



IME2S/IQB2S

SAFE AND EASY POSITION MONITORING UP TO PL d

Safety switches

SICK
Sensor Intelligence.

SMALL SENSORS – BIG IMPACT

In industrial environments, sensors are not only enabling problem-free production processes but also the safety of people. Reliable safety technology provides the basis for a safe and productive collaboration between humans and machines.

The IME2S and IQB2S inductive safety switches are used for safe position, area, and presence monitoring. As components of an overall safety system, they deliver important information. In optimal collaboration with other safety components and employing tried-and-proven technologies, the sensors increase safety and productivity. Thanks to their compact dimensions and our comprehensive product portfolio, you are bound to find a suitable safety switch for your application.

Inductive technology is the ideal solution for safe position, area, and presence monitoring.



Millions of inductive sensors are currently in use in virtually all conceivable industries. The sensors work without making contact and are therefore low-wearing. They detect all types of metal so no separate actuator is required.

Their operating principle and advantages enable them to be used to protect automated industrial manufacturing processes and take them to the next level.

The IME2S and IQB2S inductive safety switches are a further development of the tried-and-proven IME and IQB proximity sensors and are ideally suited for safe position, area, and presence monitoring.



For non-safety-related automation tasks, we recommend inductive proximity sensors from SICK:

→ www.sick.com/inductive_proximity_sensors

A COMPACT PACKAGE OF: PRODUCTIVITY, COST EFFICIENCY, SIMPLICITY, AND FLEXIBILITY



Productive

With the help of additional, safety-related information about the machine's operating state, it is possible to implement even more flexible and therefore productive safety solutions. IME2S and IQB2S are also low-wearing, resistant to shocks and vibrations, and have a high electromagnetic compatibility. They are therefore ideally equipped for efficient operation, and increase the machine availability. Thanks to their precise detection and high switching accuracy, they make fast and reliable processes possible.

+ Rugged and precise for increased productivity



Cost-efficient

The simple installation, standardized connectivity, and no need for a separate actuator makes commissioning these safety sensors cost-efficient: IME2S and IQB2S can be quickly and easily connected by cable and integrated into the machine design. Thanks to the non-contact switching principle, they are also low-maintenance.

+ Easy integration and low maintenance costs



Simple and flexible

Protecting people, machines, and plants with the IME2S and IQB2S is really easy. The integrated diagnostics LED ensures fast commissioning and diagnosis, and the certification up to PL d makes it easier to verify the performance level of the overall system. With a comprehensive product portfolio to choose from, and space-saving installation thanks to their compact construction, these safety switches open up a wide range of applications.

+ Ideal for all safety applications, even in confined spaces



Proven safety technology from SICK

With more than 65 years of experience in safety technology, SICK develops intelligent solutions for protecting people and increasing productivity. Besides inductive safety switches, SICK also offers compatible controller solutions and other sensors for a wide variety of safety technology applications. A worldwide service network of SICK safety experts is available for quick support on-site. As a customer, you benefit from convenient full-service solutions and have a single contact person for all questions – this reduces complexity and costs.

+ Experience and expertise – from a single source.

You will find suitable safe control solutions in the Product overview:

→ [Safe control solutions](#)

USE OF INDUCTIVE SAFETY SWITCHES: ONE SWITCH – DIFFERENT TASKS



Safe position monitoring

The inductive safety switch checks the position of the axes of the rotating table to ensure safe conveying of the goods. Depending on the position of the rotating table, the safety controller receives an enable signal and the conveyor belt starts – this guarantees reliable conveying of goods.

- ⊕ **Reduced downtimes and high production reliability thanks to safe position monitoring**



Safe presence monitoring

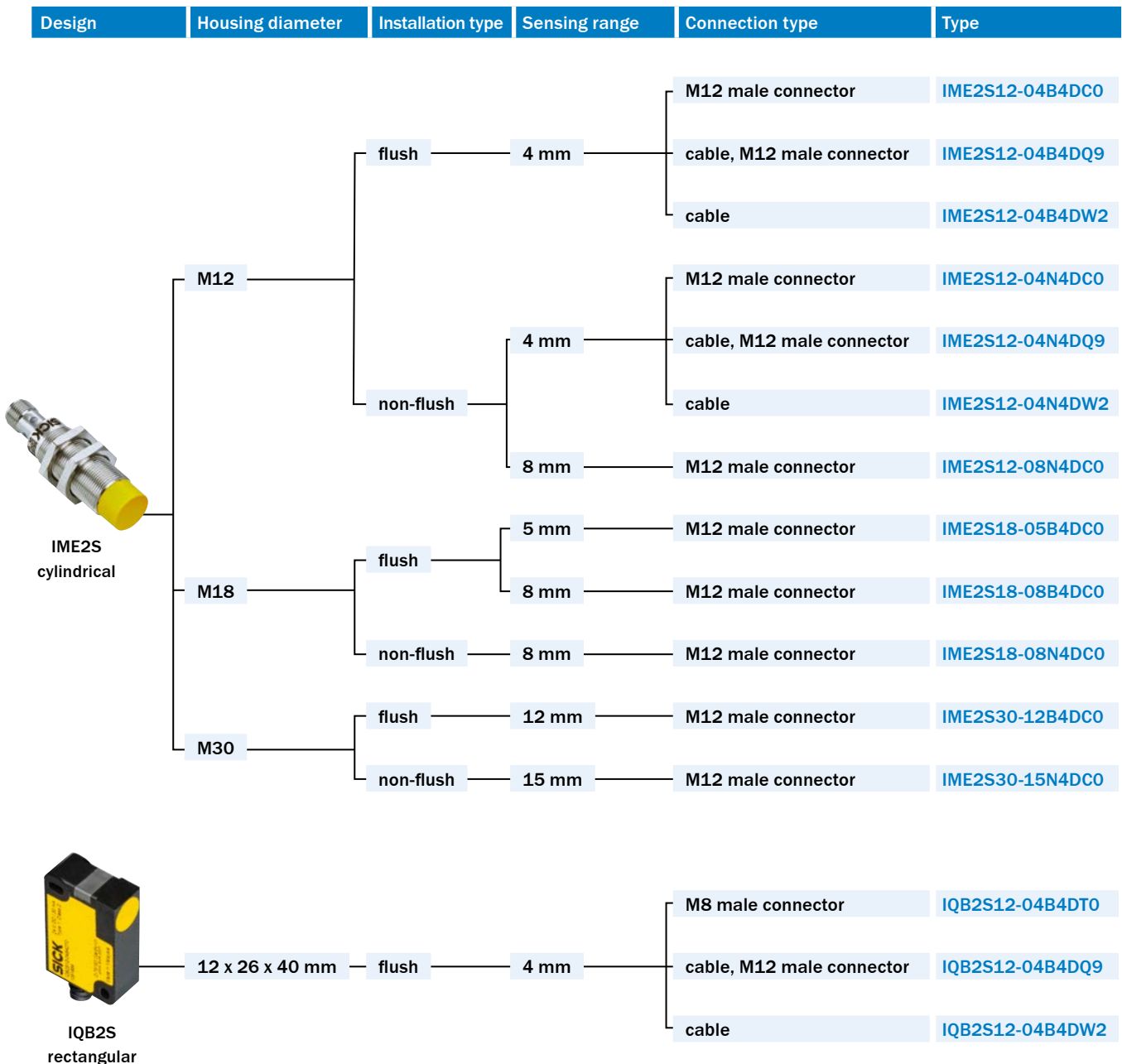
The inductive safety switch monitors the presence of a load unit on the automated guided vehicle (AGV). The safety controller uses the information about the loading status of the AGV to adapt the protective field of the safety laser scanner to the hazard situation. If the AGV is not loaded, it can move at higher speeds or the protective field can be shortened without putting persons at risk.

- ⊕ **Increased productivity and safety through dynamic adjustment of the speed and protective field**

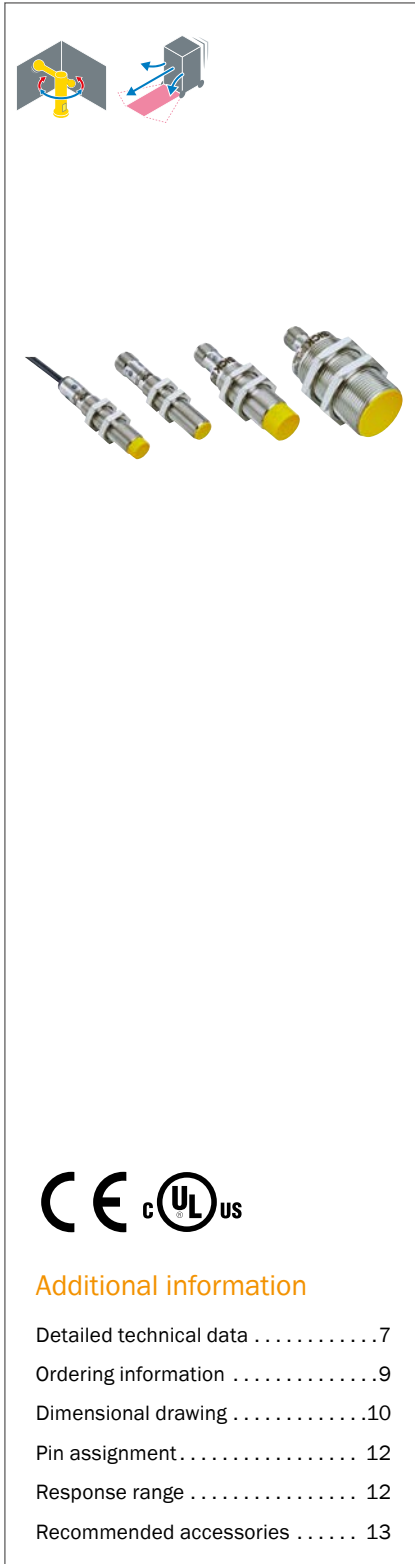
SMALL DESIGN – BIG PORTFOLIO

Freedom thanks to numerous product variants. The inductive safety sensors are available in a variety of sizes, in a cylindrical or rectangular design, for various response ranges, and as a flush or non-flush switch – the right product for every application.

The following diagram will help you to find the right product type quickly.



SAFE AND EASY POSITION MONITORING UP TO PL d



Product description

The inductive safety switches of the IME2S product family are used for safe position and area monitoring. Thanks to the very compact design and wide range of connection variants, they offer optimum integration into the machine design. The IME2S switches work without making contact and are low-wear. The inductive safety switches do not require a separate actuator to do their

monitoring tasks. On the contrary, they are generally activated by metals, for example on machines. Due to the large response range, the safety switches allow for assembly tolerances, simplifying mounting and adjustment. The IME2S can be connected to a safe control solution via its self-monitoring switching outputs (OSSDs), allowing for high safety with PL d (EN ISO 13849).

At a glance

- Types: M12 to M30
- Increased response ranges: 4 mm to 15 mm
- Two OSSD safety outputs
- Enclosure rating: IP67
- Temperature range: -25 °C to +70 °C
- Nickel-plated brass housing, plastic sensing face
- Up to performance level PL d (EN ISO 13849)
- Connection variants: M12 male connector, cable or cable with M12 male connector

Your benefits

- High machine availability thanks to low susceptibility to dirt and moisture
- Long product service life due to low-wear and low-maintenance workings
- Easy integration: Sensors can be mounted to save space thanks to their compact design and do not need a separate actuator
- Fast diagnostics via LED status indicator
- High reliability and precise switching behavior due to proven ASIC technology
- Safe, direct connection to a safe control solution by means of OSSDs
- Easy and flexible connection options thanks to variants with male connector, cable or cable with male connector

→ www.sick.com/IME2S

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

More detailed data can be found in the operating instructions. Download → www.sick.com/IME2S

Features

	IME2S12-04xxxxx	IME2S12-08xxxxx	IME2S18-08xxxxx	IME2S18-05xxxxx	IME2S30-12xxxxx	IME2S30-15xxxxx
Sensor principle	Inductive					
Number of safe outputs	2					
Housing diameter	M12	M12	M18	M18	M30	M30
Sensing range S_n	4 mm ¹⁾	8 mm ¹⁾		5 mm ¹⁾	12 mm ¹⁾	15 mm ¹⁾
Safe switch on distance S_{ao}	3.2 mm ¹⁾	6.5 mm ¹⁾		4 mm ¹⁾	9.6 mm ¹⁾	12 mm ¹⁾
Safe switch off distance S_{ar}	6 mm ¹⁾	12 mm ¹⁾		7.5 mm ¹⁾	18 mm ¹⁾	22.5 mm ¹⁾
Active sensor surfaces	1					
Actuation frequency	≤ 100 Hz					

¹⁾ Values apply for steel (FE360).

Safety-related parameters

Safety integrity level	SIL2 (IEC 61508), SILCL2 (EN 62061)
Category	Category 2 (ISO 13849-1)
Performance level	PL d (ISO 13849-1)
PFH_d (mean probability of a dangerous failure per hour)	6.0 x 10 ⁻⁸ (IEC 61508) ¹⁾
T_M (mission time)	20 years (ISO 13849-1)
Type	Type 3 (ISO 14119-1)
Safe state in the event of a fault	At least one safety-related semiconductor output (OSSD) is in the OFF state.

¹⁾ At 40 °C and 1000 m above sea level.

Functions

Safe series connection	With Flexi Loop (with diagnostics) (depending on type)
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Interfaces

Connection type	Male connector M12, 4-pin / Cable with M12 male connector, 4-pin / Cable, 4-wire (depending on type)
Diagnostics indicator	✓
Status display	✓

Electrical data

Protection class	III (IEC 61140)
Rated insulation voltage U_i	28.8 V
Rated impulse withstand voltage U_{imp}	1,500 V
Supply voltage V_s	24 V DC (19.2 V DC ... 28.8 V DC)
Power consumption	≤ 20 mA
Type of output	Semiconductor (OSSD)
Response time	≤ 1 ms
Enable time	1 ms ... 5 ms (depending on type)
Risk time	≤ 20 ms
Switch-on time	≤ 1 s

Mechanical data

Design	Cylindrical
Housing diameter	M12 / M18 / M30 (depending on type)
Material	
Housing	Nickel-plated brass
Sensor surface	VISTAL®
Cable	PVC
Installation type	Flush / non-flush (depending on type)

Ambient data

Enclosure rating	IP67 (IEC 60529)
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +70 °C
Relative humidity	50 %, at 70 °C (IEC 60947-5-2)
Vibration resistance	10 Hz ... 55 Hz, 1 mm (IEC 60947-5-2)
EMC	IEC 60947-5-2, IEC 60947-5-3, IEC 61000-6-7

Ordering information

Items supplied IME2S:

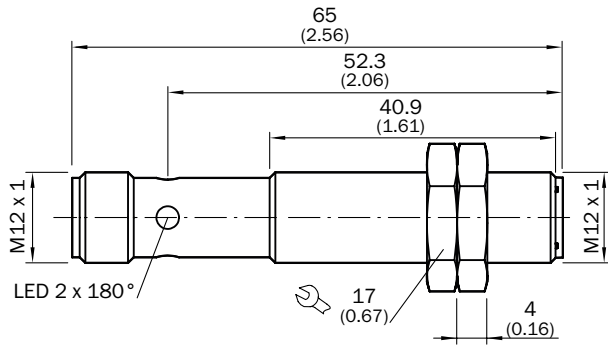
- Safety switch
- Fixing nuts
- Safety instruction
- Operating instructions for download → www.sick.com/IME2S

Design	Housing diameter	Installation type	Sensing range S_n	Safe series connection ¹⁾	Connection type	Type	Part no.	
Cylindrical	M12	Flush	4 mm	✓	Male connector M12, 4-pin	IME2S12-04B4DC0	1091944	
				✓	Cable with M12 male connector, 4-pin	IME2S12-04B4DQ9	1091142	
				-	Cable, 4-wire	IME2S12-04B4DW2	1091945	
		Non-flush	4 mm	✓	Male connector M12, 4-pin	IME2S12-04N4DC0	1091946	
				✓	Cable with M12 male connector, 4-pin	IME2S12-04N4DQ9	1091943	
				-	Cable, 4-wire	IME2S12-04N4DW2	1091947	
	8 mm	✓	Male connector M12, 4-pin	IME2S12-08N4DC0	1091948			
		M18	Flush	5 mm	✓	Male connector M12, 4-pin	IME2S18-05B4DC0	1091949
				8 mm	✓	Male connector M12, 4-pin	IME2S18-08B4DC0	1091951
	Non-flush	8 mm	✓	Male connector M12, 4-pin	IME2S18-08N4DC0	1091950		
	M30	Flush	12 mm	✓	Male connector M12, 4-pin	IME2S30-12B4DC0	1091952	
		Non-flush	15 mm	✓	Male connector M12, 4-pin	IME2S30-15N4DC0	1091953	

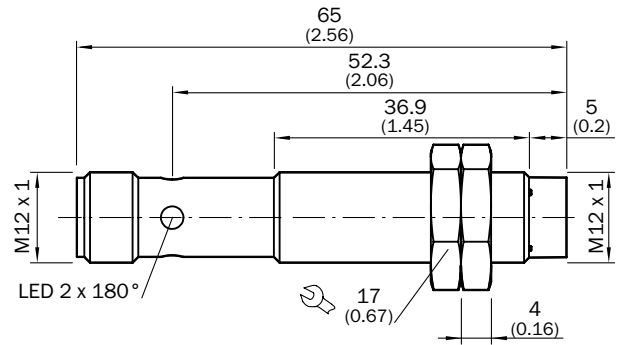
¹⁾ With Flexi Loop (with diagnostics)

Dimensional drawing

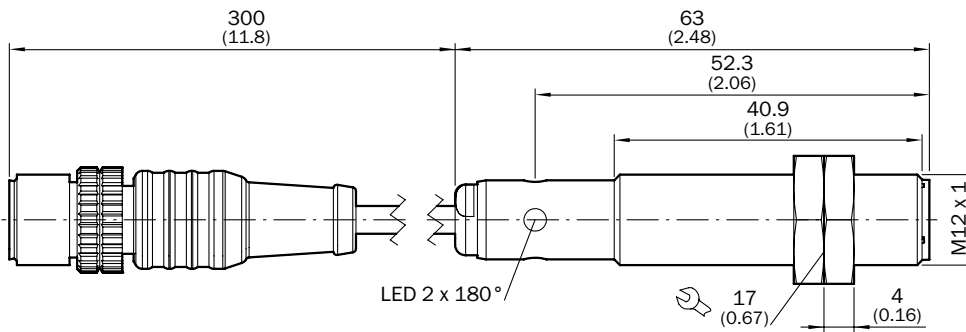
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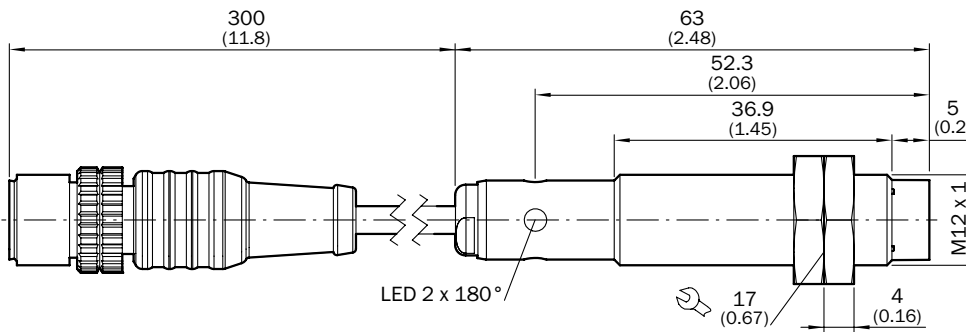
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IME2S12-08N4DC0



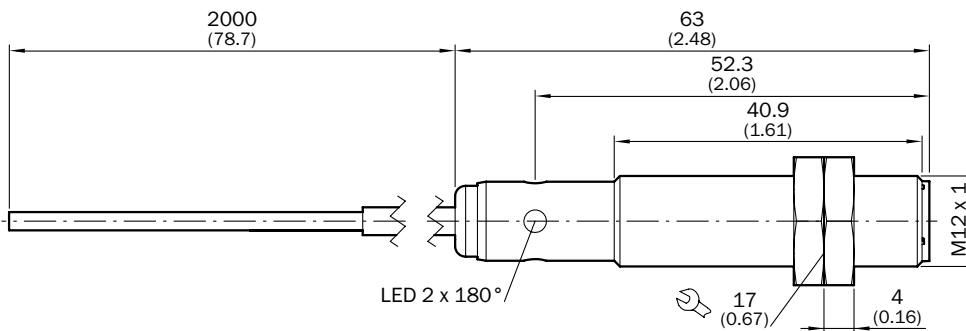
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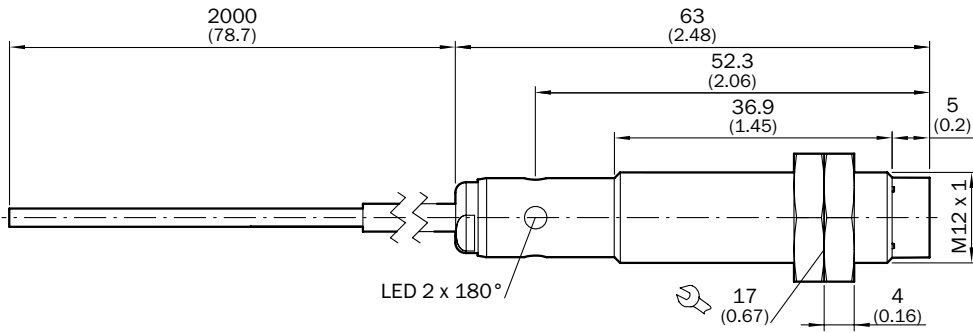
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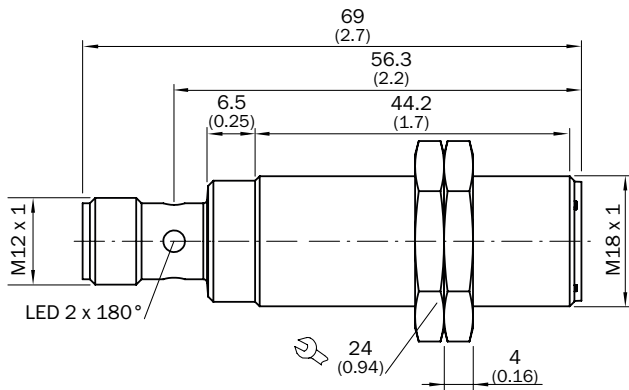
IME2S12-04B4DW2



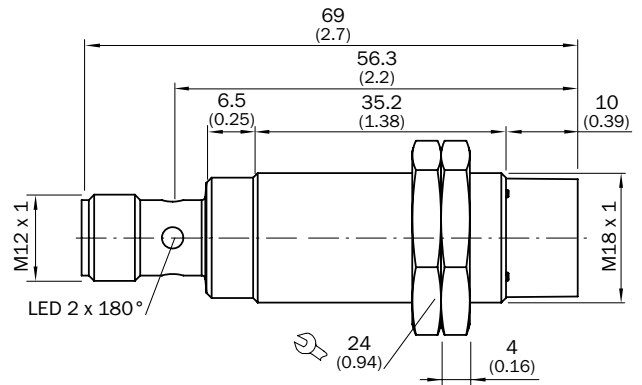
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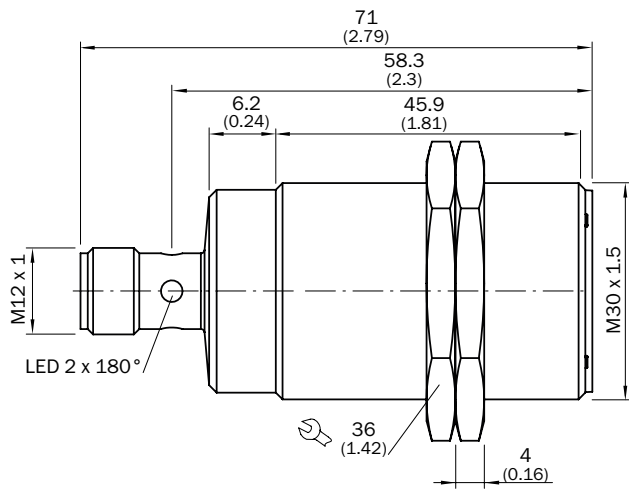
IME2S18-05B4DC0
IME2S18-08B4DC0



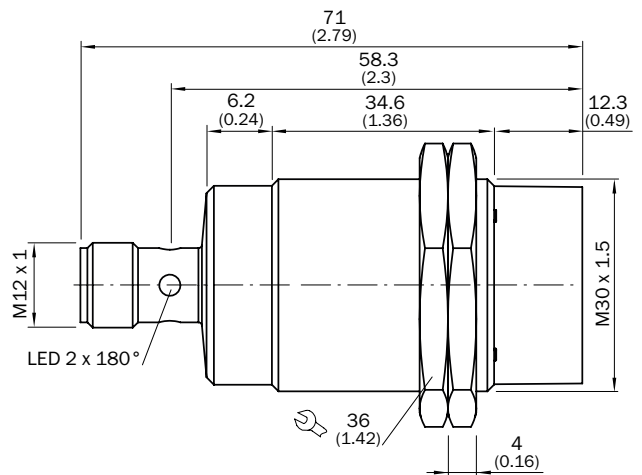
IME2S18-08N4DC0



IME2S30-12B4DC0

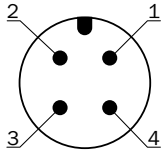


IME2S30-15N4DC0



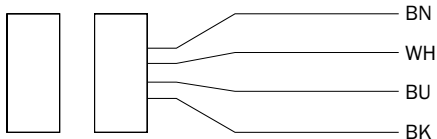
Pin assignment

Connection type: male connector M12, 4-pin



Pin	Designation	Description
1	+24 V DC	24 V DC voltage supply
2	OSSD 1	OSSD 1 output
3	0 V DC	0 V DC voltage supply
4	OSSD 2	OSSD 2 output

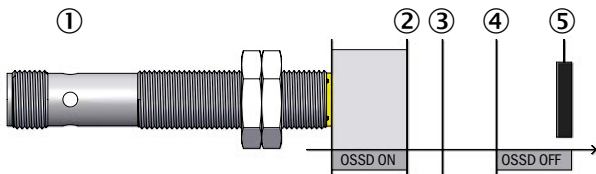
Connection type: Cable with M12 male connector, 4-pin



Wire color	Designation	Description
Brown	+24 V DC	24 V DC voltage supply
White	OSSD 1	OSSD 1 output
Blue	0 V DC	0 V DC voltage supply
Black	OSSD 2	OSSD 2 output

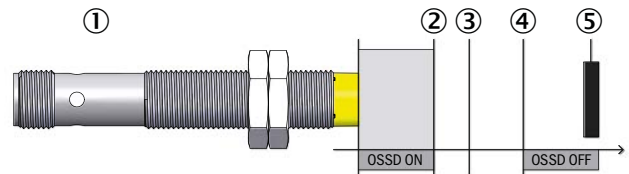
Response range

Flush



- ① Safety switch
- ② Safe switch on distance S_{ao}
- ③ Sensing range S_n
- ④ Safe switch off distance S_{ar}
- ⑤ Actuating element

Non-flush



- ① Safety switch
- ② Safe switch on distance S_{ao}
- ③ Sensing range S_n
- ④ Safe switch off distance S_{ar}
- ⑤ Actuating element




Accessories required for commissioning

Description	Number	Items supplied	Further information
Connecting cable (only required for variants with an M12 male connector)	1	-	→ Plug connectors and cables
Fixing nuts	2	✓	→ Nuts and screws
Mounting bracket	1	-	→ Mounting brackets and plates
Operating instructions	1	-	→ www.sick.com/IME2S

Recommended accessories

Mounting systems

Mounting brackets and plates

Figure	Description	Type	Part no.
	Mounting bracket for M12 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M12	5308447
	Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M18	5308446
	Mounting bracket for M30 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M30	5308445

Terminal and alignment brackets

Terminal brackets


Figure	Description	Type	Part no.
	Clamping block for round sensors M12, without fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KH-M12	2051479
	Clamping block for round sensors M18, without fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KH-M18	2051481

Connection systems

Plug connectors and cables

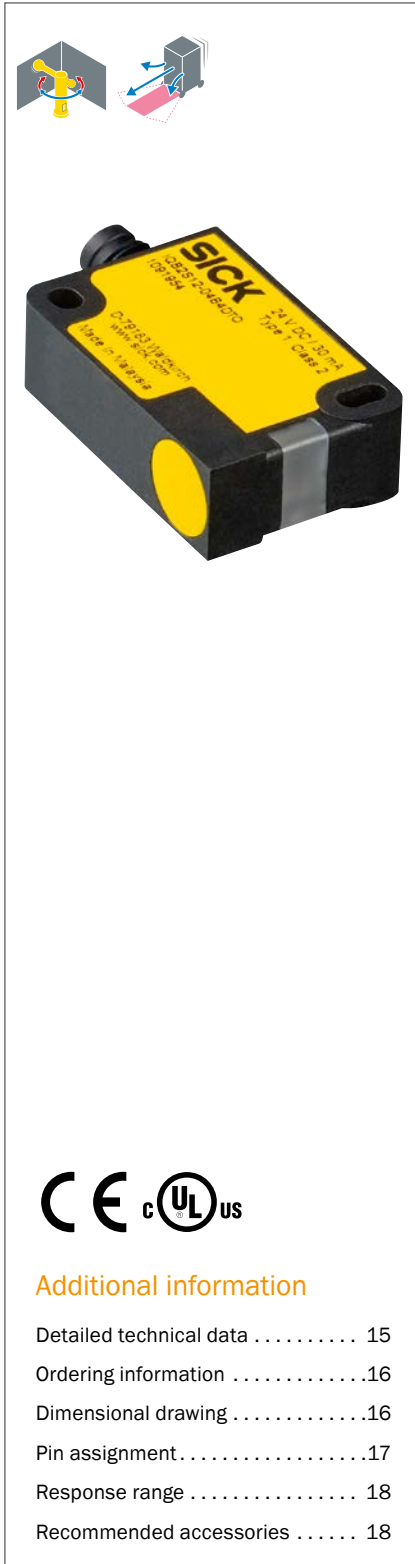
Connecting cables

- **Model:** PVC, unshielded

Figure	Connection type		Conductor cross-section	Length of cable	Type	Part no.
	Female connector, M12, 4-pin, straight	Flying leads	0.34 mm ²	5 m	YF2A14-050VB3XLEAX	2096235
				10 m	YF2A14-100VB3XLEAX	2096236
				15 m	YF2A14-150VB3XLEAX	2096237
				20 m	YF2A14-200VB3XLEAX	2096238

You can find additional accessories online → www.sick.com/IME2S

SAFE AND EASY POSITION MONITORING UP TO PL d



Product description

The inductive safety switches of the IQB2S product family are used for safe position and area monitoring. Thanks to the very compact design and wide range of connection variants, they offer optimum integration into the machine design. The IQB2S switches work without making contact and are low-wear. The inductive safety switches do not

require a separate actuator to do their monitoring tasks. On the contrary, they are generally activated by metals, for example on machines. The IQB2S can be connected to a safe control solution via its self-monitoring switching outputs (OSSDs), allowing for high safety with PL d (EN ISO 13849).

At a glance

- Rectangular type: 12 mm x 26 mm x 40 mm
- Response range: 4 mm
- Two OSSD safety outputs
- Enclosure rating: IP67
- Temperature range: -25 °C bis +70 °C
- Rugged VISTAL® housing
- Up to performance level PL d (EN ISO 13849)
- Connection variants: M8 male connector, cable or cable with M12 male connector

Your benefits

- Compact design for easy and ergonomic integration into the machine design without separate actuator
- High machine availability thanks to low susceptibility to dirt and moisture
- Long product service life due to low-wear and low-maintenance workings
- Fast diagnostics via 270° LED output state display
- High reliability and precise switching behavior due to proven ASIC technology
- Safe, direct connection to a safe control solution by means of OSSDs
- Easy and flexible connection options thanks to variants with male connector, cable or cable with male connector



Additional information

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→ www.sick.com/IQB2S

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

More detailed data can be found in the operating instructions. Download → www.sick.com/IQB2S

Features

Sensor principle	Inductive
Number of safe outputs	2
Sensing range S_n	4 mm ¹⁾
Safe switch on distance S_{ao}	3.2 mm ¹⁾
Safe switch off distance S_{ar}	6 mm ¹⁾
Active sensor surfaces	1
Actuation frequency	≤ 100 Hz

¹⁾ Values apply for steel (FE360).

Safety-related parameters

Safety integrity level	SIL2 (IEC 61508), SILCL2 (EN 62061)
Category	Category 2 (ISO 13849-1)
Performance level	PL d (ISO 13849-1)
PFH_D (mean probability of a dangerous failure per hour)	6.0 x 10 ⁻⁸ (IEC 61508) ¹⁾
T_M (mission time)	20 years (ISO 13849-1)
Type	Type 3 (ISO 13849-1)
Safe state in the event of a fault	At least one safety-related semiconductor output (OSSD) is in the OFF state.

¹⁾ At 40 °C and 1000 m above sea level.

Functions

Safe series connection	With Flexi Loop (with diagnostics) (depending on type)
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Interfaces

Connection type	Cable with M12 male connector, 4-pin / male connector M8, 4-pin / Cable, 4-wire (depending on type)
Diagnostics indicator	✓
Status display	✓

Electrical data

Protection class	III (IEC 61140)
Rated insulation voltage U_i	28.8 V
Rated impulse withstand voltage U_{imp}	1,500 V
Supply voltage V_s	24 V DC (19.2 V DC ... 28.8 V DC)
Power consumption	≤ 20 mA
Type of output	Semiconductor (OSSD)
Response time	≤ 1 ms
Enable time	≤ 2 ms
Risk time	≤ 20 ms
Switch-on time	≤ 1 s

Mechanical data

Design	Rectangular
Dimensions	12 mm x 40 mm x 26 mm
Material	
Housing	VISTAL®
Sensor surface	VISTAL®
Cable	PVC
Installation type	Flush

Ambient data

Enclosure rating	IP67 (IEC 60529)
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +70 °C
Relative humidity	50 %, at 70 °C (IEC 60947-5-2)
Vibration resistance	10 Hz ... 55 Hz, 1 mm (IEC 60947-5-2)
EMC	IEC 60947-5-2, IEC 61000-6-7, IEC 60947-5-3

Ordering information

Items supplied IQB2S:

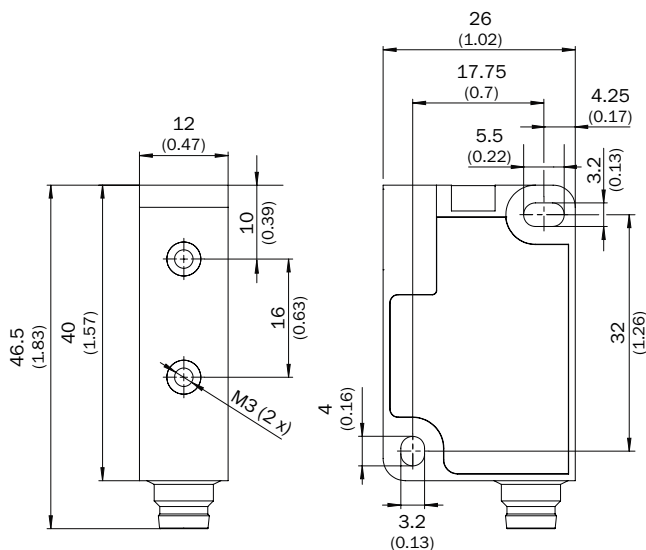
- Safety switch
- Safety instruction
- Operating instructions for download → www.sick.com/IQB2S

Design	Dimensions (W x H x D)	Installation type	Sensing range S _n	Safe series connection ¹⁾	Connection type	Type	Part no.
Rectangular	12 mm x 40 mm x 26 mm	Flush	4 mm	✓	Cable with M12 male connector, 4-pin	IQB2S12-04B4DQ9	1091956
				-	Male connector M8, 4-pin	IQB2S12-04B4DT0	1091954
				-	Cable, 4-wire	IQB2S12-04B4DW2	1091955

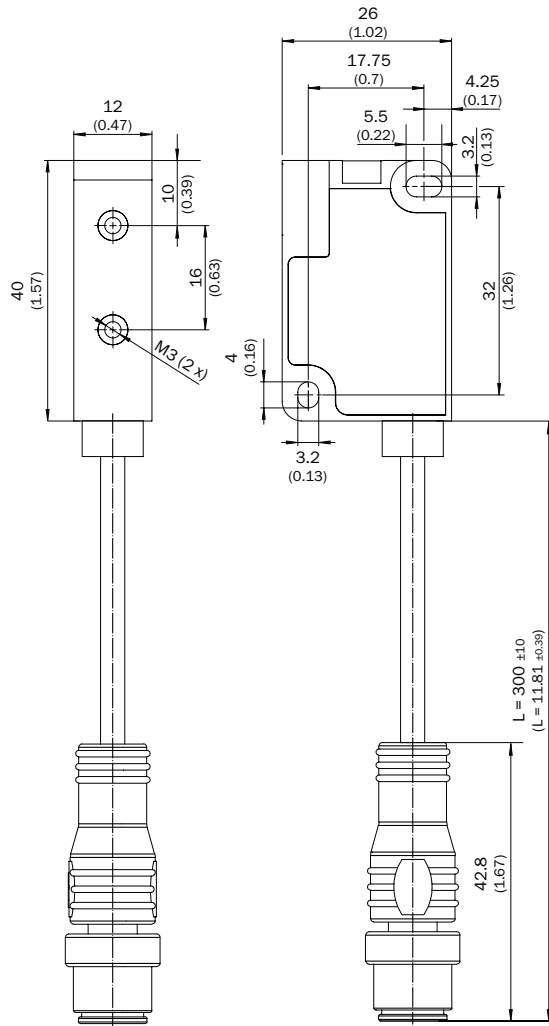
¹⁾ With Flexi Loop (with diagnostics)

Dimensional drawing

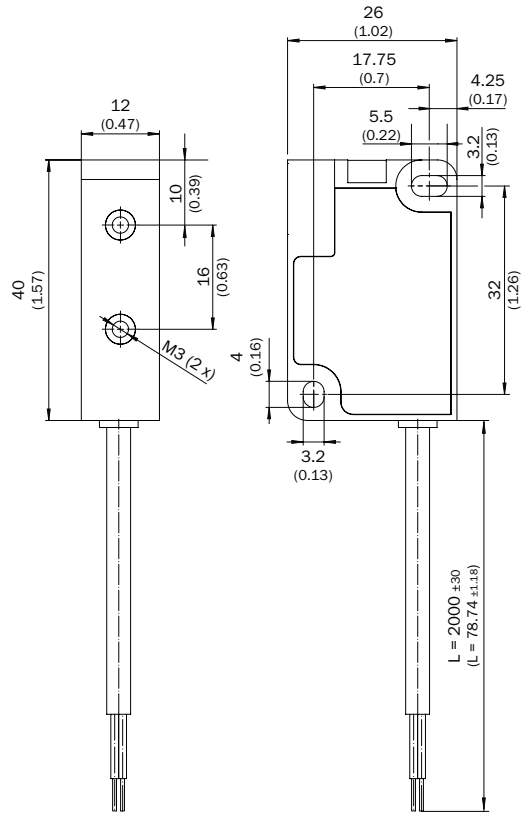
IQB2S12-04B4DT0



IQB2S12-04B4DQ9



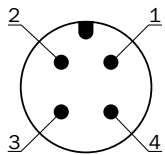
IQB2S12-04B4DW2



Pin assignment

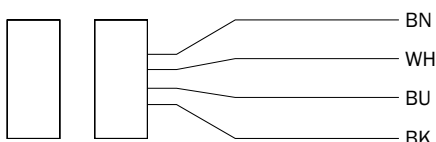
Connection type: Cable with M12 male connector, 4-pin

Connection type: male connector M8, 4-pin



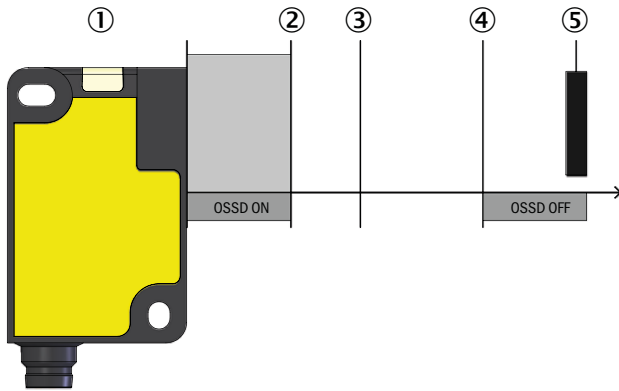
Pin	Designation	Description
1	+24 V DC	24 V DC voltage supply
2	OSSD 1	OSSD 1 output
3	0 V DC	0 V DC voltage supply
4	OSSD 2	OSSD 2 output

Connection type: Cable, 4-wire



Wire color	Designation	Description
Brown	+24 V DC	24 V DC voltage supply
White	OSSD 1	OSSD 1 output
Blue	0 V DC	0 V DC voltage supply
Black	OSSD 2	OSSD 2 output

Response range



- ① Safety switch
- ② Safe switch on distance S_{ao}
- ③ Sensing range S_n
- ④ Safe switch off distance S_{ar}
- ⑤ Actuating element

Accessories required for commissioning

Description	Number	Items supplied	Further information
Connecting cable (only required for variants with an M8 male connector)	1	-	→ Plug connectors and cables
Operating instructions	1	-	→ www.sick.com/IQB2S

Recommended accessories

Connection systems

Plug connectors and cables

Connecting cables

- **Model:** PVC, unshielded

Figure	Connection type		Conductor cross-section	Length of cable	Type	Part no.
	Female connector, M12, 4-pin, straight	Flying leads	0.34 mm ²	5 m	YF2A14-050VB3XLEAX	2096235
				10 m	YF2A14-100VB3XLEAX	2096236
				15 m	YF2A14-150VB3XLEAX	2096237
				20 m	YF2A14-200VB3XLEAX	2096238
	Female connector, M8, 4-pin, straight	Flying leads	0.25 mm ²	5 m	YF8U14-050VA3XLEAX	2095889
				10 m	YF8U14-100VA3XLEAX	2095890
				20 m	YF8U14-200VA3XLEAX	2095891

Connection cables

- **Model:** PVC, unshielded

Figure	Connection type		Conductor cross-section	Length of cable	Type	Part no.
	Female connector, M8, 4-pin, straight	Male connector, M12, 4-pin, straight	0.25 mm ²	5 m	YF8U14-050VA3M2A14	2096609
				10 m	YF8U14-100VA3M2A14	2096610

You can find additional accessories online → www.sick.com/IME2S

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- ✓ Save time by using past orders.
- ✓ Easily export orders and quotes, suited to your systems.



SERVICES FOR MACHINES AND PLANTS: SICK LifeTime Services

Our comprehensive and versatile LifeTime Services are the perfect addition to the comprehensive range of products from SICK. The services range from product-independent consulting to traditional product services.



- 
Consulting and design
 Safe and professional
- 
Product and system support
 Reliable, fast, and on-site
- 
Verification and optimization
 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 10,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its 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.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the 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 SICK a reliable supplier and development partner.

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

That is “Sensor Intelligence.”

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations → www.sick.com