restrict the active size of its Field of View (FOV). Also a individual setting of the analogue output and IO-Link values is possible. Therefore restrict the FOV per track and drop and fill in the desired analogue values in the boxes.



Edge loss immediate [mA]	<input type="text" value="3.0"/>
Edge loss top [mA]	<input type="text" value="20.5"/>
Edge loss bottom [mA]	<input type="text" value="3.5"/>

- 5 The switching points are configured in the Qint area. Up to 4 internal switching events (Qint) can be configured in this tab. You can choose between all 8 edges and the edge functions here. The respective switching events can be defined as switching point (single point mode), switching window (window mode) or upper and lower switching threshold (two point mode). The switching event is active when the upper switching point is exceeded and is deactivated when the value falls below the lower switching point.

▼ Configuration Qint.

The Qint. Configuration provides the possibility to place up to four internal switching outputs. Those can be used in different operating modes. Depending on the configuration you can use two of them as fast outputs on Pin 4 and 5. Those can be configured in "Smart Task".

Qint	Mode / Task	Setpoints [mm]	Teach	Invert	View
Qint 1	Single point mode	1 0.0	Start	<input type="checkbox"/>	
	Edge 1 position	2 160.0	Start		
Qint 2	Single point mode	1 0.0	Start	<input type="checkbox"/>	
	Edge 1 position	2 160.0	Start		
Qint 3	Single point mode	1 0.0	Start	<input type="checkbox"/>	
	Edge 1 position	2 160.0	Start		
Qint 4	Single point mode	1 0.0	Start	<input type="checkbox"/>	
	Edge 1 position	2 160.0	Start		

7.2.4 Smart Task

The "Smart Task" tab can be used to define the logic for various switching outputs, for example AND/OR or switching output configurations such as a delay. The switching output logic can, for example, link two internal "Qint" switching events or an external input defined in the "enhanced sensing" area, and link the resultant switching event with one of the two switching outputs of the sensor: QL1 (Pin 4) or QL2 (configurable on Pin 5).

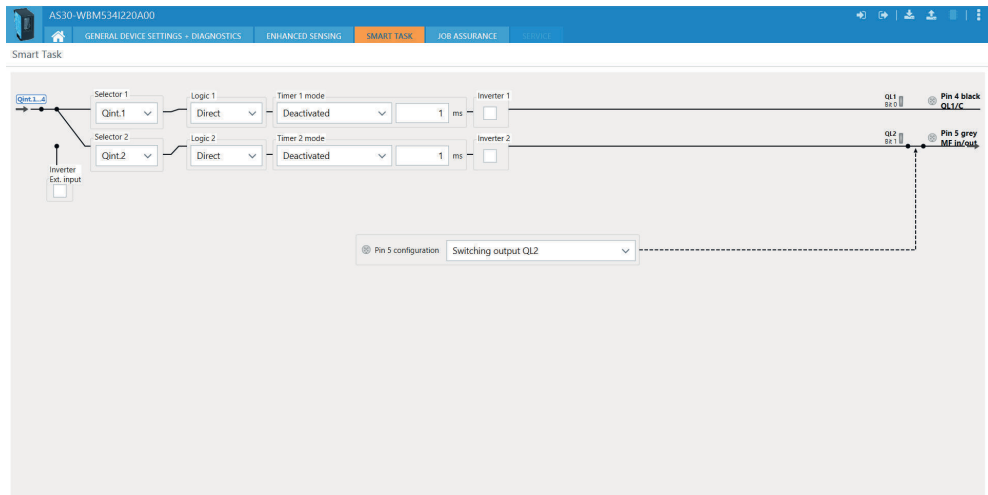


Figure 6: Smart Task

7.2.5 Job Assurance

The “Job Assurance” tab can be used to read and save or retransfer to the device the application configuration of the sensor as a “Job”.

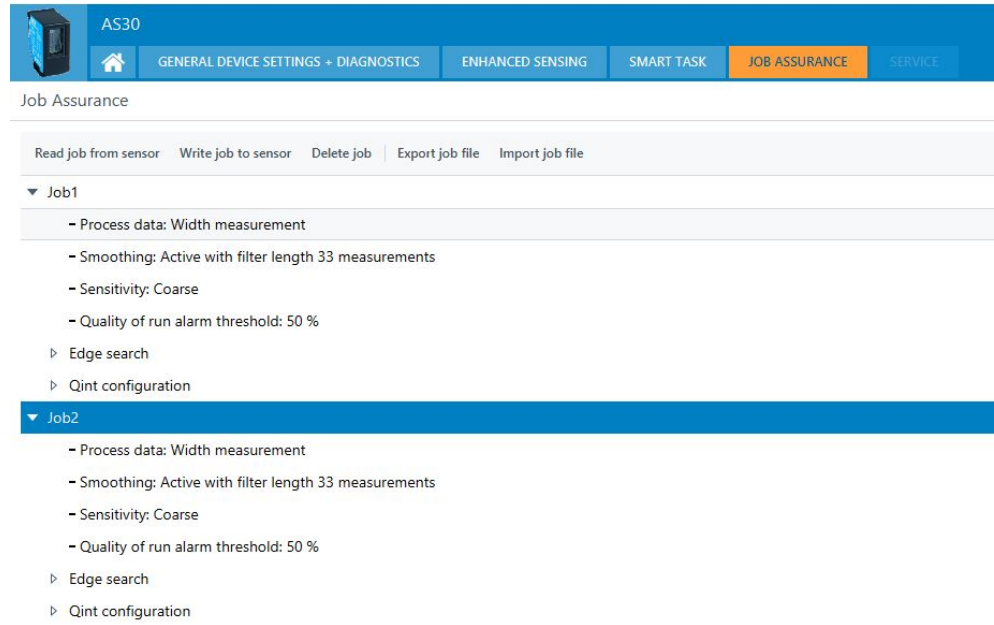


Figure 7: Job Assurance

8 Troubleshooting

8.1 Possible errors during commissioning

LED/fault pattern	Cause	Measures
Q-LED flashes	<ul style="list-style-type: none"> - Short-circuit / Overcurrent - Sensor is not connected properly 	<ul style="list-style-type: none"> - Disconnect sensor from the power network - Check pin assignment - Reconnect sensor - Check the current at the switching output
Regular, unwanted teach-in processes	Pin 5 configured as input for Edge Teach, but not activated.	Deactivate pin 5 or connect to GND.

8.2 Possible errors during operation

Table 3: Troubleshooting during operation

Display, error situation	Cause	Measure
No switching event any more	<ul style="list-style-type: none"> • Distance or angle to material not consistent • Sensor dirty • Target has changed 	<ul style="list-style-type: none"> • Clean sensor • Readjust sensor • Check parameter settings • Perform teach process again
Field of view does not correspond to the actual value	<ul style="list-style-type: none"> • Sensing distance incorrect • Reading direction incorrect 	Realign sensor
An edge is detected even though there is no object in the field of view	<ul style="list-style-type: none"> • Sensor dirty • In reflector mode: Reflector not taught-in 	<ul style="list-style-type: none"> • Clean sensor • Teach in reflector

9 Maintenance

9.1 Maintenance

During operation, the device works maintenance-free.

Depending on the assignment location, the following preventive maintenance tasks may be required for the device at regular intervals:

Table 4: Maintenance schedule

Maintenance work	Interval	Implementation
Clean housing and front screen	Cleaning interval depends on ambient conditions and climate	Specialist
Check screw connections and plug connectors	Every 6 months	Specialist

9.2 Cleaning the device

At regular intervals (e.g., weekly), check the light emission window and the housing of the device for dirt. This is especially relevant in harsh operating environments (dust, abrasion, damp, fingerprints, etc.). The lens of the light emission window must be kept clean and dry during operation.



NOTICE

Device damage due to improper cleaning!

Improper cleaning may result in device damage.

- Only use suitable cleaning agents.
- Never use sharp objects for cleaning.

Cleaning the light emission window



NOTICE

Damage to the light emission window!

Reduced reading performance due to scratches or streaks on the light emission window!

- ▶ Clean the light emission window only when wet.
- ▶ Use a mild cleaning agent that does not contain powder additives. Do not use aggressive cleaning agents, such as acetone, etc.
- ▶ Avoid any movements that could cause scratches or abrasions on the light emission window.
- ▶ Only use cleaning agents suitable for the lens material.



NOTE

Static charge may cause dust particles to stick to the light emission window. This effect can be avoided by using an anti-static glass cleaner in combination with the SICK lens cloth (can be obtained from www.sick.com).



NOTE

If the light emission window is scratched or damaged (cracked or broken), the device must be replaced. Contact SICK Service to arrange this.

Cleaning the housing

In order to ensure that the heat produced by the internal power loss is adequately dissipated, the housing surface must be kept clean.

10 Decommissioning

10.1 Disassembly and disposal

Disassembling the device

1. Switch off the supply voltage to the device.
2. Detach all connecting cables from the device.
3. If the device is being replaced, mark its position and alignment on the bracket or surroundings.
4. Detach the device from the bracket.

Disposing of the device

Any device which can no longer be used must be disposed off in an environmentally friendly manner in accordance with the applicable country-specific waste disposal regulations.




NOTE

Disposal of batteries, electric and electronic devices

- According to international directives, batteries, accumulators and electrical or electronic devices must not be disposed of in general waste.
- The owner is obliged by law to return this devices at the end of their life to the respective public collection points.



 This symbol on the product, its package or in this document, indicates that a product is subject to these regulations.

10.2 Returning devices

- ▶ Do not dispatch devices to the SICK Service department without consultation.



NOTE

To enable efficient processing and allow us to determine the cause quickly, please include the following when making a return:

- Details of the contact person
 - Description of the application
 - Description of the fault that occurred
-

11 Technical data

11.1 General data

Table 5: Technical data

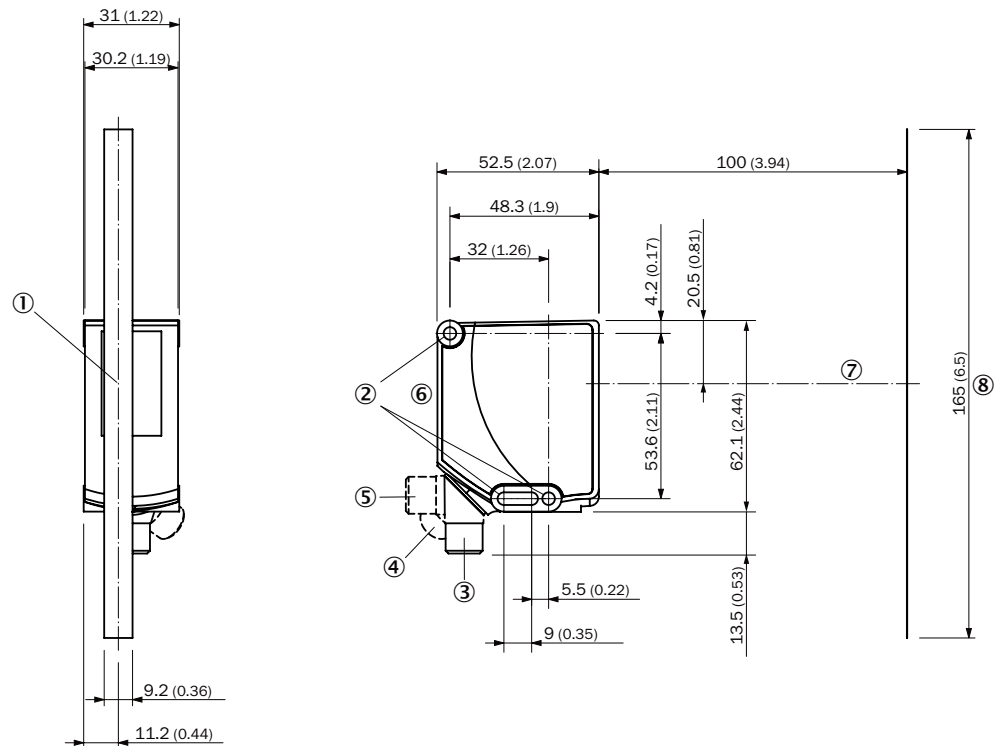
Attribute	Value
Type designation	AS30-MBM834I320A00
Part number	1118222
Operating modes	Multi-edge measurement
Principle of operation	Scanning and reflector
Sensing distance	100 mm
Working range	90...110 mm
Field of view	165 mm
Smallest detectable object (MDO)	2 mm ⁵⁾
Light source	LED, white
Wavelength	400 nm ... 700 nm
Light spot size	210 mm x 13.2 mm
Linearity of position value	±1%
Repeatability	± 0.15 mm
Resolution of the display or output value	0.1 mm
Alignment aid	IO-Link / SOPAS
Supply voltage	18-30 V DC
Ripple	≤5 V ¹⁾
Power consumption	< 3.1 W ²⁾
Digital output	Push/pull
Digital output (voltage)	Push / Pull: HIGH = VS - 3 V / LOW ≤3 V
Analog output	4 mA ... 20 mA
Analog output resolution	12 bit
Output rate of analog output	2 ms
Output current I _{max.}	< 100 mA ³⁾
Initialization time	0.48 s
Connection type	Male connector, M12, 5-pin ⁴⁾
Protection class	III
Circuit protection	U _v connections, reverse polarity protected Output Q, short-circuit protected and overcurrent protected Electronic interference pulse monitoring
Enclosure rating	IP67
Weight	250 g
Housing material	Zinc die cast, powder-coated
Ambient temperature, operation	-10 °C ... +55 °C
Ambient temperature, storage	-25 °C ... +75 °C
Impact load	Acc. to IEC 60068
UL file no.	NRKH.E181493 (US) NRKH7.E181493 (Canada)

Attribute	Value
Communication interface	IO-Link V1.1
Communication interface detailed	COM3
Cycle time	min. 1.1 ms
Process data length	8 bytes

- 1) Must not fall below or exceed U_B tolerances.
- 2) Without load
- 3) Sum current of all outputs
- 4) Male connector $I_n = 2A$
- 5) Sensitivity = fine

11.2 Dimensional drawing

AS30 Prime - Extended Field of View



- ① Center field of view
- ② fixing hole
- ③ Connector M12, as-delivery state
- ④ Connector M12, mechanical stop right
- ⑤ Connector M12, mechanical stop left
- ⑥ Display and setting elements
- ⑦ optical axis
- ⑧ viewing range

12 Accessories



NOTE

Additional accessories can be found on the online product page at:

- ▶ www.sick.com/AS30
-

13 Annex

13.1 EU declaration of conformity

The EU declaration of conformity and other certificates can be downloaded from the Internet at:

▶ www.sick.com/AS30

13.2 Certification according to UL60947-5-2



The AS30 Prime series array sensors are certified in accordance with UL60947-5-2 if they are supplied with power by LPS or Class 2 power supply units.

The certification is only valid with corresponding device identification on the type label of the respective device.

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