



## PS30

MOVING RAPIDLY FROM PATTERN DETECTION TO PRECISE  
POSITION IDENTIFICATION

Pattern sensors

**SICK**  
Sensor Intelligence.

# THE PERFECT PARTNER WHEN WHAT YOU REQUIRE IS PRECISION, SPEED, AND EFFICIENCY: THE PS30

The PS30 pattern sensor detects even complex patterns quickly and precisely. Based on the principle of operation of a line sensor, it delivers a stable switching signal – even at high object speeds. The PS30 therefore really plays to its strengths in presence monitoring applications and when identifying the position of labels, packaging material, or tubes. Special position detection marks are no longer required – the pattern alone tells the PS30 every-

thing it needs to know. Increased design freedom, reduced material consumption, and effective process control are the advantages. The PS30 is also the perfect choice when it comes to integration into the machine controller: Thanks to an Ethernet interface, the inclusion of function blocks, a web server, and configuration/diagnostic software, rapid commissioning, automated format changes, and visual diagnostics are a walk in the park.



## More flexibility, more applications: patterns instead of marks

Once the PS30 has its eye on a pattern, it never lets it out of its sight. This characteristic allows it to offer increased flexibility: the PS30 is therefore not just impressive when used on endless tracks – it also delivers outstanding results when detecting patterns on individual objects:

### 1. Endless track: labeling machine/tubular bag packaging machine/non-woven products:

Particularly in the area of roll-fed labeling, the pattern sensor offers a number of advantages. Typical applications are the markless control of the cutting process for singulation of labels without print marks, the positioning of tubular bag machines or the processing of non-woven material, e.g. in diaper production. The sensor ensures a more stable machine process and minimizes possible scrap due to incorrect cutting.

Applying disruptive marks to drink labels and packaging due to process control requirements is now a thing of the past.

### 2. Single object: tube filling machine, cardboard packaging processing

It isn't just on endless tracks where the PS30 plays to its strengths – it is just as effective when processing single objects. For example, tubes have to be placed in the correct position before they are sealed. The special marks that were previously required are now completely redundant thanks to the PS30. The same applies when it comes to correctly positioning cardboard boxes before the next processing step (perforating or folding).



## Complete design freedom

Previously used banderole with contrast mark



This label area has had to be designed in low-contrast until now in order to ensure that the sensor switches reliably and clearly. If there was a print resembling a mark, as shown here, a complex intervention in the machine controller was necessary in order to identify the correct mark.

← Previously required material in order to cover the “unaesthetic” contrast mark →

New banderole without contrast mark and with complete design freedom for the entire area



← Actual overlap area required for adhesion and a rounded finish →

Material savings allow costs to be reduced. It is no longer necessary to cover the contrast mark by overlapping the material.

# PS30: SIMPLY FAST, SIMPLY PRECISE, RAPIDLY READY FOR USE

The flexibility of a camera combined with rapid and precise object detection: these are the advantages of the PS30.

## Simply precise

Pattern detection and the recording of significant reference areas provide you with distinct measuring points and much more information than would be the case with a print mark. The result: reliable and safe detection – even with complex patterns.

## Simply fast

Pattern detection takes place reliably thanks to the analysis of significant and distinct image areas – the entire image does not need to be analyzed. The result: very fast response time, precision even at high speed.

## Rapidly ready for use

The reference image is recorded using an automated teach-in process. This is initiated either manually at the operating element or remotely via the machine controller. For commissioning, configuration, and diagnostics too, the PS30 makes your work easy: Function blocks for a whole host of machine controllers, OPC servers, and a configuration and diagnostic tool provided via a web server (SOPAS) save time and money. The PS30 can even handle object changeovers in exemplary fashion in a fully automated process: Using the tools, reference images can be saved and retrieved, enabling rapid machine conversion times.

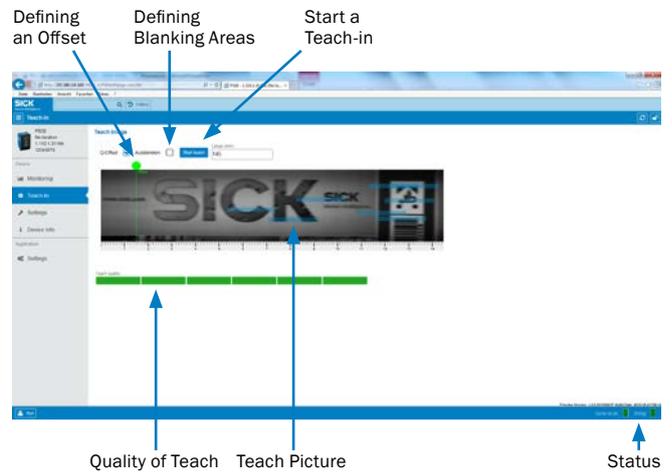


Configuration / Diagnostic			
Manually	Remote / Ethernet		
Device panel	PC	HMI	PLC
Menu	Webserver/ SOPASair	OPC/WebServer Controls	Function blobs
			

## Configuration with SOPASair

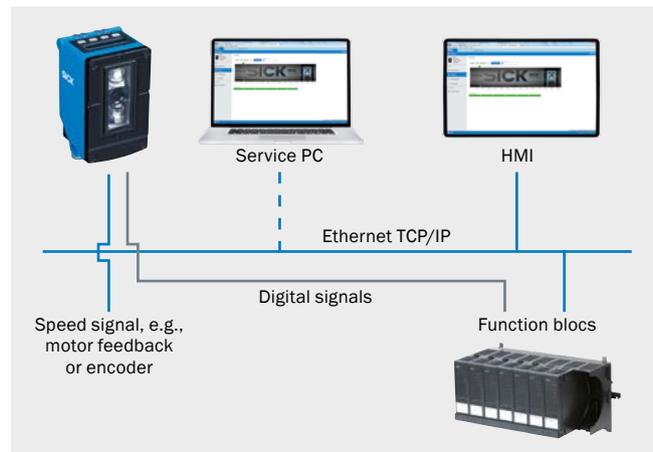
There isn't a setting that can't be made with SICK's SOPASair web interface. Here are just a few examples:

- Sensor configuration
- Visualization of teach-in and process images
- Visualization of process quality
- Definition of switching position and masking areas with variable cursor using drag-and-drop
- Saving and reuse of formats that have been taught in previously



## System overview

The PS30 pattern sensor can be integrated into the machine environment, enabling fast process data, such as switching output or teach-in input, via digital I/O signals. Communication between the machine controls and the sensor, for carrying out configuration and service functions, via an Ethernet TCP/IP interface. The user-friendly visualization with SOPASair via HMI offers significant added value for the user in terms of process control. If desired, operation can also be temporarily carried out via PC during a service call.



# FROM PATTERN DETECTION TO RAPID POSITION IDENTIFICATION



## Product description

The PS30 is a proximity scanning opto-electronic sensor. Distinctive, taught-in patterns in an image are used as a reference for the subsequent reliable detection and positioning of objects. A stable switching signal is generated at high speed thanks to new technology without special reference marks. The

markless sensor is ideal for applications in the packaging industry. User-friendly configuration is offered via the sensor's control panel, via the SOPAS configuration software, or by using the machine controller's PLC/HMI via an Ethernet connection. Engineering tools for configuration and diagnosis are available.

## At a glance

- Rugged housing with rotatable male connector
- Scanning speed up to 10 m/s
- Reproducibility of up to 0.1 mm (2 Sigma)
- Ethernet interface for integration into the machine controller
- Integrated, visible object illumination
- Operating elements with cleartext display
- Software tools for visualized configuration and diagnosis of the sensor
- Automatic configuration when changing objects

## Your benefits

- Reliable detection, including of complex images, reduces system downtimes and rejects
- More freedom with respect to packaging design
- More efficient use of the product surface, as no print marks are necessary
- Faster and easier to change formats by teaching in saved formats
- Reliable production processes thanks to diagnosis of the teach-in and process quality
- Quick and easy sensor alignment thanks to a visible light spot and notches on the housing
- Short set-up times thanks to simple configuration via display, SOPAS web controls, or with PLC/HMI via Ethernet and using the software tools provided



## Additional information

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→ [www.sick.com/PS30](http://www.sick.com/PS30)

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



## Detailed technical data

## Features

Dimensions (W x H x D)	46 mm x 77 mm x 46 mm
Sensing distance	20 mm
Sensing distance tolerance	± 2.5 mm
Housing design (light emission)	Rectangular
Operating range	0 mm ... 34 mm
Light source <sup>1)</sup>	LED, White
Wave length	400 nm ... 700 nm
Light spot size	65 mm x 3 mm
Reproducibility	0.1 mm <sup>2)</sup> 0.3 mm <sup>3)</sup>
Max. movement speed	10 m/s
Adjustment	Start stop teach, start length teach
Image length (min.)	≥ 15 mm
Picture length (max.)	≤ 1,000 mm
Picture height (min.)	≥ 10 mm
Tolerance lateral movement	± 5 mm

<sup>1)</sup> Average service life: 100,000 h at  $T_U = +25$  °C.

<sup>2)</sup> At 3 m/s.

<sup>3)</sup> At 10 m/s.

## Mechanics/electronics

Supply voltage <sup>1)</sup>	12 V DC ... 30 V DC
Ripple <sup>2)</sup>	≤ 5 V <sub>pp</sub>
Power consumption <sup>3)</sup>	< 6 W
Switching output	PNP
Switching output (voltage)	PNP: HIGH = $V_S - \leq 2$ V / LOW < 0,5 V
Status output <sup>4)</sup>	PNP: HIGH = $V_S - \leq 2$ V / LOW < 0,5 V
Output current I <sub>max.</sub> <sup>5)</sup>	< 100 mA
Input, teach-in (ET)	PNP: Teach: U = 12 V ... < U <sub>v</sub> , Run: U < 2 V
Input, blanking input (AT) <sup>6)</sup>	PNP: blanked: U = 12 V ... < U <sub>v</sub> , free-running U < 2 V
Initialization time	< 10 s
Retention time (ET)	≥ 6 s, non-volatile memory
Connection type	Connector M12, 12-pin/Connector M12, 4-pin, rotatable up to 90° (Ethernet) / Connector M12, 12-pin/Connector M12, 4-pin, rotatable up (Ethernet) (depending on type)
Ambient light immunity	30,000 lx
Protection class	III
Circuit protection	U <sub>v</sub> connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP65
Weight	325 g
Housing material	Metal
Encoder resolution	100 μm ... 600 μm (in 1 μm)
Encoder input	Differentiel: 4,5 V - 5,5 V / TTL / RS-422, single ended: 12 V - 30 V / HTL / push-pull

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>v</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Detailed description of the status output in operating manual.

<sup>5)</sup> Sum I<sub>out</sub> = Q + Q status.

<sup>6)</sup> Fade-out of identical areas.

Ambient data

Ambient operating temperature	-10 °C ... +55 °C
Ambient storage temperature	-20 °C ... +75 °C
Shock load	According to IEC 60068
UL File No.	NRKH.E181493 & NRKH7.E181493

Ordering information

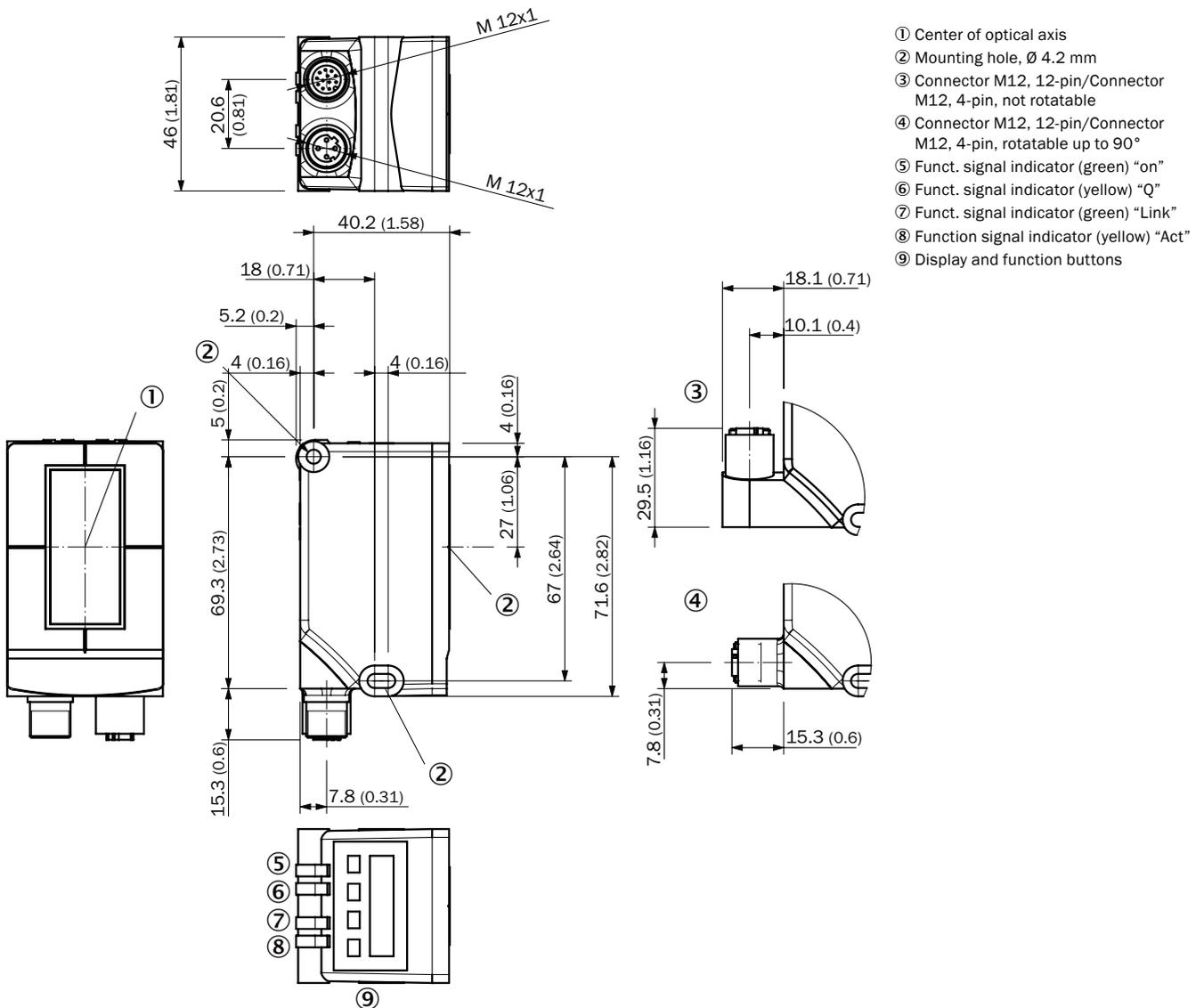
Other models → [www.sick.com/PS30](http://www.sick.com/PS30)

- **Data interface:** Ethernet

Sensing distance	Light source <sup>1)</sup>	Connection type	Connection diagram	Type	Part no.
20 mm	LED, White	Connector M12, 12-pin/ Connector M12, 4-pin, rotatable up to 90°	cd-320	PS30M-P1211	1074721
		Connector M12, 12-pin/ Connector M12, 4-pin, not rotatable	cd-320	PS30M-P1212	1081930

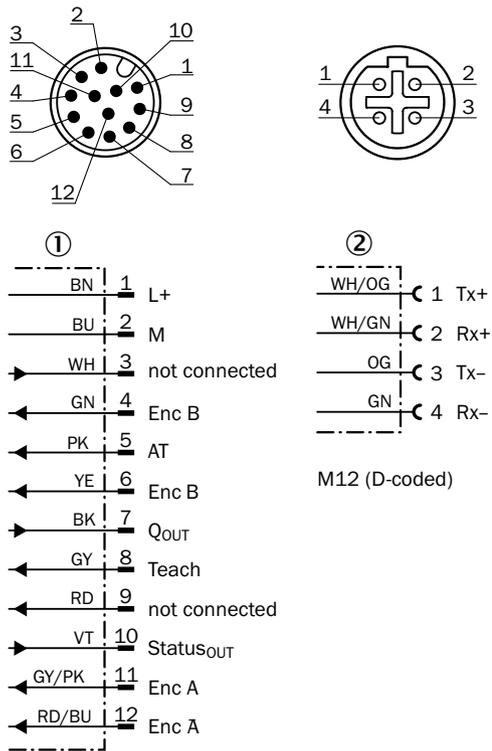
<sup>1)</sup> Average service life: 100,000 h at T<sub>0</sub> = +25 °C.

Dimensional drawing (Dimensions in mm (inch))



## Connection diagram

cd-320



M12 (A-coded)

- ① M12 connection diagram, 12-pin
- ② M12 connection diagram, 4-pin

## Recommended accessories

### Mounting systems

Universal bar clamp systems

Figure	Material	Description	Type	Part no.
	Zinc plated steel (sheet), Zinc die cast (clamping bracket)	Plate N04 for universal clamp, steel	BEF-KHS-N04	2051610
	Steel, zinc coated	Mounting bar, straight, 200 mm, steel	BEF-MS12G-A	4056054
	Steel, zinc coated	Mounting bar, L-shaped, 250 x 250 mm, steel	BEF-MS12L-B	4056053

Connection systems

Connecting cables with female connector

M12, 12-pin, PVC

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Female connector, M12, 12-pin, angled, shielded	Open cable ends, Flying leads	5 m, 12-wire, PVC	DOL-1212-W05MAS02	6044109
	Female connector, M12, 12-pin, straight, shielded	Open cable ends, Flying leads	5 m, 12-wire, twisted pair, PVC	DOL1212-G05MAS02	6042754

Connection cables with female connector and male connector

M12, 12-pin, PVC

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Female connector, M12, 12-pin, straight, shielded	Male connector, M12, 12-pin, straight	5 m, 12-wire, twisted pair, PVC	DSL-1212-G05MAS02	6045234

CCConnection cables with male and male connector

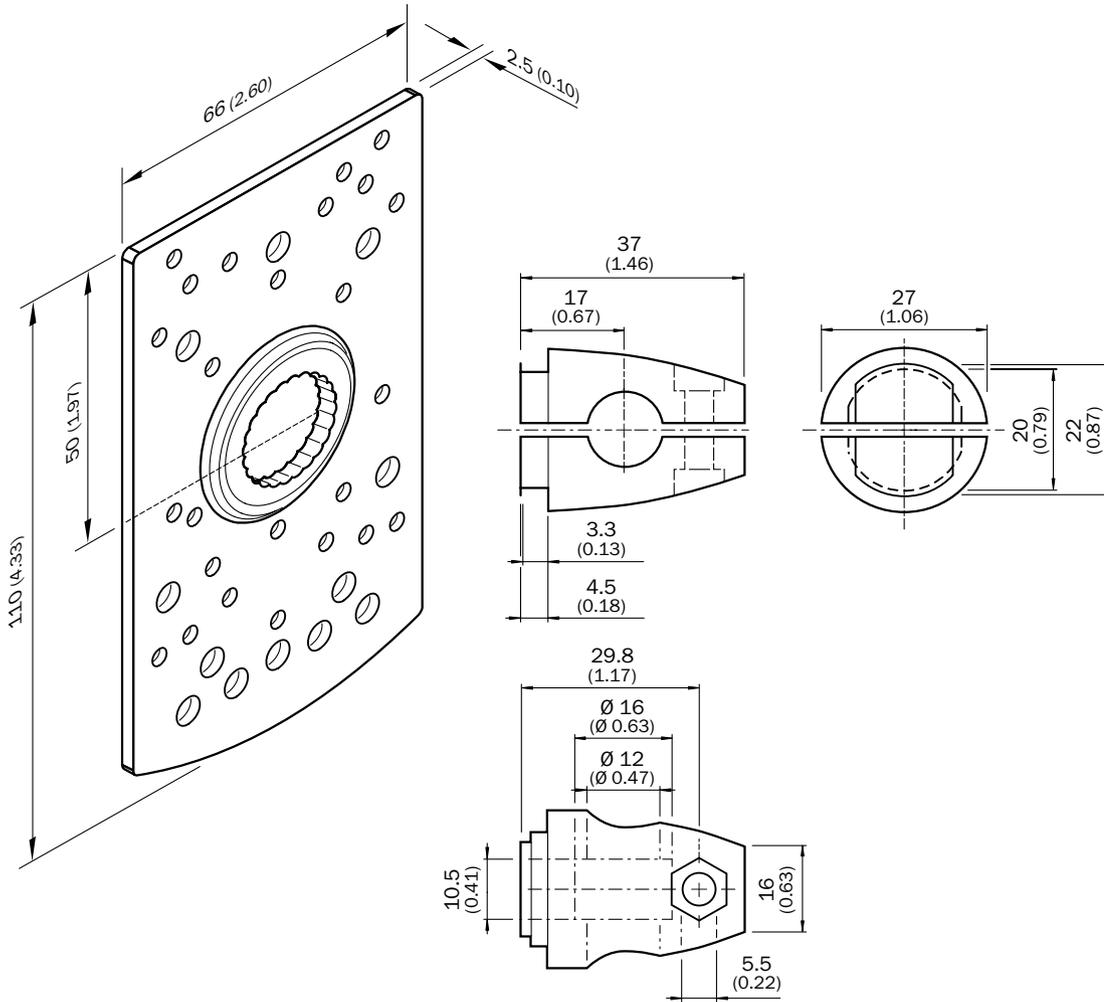
M12, 4-pin, PUR, halogen-free, Ethernet

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Male connector, M12, 4-pin, angled, D-coded, shielded	Male connector, RJ45, 8-pin, straight	5 m, 4-wire, AWG26, PUR, halogen-free	Connection cable (male connector-male connector)	6039488
	Male connector, M12, 4-pin, straight, D-coded, shielded	Male connector, RJ45, 8-pin, straight	5 m, 4-wire, AWG26, CAT5 (100 Mbit/s), PUR, halogen-free	SSL-2J04-G05ME	6034415

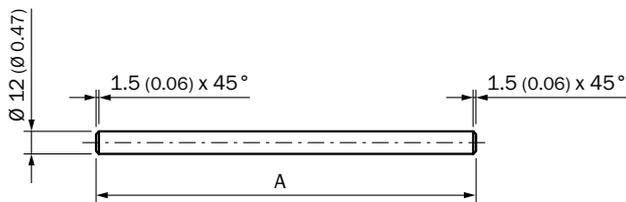
Dimensional drawings for accessories (Dimensions in mm (inch))

Universal bar clamp systems

BEF-KHS-N04

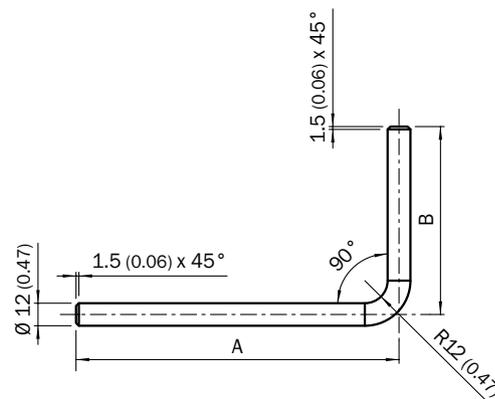


BEF-MS12G-A



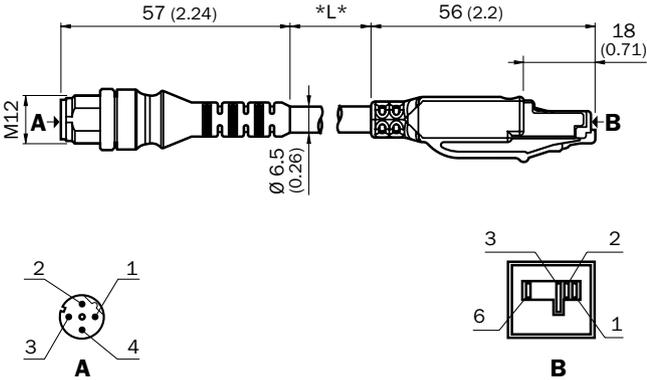
- ① BEF-MS12G-(N)A: A = 200 mm
- ② BEF-MS12G-(N)B: A = 300 mm

BEF-MS12L-B



- ① BEF-MS12L-(N)A: A = 150 mm, B = 150 mm
- ② BEF-MS12L-(N)B: A = 250 mm, B = 250 mm

Connection cables with male and male connector  
SSL-2J04-G05ME

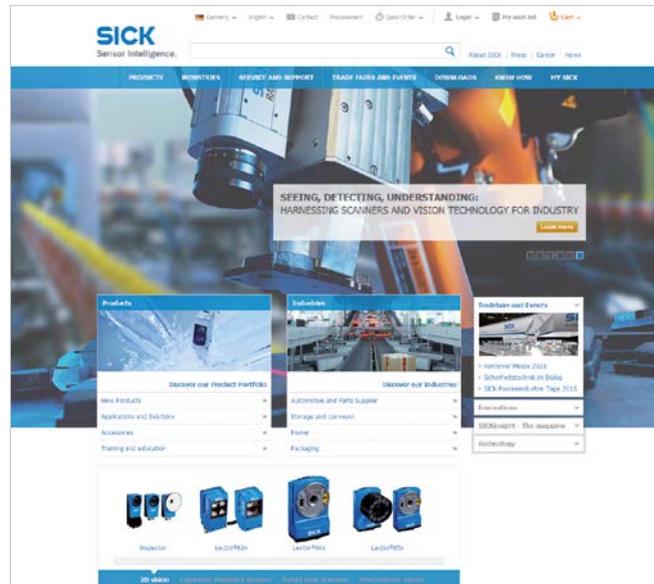






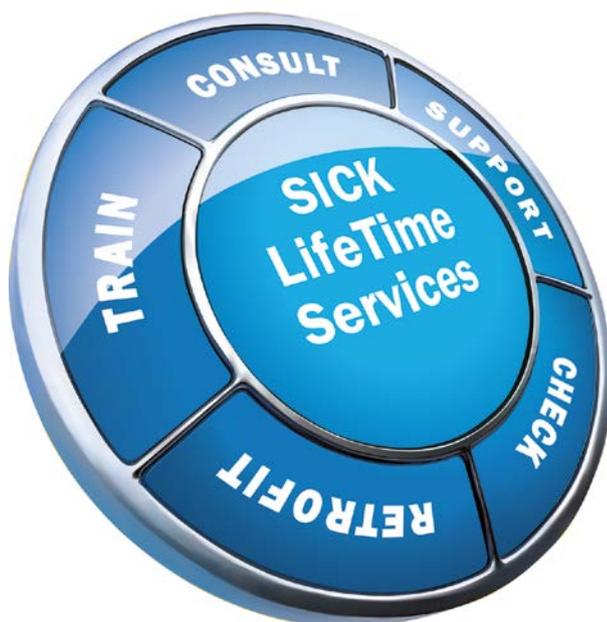
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- 
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- 
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- 
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 Safe and regularly inspected
- 
**Upgrade and retrofits**  
 Easy, safe and economical
- 
**Training and education**  
 Practical, focused and professional

## SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 8,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, we are always close to our customers. 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 various 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 round out our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is “Sensor Intelligence.”**

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