



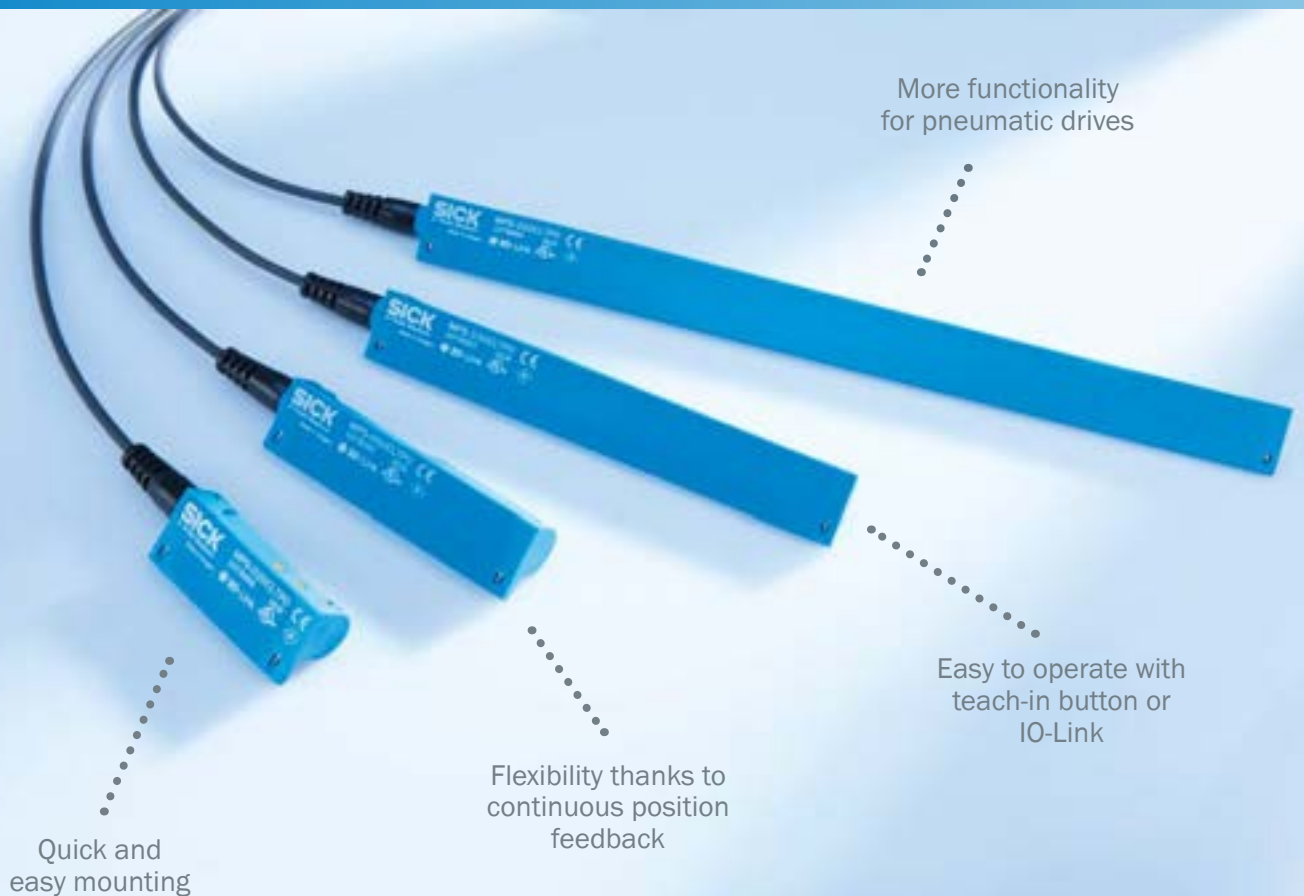
MPS-T, MPS-C, MPA

INTELLIGENT POSITION DETECTION –
DESIGNED FOR PNEUMATIC DRIVES

Position sensors

SICK
Sensor Intelligence.

SOPHISTICATION IN ANY POSITION



The MPS-C for direct mounting on C-slot cylinders.

The benefits of SICK position sensors at a glance

- Developed for and perfectly matched to non-contact distance measuring on pneumatic drives
- Time and money can be saved thanks to quick installation with mounting on the outside of the cylinder and easy integration even into existing equipment
- No complicated integration into the cylinder, no drilling of the piston rod
- Significant cost savings thanks to direct detection of the piston magnet without separate position encoders or additional mechanics
- Piston position is output as an analog signal, IO-Link process data, or flexible switching point



INTELLIGENT SENSORS FOR PNEUMATIC CYLINDERS

Pneumatic sensors by SICK impress with their intelligent functionality, their reliability, and their efficiency. With the MPS product family for direct mounting on T-slot and C-slot cylinders, and MPA for large piston diameters and long strokes, a sophisticated solution is available for every cylinder model.

SICK position sensors are used for the non-contact, continuous detection of the piston position in pneumatic cylinders. They are available in variants for different measuring ranges. The sensors developed specifically for pneumatic cylinders can be relied upon for high-resolution and precise position detection of the cylinder piston.

The MPA and MPS product families deliver crucial added value for automated processes. Such benefits are felt from the outset – the sensors are mounted on the outside of the piston cylinder, saving time and money right from the start. The continuous detection of the piston position by the position sensors significantly upgrades the functionality of pneumatic cylinders and drives, making them compatible for use in more intelligent applications, and thus providing solutions that are a great deal more efficient.



The MPS-T for direct mounting on T-slot cylinders.



The MPA is the ideal solution for large piston diameters and long strokes.

EXPANSION OF FIELDS OF APPLICATION FOR PNEUMATIC CYLINDERS AND DRIVES

Position sensors by SICK significantly expand the field of application of pneumatic cylinders and drives with their intelligent functionality. Efficient solutions for flexible machine concepts as well as optimum process control and quality monitoring can be implemented with the support of these sensors.

This is true, for example, of applications in which the movement of tools, format stops, feed mechanisms, or grippers has to be monitored permanently. There is a clear advantage here over conventional cylinder sensors, which can only detect individual positions. The position data from the piston position, which is output via the analog outputs or IO-Link, thus enables machine settings and process windows to be formulated in a much more flexible way.

In processes with multiple pneumatic cylinders, e.g., in a packaging machine, the motion sequences of the cylinders can be perfectly coordinated. As a result, the cycle time of the system can be reduced.

There are also benefits for quality control: Using a position sensor and a pneumatic cylinder is a very easy way of detecting position, situation, and other object properties (the material thickness of workpieces, for example).

The increases in efficiency that can be achieved by using SICK position sensors are not simply a quick fix for a specific step in the production process. Over a longer period of time, deviations from optimum process parameters can be derived from the application data and process data obtained from the response of the sensors, and used for continuous process control.

EXAMPLE APPLICATIONS

Precise position detection during final assembly with pneumatically-driven screw systems



Each SICK position sensor can detect up to six switching points per screwing unit (e.g., screw-in depth). A comparable solution would not be possible with single sensors because of restrictions in terms of the available slot space, the amount of wiring required in the tool, and the risk of mutual interference between the sensors.

High-precision monitoring of process windows in ultrasonic welding



SICK position sensors can be relied upon to very precisely detect and monitor the position of the sonotrodes in order to keep the ultrasonic welding process safely within a narrowly defined tolerance window. The sensors can be accessed from the outside without stopping and entering a system; if they need to be adjusted, the necessary work can be carried out without having to stop the machine and lose time due to retooling.

Additional areas of application

Process quality and product quality

- Automotive and parts supplier industry
 - Check for correct mounting and component dimensions
- Machine tools
 - Monitoring of the feed movement of the grinding disc to assure optimum surface quality of the workpiece
 - Monitoring on punching machines to ensure that the stamp penetrates the material at exactly the right depth
- Electronics production
 - Monitoring of the correct contact position of electronic components
- Handling and assembly technology
 - Measuring of material thickness and thus detection of OK and NOK parts
- Metal and steel processing
 - Double sheet detection

Flexible Automation

- Consumer goods and packaging
 - Quick adaptation of modified formats and process parameters
- Handling and assembly technology
 - Detection of the position, situation, and size of workpieces
- Packaging machines
 - Synchronization of multiple pneumatic movements in order to increase the cycle time of a machine

IDEALLY POSITIONED WITH A WHOLE HOST OF BENEFITS

SICK position sensors combine innovative technologies with high levels of user-friendliness and specific performance features.

Quick and easy mounting

Since the position sensors are mounted externally on the pneumatic cylinder, it is possible to integrate them at any suitable point in time in a machine. Even the installation direction can be freely selected. As the sensors detect the piston magnet directly, neither a separate position encoder nor a mechanism is required for their attachment to the piston rod of the cylinder.

Sensor solutions for every cylinder

SICK position sensors deliver genuine added value in terms of flexibility of drive selection. With sensors in various designs, SICK can offer the right solution for virtually any cylinder profile, thereby maximizing flexibility where drive selection is concerned – entirely independent of manufacturer, of course. What's more, all product families are available in variants for multi-grade measuring ranges for both short and long strokes.

+ Save time during installation, commissioning, and whenever maintenance is required

+ High flexibility for machine design



Easy mounting on pneumatic cylinder.



The right sensor solution for any pneumatic cylinder.



User-friendly sensor setting via teach-in button.



IO-Link increases the performance of the sensors and expands their potential scope of application.

Easy to operate

SICK position sensors offer particular benefits for the operators and users of machinery. Even post-installation, sensor settings such as measuring range, analog output, switching points, or switching behavior can be adapted to changes in the production process via a teach-in button or IO-Link. The ability to adapt the sensor parameters via IO-Link from the controller is of particular benefit if the pneumatic drives are difficult to access or are located in a fenced-off area of the system.

Examples of modifications via pushbutton or IO-Link:

- Adapting the measuring range
- Inverting the analog signal
- Setting switching points
- Inverting switching functions

Smart Sensor Solutions powered by IO-Link

By seamlessly integrating sensors into an automation network, you can tap into new ways of increasing flexibility, reliability, and efficiency and in so doing increase the productivity of a machine or system.

SICK position sensors offer all of the benefits of IO-Link communication, including:

- Easy device replacement
- Flexible sensor adjustment
- Condition monitoring
- Electronic parts list

In addition, the Smart Sensor Solutions technology creates advanced diagnostics and alarm functions as well as various options for configuring process data (position, switching points, logic).






High flexibility for modifications during live operation





Maximum productivity through intelligent, communicative sensors


OVERVIEW OF THE PRODUCT FAMILIES

	 MPS-C	 MPS-T	 MPA
Mounting	Direct mounting in C-slots	Direct mounting in T-slots	Mounting via adapter
Measuring ranges	25 mm, 50 mm, 10 mm, and 200 mm	32 mm, 64 mm, 96 mm, 128 mm, 160 mm, 92 mm, 224 mm, 256 mm	107 mm to 1,007 mm in 36 mm increments
Outputs	0 V ... 10 V, 4 mA ... 20 mA, IO-Link, programmable switching output	0 V ... 10 V, 4 mA ... 20 mA, or IO-Link	0 V ... 10 V, 4 mA ... 20 mA, IO-Link
Suitable cylinders	Short to medium strokes, grippers	Short to medium strokes	Medium to long strokes, large piston diameter
	→ 8	→ 16	→ 22

THE INTELLIGENT T-SLOT POSITION SENSOR







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Product description

MPS-T position sensors continuously detect the piston position of pneumatic actuators using a direct, non-contact method. They can be mounted in T-slots without the need for additional accessories. The sensor settings can be adjusted during installation and during operation later on, using a teach pad or – depending on the variant – using IO-Link. The sensors continuously supply data via analog outputs or IO-Link,

enabling flexible machine concepts and making it possible to solve tasks in areas such as quality monitoring and process control in conjunction with pneumatic cylinders and drives. This continuous transfer of position data upgrades the functionality of the pneumatic cylinders by making them more intelligent – and, as a result, more versatile.

At a glance

- Position sensor for direct mounting in T-slots on pneumatic cylinders
- Sensor variants with measuring ranges of 32 mm to 256 mm
- Analog outputs (for current or voltage), switching output, and IO-Link
- Mounting on other cylinder types (e.g., round body cylinders) is possible with adapters

Your benefits

- Rapid mounting and exchange of sensors with drop-in
- Straightforward installation as no additional mechanical components or position elements are required
- Can be integrated into the machine at any time, as the sensor is attached to the cylinder externally
- Easy adjustment of sensor settings and parameters during operation using a teach field or IO-Link
- More flexibility compared to conventional cylinder sensors, as it is possible to define multiple switching points in the smallest of spaces
- Long service life thanks to non-contact measurement principle
- Advanced diagnostic options thanks to data transmission via IO-Link

→ www.sick.com/MPS-T

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

	MPS-T with analog output	MPS-T with IO-Link
Cylinder type	T-slot	
Cylinder types with adapter	Round body cylinder Profile cylinder and tie-rod cylinder Cylinders with dovetail-slot SMC rails CDQ2, SMC rails ECDQ2 SMC cylinders with C-slot	
Measuring range	32 mm ... 256 mm ¹⁾ (depending on type)	
Housing length	45 mm ... 269 mm (depending on type)	
Output function	Analog	IO-Link
Analog output (voltage)	0 V ... 10 V	–
Analog output (current)	4 mA ... 20 mA	–
Teach-in	✓ (depending on type)	✓
Enclosure rating ²⁾	IP 67	

¹⁾ ± 1 mm.

²⁾ According to EN 60529.

Mechanics/electronics

	MPS-T with analog output	MPS-T with IO-Link
Supply voltage ¹⁾	15 V DC ... 30 V DC	
Power consumption ²⁾	≤ 22 mA	≤ 25 mA
Max. load resistance ³⁾	≤ 500 Ω	
Min. load resistance ⁴⁾	≥ 2 kΩ	
Protection class	III	
Time delay before availability	1.5 s	
Required magnetic field sensitivity, typ.	3 mT / 2 mT (depending on type)	3 mT
Resolution, typ. ⁵⁾	0.03 % FSR (max. ≥ 0.05 mm)	
Linearity error, typ. ⁶⁾	0.3 mm	
Repeat accuracy, typ. ⁷⁾	0.06 % FSR (≥ 0.1 mm)	
Sampling rate, typ. ⁸⁾	1 ms	
IO-Link	–	✓
Status indicator LED	✓	
Reverse polarity protection	✓	
Short-circuit protection	✓	
Ambient operating temperature	–20 °C ... +70 °C	
Shock and vibration resistance	30 g, 11 ms / 10 ... 55 Hz, 1 mm	
EMC ⁹⁾	According to EN 60947-5-2	
Housing material	Plastic	
Cable material	PUR	
Conductor cross-section	0.08 mm ²	
UL File No.	NRKH.E181493	

¹⁾ Reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

²⁾ Without load.

³⁾ Power output, at 24 V.

⁴⁾ Voltage output.

⁵⁾ FSR: Full Scale Range; max. measuring range.

⁶⁾ At 25 °C, linearity error (maximum deviation) depending on response curve and minimal deviation function.

⁷⁾ At 25 °C, repeatability magnet movement in one direction.

⁸⁾ Only in standard mode, not in IO-Link mode.

⁹⁾ The analog measured value can deviate under transient conditions.

Ordering information

Other models → www.sick.com/MPS

MPS-T with analog output

- **Output function:** Analog
- **Cable material:** PUR

Measuring range ¹⁾	Housing length	Teach-in	Connection ²⁾	Connection diagram	Type	Part no.
32 mm	45 mm	✓	Cable, 2 m	Cd-359	MPS-032TSTUO	1045667
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-032TSTPO	1045666
		-	Cable, 2 m	Cd-359	MPS-032TSNUO	1050918
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-032THNPO	1072897
64 mm	77 mm	✓	Cable, 2 m	Cd-359	MPS-064TSTUO	1045669
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-064TSTPO	1045668
		-	Cable, 2 m	Cd-359	MPS-064TSNUO	1050919
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-064TSNPO	1053836
96 mm	109 mm	✓	Cable, 2 m	Cd-359	MPS-096TSTUO	1045671
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-096TSTPO	1045670
		-	Cable, 2 m	Cd-359	MPS-096TSNUO	1050920
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-096TSNPO	1053837
128 mm	141 mm	✓	Cable, 2 m	Cd-359	MPS-128TSTUO	1045673
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-128TSTPO	1045672
		-	Cable, 2 m	Cd-359	MPS-128TSNUO	1050921
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-128TSNPO	1053838
160 mm	173 mm	✓	Cable, 2 m	Cd-359	MPS-160TSTUO	1050740
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-160TSTPO	1050685
		-	Cable, 2 m	Cd-359	MPS-160TSNUO	1050922
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-160TSNPO	1053839
192 mm	205 mm	✓	Cable, 2 m	Cd-359	MPS-192TSTUO	1050738
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-192TSTPO	1047728
		-	Cable, 2 m	Cd-359	MPS-192TSNUO	1050923
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-192TSNPO	1053840
224 mm	237 mm	✓	Cable, 2 m	Cd-359	MPS-224TSTUO	1050741
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-224TSTPO	1050686
		-	Cable, 2 m	Cd-359	MPS-224TSNUO	1050924
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-224TSNPO	1053841
256 mm	269 mm	✓	Cable, 2 m	Cd-359	MPS-256TSTUO	1050739
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-256TSTPO	1050551
		-	Cable, 2 m	Cd-359	MPS-256TSNUO	1050925
			Cable with M8 male connector, 4-pin, 0.3 m	Cd-034	MPS-256TSNPO	1053842

¹⁾ ± 1 mm.

²⁾ Do not bend below 0 °C.

MPS-T with IO-Link

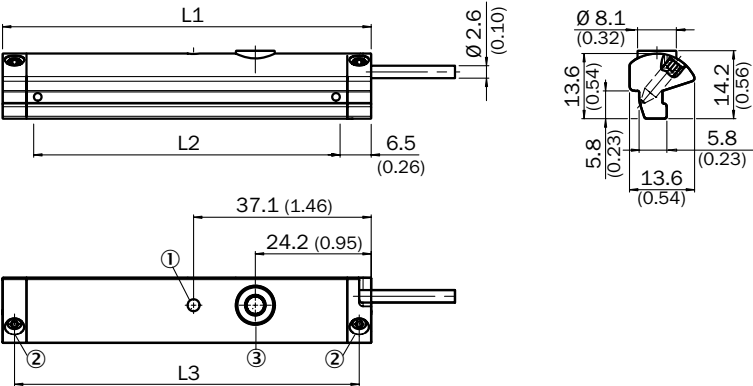
- **Output function:** IO-Link
- **Cable material:** PUR

Measuring range ¹⁾	Housing length	Teach-in	Connection ²⁾	Connection diagram	Type	Part no.
32 mm	45 mm	✓	Cable with M12 male connector, 4-pin, 0.3 m	Cd-179	MPS-032TLTQ0	1062506
64 mm	77 mm	✓	Cable with M12 male connector, 4-pin, 0.3 m	Cd-179	MPS-064TLTQ0	1062507
96 mm	109 mm	✓	Cable with M12 male connector, 4-pin, 0.3 m	Cd-179	MPS-096TLTQ0	1062508
128 mm	141 mm	✓	Cable with M12 male connector, 4-pin, 0.3 m	Cd-179	MPS-128TLTQ0	1062518
160 mm	173 mm	✓	Cable with M12 male connector, 4-pin, 0.3 m	Cd-179	MPS-160TLTQ0	1062521
192 mm	205 mm	✓	Cable with M12 male connector, 4-pin, 0.3 m	Cd-179	MPS-192TLTQ0	1062519
224 mm	237 mm	✓	Cable with M12 male connector, 4-pin, 0.3 m	Cd-179	MPS-224TLTQ0	1062522
256 mm	269 mm	✓	Cable with M12 male connector, 4-pin, 0.3 m	Cd-179	MPS-256TLTQ0	1062520

¹⁾ ± 1 mm.
²⁾ Do not bend below 0 °C.

Dimensional drawing (Dimensions in mm (inch))

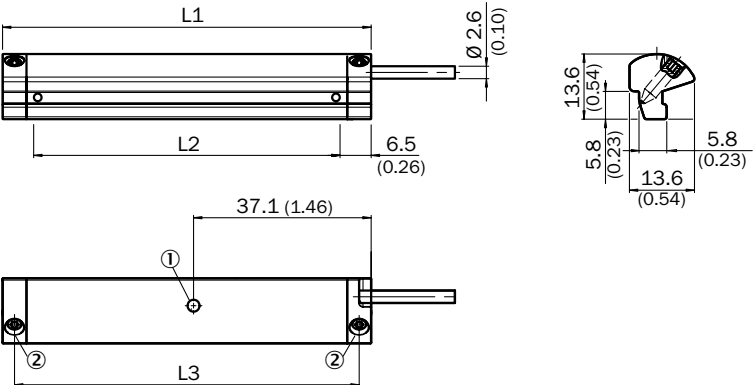
Teach-in



	Total length (L1) mm	Measuring range (L2) mm	Distance mounting screws (L3) mm
MPS-32	45	32	40
MPS-64	77	64	72
MPS-96	109	96	104
MPS-128	141	128	136
MPS-160	173	160	168
MPS-192	205	192	200
MPS-224	237	224	232
MPS-256	269	256	264

- ① Function indicator
- ② Fixing screw
- ③ Teach-in button

Without teach-in

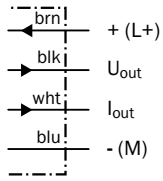


	Total length (L1) mm	Measuring range (L2) mm	Distance mounting screws (L3) mm
MPS-32	45	32	40
MPS-64	77	64	72
MPS-96	109	96	104
MPS-128	141	128	136
MPS-160	173	160	168
MPS-192	205	192	200
MPS-224	237	224	232
MPS-256	269	256	264

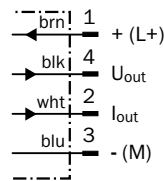
- ① Function indicator
- ② Fixing screw

Connection diagram

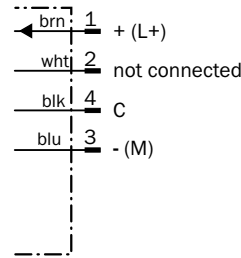
Cd-359



Cd-034



Cd-179



Recommended accessories

Mounting systems

Brackets for cylinder sensors

For cylinders with dovetail-slot

Figure	Material	Description	Type	Part no.
	Aluminum	Mounting bracket for cylinder with dovetail slot	BEF-KHZ-ST1	2022703

For profile cylinders and tie-rod cylinders

Figure	Material	Description	Type	Part no.
	Zinc diecast	Mounting bracket for integrated profile cylinder/tie-rod cylinder	BEF-KHZ-PT1	2022702

For round body cylinders

Figure	Material	Description	Type	Part no.
	Plastic, Aluminum	Mounting bracket on round body cylinder with piston diameter of 12 mm ¹⁾	BEF-KHZ-RT-12	2077681
		Mounting bracket on round body cylinder with piston diameter of 16 mm ¹⁾	BEF-KHZ-RT-16	2077680
		Mounting bracket on round body cylinder with piston diameter of 20 mm ¹⁾	BEF-KHZ-RT-20	2077679
		Mounting bracket on round body cylinder with piston diameter of 25 mm ¹⁾	BEF-KHZ-RT-25	2077678
		Mounting bracket on round body cylinder with piston diameter of 32 mm ¹⁾	BEF-KHZ-RT-32	2077677
		Mounting bracket on round body cylinder with piston diameter of 40 mm ¹⁾	BEF-KHZ-RT-40	2077676
		Mounting bracket on round body cylinder with piston diameter of 50 mm ¹⁾	BEF-KHZ-RT-50	2077675
	Stainless steel, Zinc cast	Mounting bracket on round body cylinder with piston diameter of 8 mm ... 25 mm ²⁾	BEF-KHZ-RT1-25	2077682
		Mounting bracket on round body cylinder with piston diameter of 8 mm ... 63 mm ²⁾	BEF-KHZ-RT1-63	2077683
		Mounting bracket on round body cylinder with piston diameter of 8 mm ... 130 mm ²⁾	BEF-KHZ-RT1-130	2077684


¹⁾ Ambient temperature min 0 °C max 50 °C.

²⁾ Ambient temperature min -30 °C max 80 °C.


For SMC cylinders with C-slot

Figure	Material	Description	Type	Part no.
	Aluminum	Mounting bracket with T-slot for mounting a MPS on SMC C-slot cylinders. For each MPS a minimum of 2 brackets is recommended.	BEF-KHZ-CT23	2074119

For SMC rails CDQ2 (T-/C-slot)

Figure	Material	Description	Type	Part no.
	Aluminum	Mounting bracket for mounting on SMC rails CDQ2 (T-slot)	BEF-KHZ-TT2	2046440

For SMC rails ECDQ2 (T-/C-slot)

Figure	Material	Description	Type	Part no.
	Aluminum	Mounting bracket for mounting on SMC rails ECDQ2 (T-slot)	BEF-KHZ-TT1	2046439

Others



Figure	Description	Type	Part no.
	Label Holder, 2.5 mm to 3.5 mm, 10 pcs.	LABEL HOLDER	2086019
	Cable clips T-slot, 10 pcs./bag	CABLE CLIPS	2059322

Connection systems

Connecting cables with female connector



M12, 4-pin, PUR, halogen-free, Oil / grease resistant

- **Cable material:** PUR, halogen-free
- **Connector material:** TPU



Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Female connector, M12, 4-pin, straight, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-1204-G02MC	6025900
			5 m, 4-wire	DOL-1204-G05MC	6025901
	Female connector, M12, 4-pin, angled, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-1204-W02MC	6025903
			5 m, 4-wire	DOL-1204-W05MC	6025904

M8, 4-pin, PUR, halogen-free, Oil / grease resistant



- **Cable material:** PUR, halogen-free
- **Connector material:** TPU

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-0804-G02MC	6025894
			5 m, 4-wire	DOL-0804-G05MC	6025895
	Female connector, M8, 4-pin, angled, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-0804-W02MC	6025897
			5 m, 4-wire	DOL-0804-W05MC	6025898



Female connectors (ready to assemble), M12, 4-pin

Figure	Connection type head A	Connection type head B	Type	Part no.
	Female connector, M12, 4-pin, straight, unshielded	Screw-type terminals	DOS-1204-G	6007302
	Female connector, M12, 4-pin, angled, unshielded	Screw-type terminals	DOS-1204-W	6007303


Female connectors (ready to assemble), M8, 4-pin

Figure	Connection type head A	Connection type head B	Type	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Screw-type terminals	DOS-0804-G	6009974
	Female connector, M8, 4-pin, angled, unshielded	Solder connection	DOS-0804-W	6009975


Male connectors (ready to assemble), M12, 4-pin

Figure	Connection type head A	Connection type head B	Type	Part no.
	Male connector, M12, 4-pin, straight, unshielded	Screw-type terminals	STE-1204-G	6009932
	Male connector, M12, 4-pin, angled, unshielded	Screw-type terminals	STE-1204-W	6022084

Male connectors (ready to assemble), M8, 4-pin

Figure	Connection type head A	Connection type head B	Type	Part no.
	Male connector, M8, 4-pin, straight, unshielded	Screw-type terminals	STE-0804-G	6037323

THE INTELLIGENT C-SLOT POSITION SENSOR



The image shows a blue SICK MPS-C position sensor with a black cable. Above the sensor are two icons: one showing a C-slot and a sensor, and another showing a graph of a signal. Below the sensor are several certification logos: CE, a triangle with a checkmark, a diamond with 'III', and UL LISTED. Below these is the IO-Link logo.

Additional information

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Product description

MPS-C position sensors continuously detect the piston position of pneumatic actuators using a direct, non-contact method. They can be mounted in C-slots without the need for additional accessories. The sensor settings can be adjusted during installation and during operation later on, using a teach field or IO-Link. The sensors continuously supply data via analog outputs

or IO-Link, enabling flexible machine concepts and making it possible to solve tasks in areas such as quality monitoring and process control in conjunction with pneumatic cylinders and drives. This continuous transfer of position data upgrades the functionality of the pneumatic cylinders by making them more intelligent – and, as a result, more versatile.

At a glance

- Position sensor for direct mounting in C-slots on pneumatic cylinders and grippers
- Sensor variants with measuring ranges of 25 mm to 200 mm
- Analog outputs (for current or voltage), switching output, and IO-Link
- Mounting on other cylinder types (e.g., round body cylinders) is possible with adapters

Your benefits

- Rapid mounting and exchange of sensors with drop-in
- Straightforward installation as no additional mechanical components or position elements are required
- Can be integrated into the machine at any time, as the sensor is attached to the cylinder externally
- Easy adjustment of sensor settings and parameters during operation using a teach pad or IO-Link
- More flexibility compared to conventional cylinder sensors, as it is possible to define multiple switching points in the smallest of spaces
- Excellent reliability thanks to the rugged sensor design and non-contact measurement principle
- Advanced diagnostic options thanks to data transmission via IO-Link

→ www.sick.com/MPS-C

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

Cylinder type	C-slot
Cylinder types with adapter	Round body cylinder Profile cylinder and tie-rod cylinder SMC rails CDQ2 SMC rails ECDQ2
Measuring range	25 mm ... 200 mm ¹⁾ (depending on type)
Housing length	41 mm ... 215 mm (depending on type)
Output function	Analog, IO-Link, Output type
Analog output (voltage)	0 V ... 10 V
Analog output (current)	4 mA ... 20 mA
Teach-in	✓
Enclosure rating ²⁾	IP 67

¹⁾ ± 1 mm.

²⁾ According to EN 60529.

Mechanics/electronics

Supply voltage ¹⁾	12 V DC ... 30 V DC
Power consumption ²⁾	≤ 42 mA
Max. load resistance ³⁾	≤ 500 Ω
Min. load resistance ⁴⁾	≥ 2 kΩ
Protection class	III
Time delay before availability	1.5 s
Required magnetic field sensitivity, typ.	3 mT
Resolution, typ.	≥ 50 μm
Linearity error, typ. ⁵⁾	0.3 mm
Repeat accuracy, typ. ⁶⁾	0.1 mm
Sampling rate, typ. ⁷⁾	1 ms
Digital switching output	✓
IO-Link	✓
Status indicator LED	✓
Reverse polarity protection	✓
Short-circuit protection	✓
Ambient operating temperature	-20 °C ... +70 °C
Shock and vibration resistance	30 g, 11 ms / 10 ... 55 Hz, 1 mm
EMC ⁸⁾	According to EN 60947-5-7
Housing material	Plastic
Cable material	PUR
Conductor cross-section	0.08 mm ²
UL File No.	NRKH.E181493

¹⁾ Reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

²⁾ Without load.

³⁾ Power output, at 24 V.

⁴⁾ Voltage output.

⁵⁾ At 25 ° C, linearity error (maximum deviation) depending on response curve and minimal deviation function.

⁶⁾ At 25 ° C, repeatability magnet movement in one direction.

⁷⁾ Only in standard mode, not in IO-Link mode.

⁸⁾ The analog measured value can deviate under transient conditions.

Ordering information

Other models → www.sick.com/MPS-C

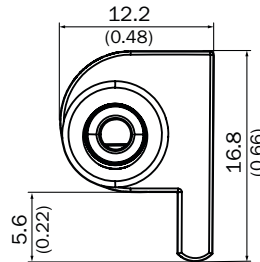
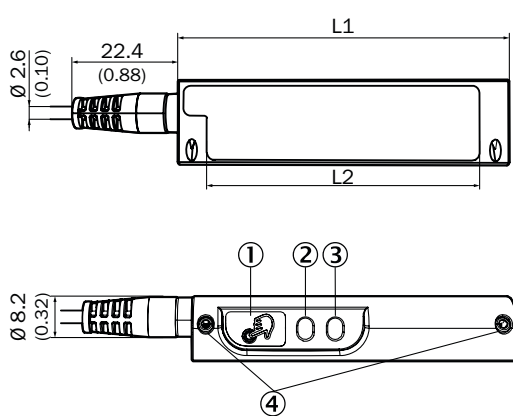
- **Output function:** Analog, IO-Link, Output type
- **Teach-in:** ✓
- **Cable material:** PUR

Measuring range ¹⁾	Housing length	Connection ²⁾	Connection diagram	Type	Part no.
25 mm	41 mm	Cable, 2 m	Cd-358	MPS-025CLTU0	1079359
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-357	MPS-025CLTP0	1079358
50 mm	65 mm	Cable, 2 m	Cd-358	MPS-050CLTU0	1079361
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-357	MPS-050CLTP0	1079360
100 mm	115 mm	Cable, 2 m	Cd-358	MPS-100CLTU0	1079363
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-357	MPS-100CLTP0	1079362
200 mm	215 mm	Cable, 2 m	Cd-358	MPS-200CLTU0	1079365
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-357	MPS-200CLTP0	1079364

¹⁾ ± 1 mm.

²⁾ Do not bend below 0 °C.

Dimensional drawing (Dimensions in mm (inch))

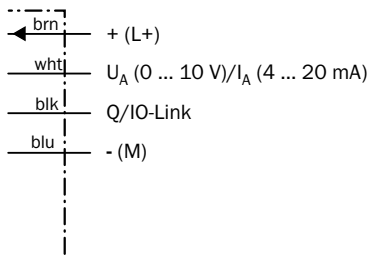


	Total length (L1) mm	Measuring range (L2) mm
MPS-xxx	40.6	25
MPS-xxx	64.9	50
MPS-xxx	114.9	100
MPS-xxx	214.7	200

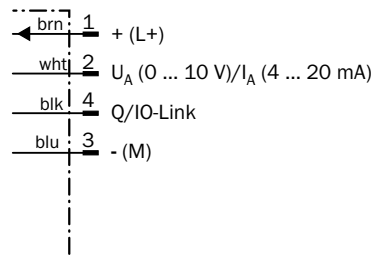
- ① Teach-in button
- ② Status LEDs
- ③ Operating LEDs
- ④ Fixing screw SW1.5

Connection diagram

Cd-358




Cd-357



Recommended accessories


Mounting systems

For round body cylinders


Figure	Material	Description	Type	Part no.
	Stainless steel, Aluminum	Mounting bracket on round body cylinder with piston diameter of 1 mm ... 25 mm ¹⁾	BEF-KHZ-RC1-25	2077685
		Mounting bracket on round body cylinder with piston diameter of 1 mm ... 130 mm ¹⁾	BEF-KHZ-RC1-130	2077686

¹⁾ Ambient temperature min -30 °C max 80 °C.


For profile cylinders and tie-rod cylinders

Figure	Material	Description	Type	Part no.
	Zinc diecast	Mounting bracket for integrated profile cylinder/tie-rod cylinder	BEF-KHZ-PC1	2076170

For SMC rails CDQ2 (T-/C-slot)

Figure	Material	Description	Type	Part no.
	Aluminum	Mounting bracket for mounting on SMC rails CDQ2 (C-slot)	BEF-KHZ-TC2	2046442

For SMC rails ECDQ2 (T-/C-slot)

Figure	Material	Description	Type	Part no.
	Aluminum	Mounting bracket for mounting on SMC rails ECDQ2 (C-slot)	BEF-KHZ-TC1	2046441

Others



Figure	Description	Type	Part no.
	Label Holder, 2.5 mm to 3.5 mm, 10 pcs.	LABEL HOLDER	2086019

Connection systems

Connecting cables with female connector



M8, 4-pin, PUR, halogen-free, Oil / grease resistant

- **Cable material:** PUR, halogen-free
- **Connector material:** TPU



Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-0804-G02MC	6025894
			5 m, 4-wire	DOL-0804-G05MC	6025895
	Female connector, M8, 4-pin, angled, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-0804-W02MC	6025897
			5 m, 4-wire	DOL-0804-W05MC	6025898

M8, 4-pin, PVC, chemical resistant


- **Cable material:** PVC
- **Locking nut material:** CuZn, nickel-plated brass

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-0804-G02M	6009870
			5 m, 4-wire	DOL-0804-G05M	6009872
	Female connector, M8, 4-pin, angled, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-0804-W02M	6009871
			5 m, 4-wire	DOL-0804-W05M	6009873


Female connectors (ready to assemble), M8, 4-pin


Figure	Connection type head A	Connection type head B	Type	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Screw-type terminals	DOS-0804-G	6009974
	Female connector, M8, 4-pin, angled, unshielded	Solder connection	DOS-0804-W	6009975


Male connectors (ready to assemble), M8, 4-pin

Figure	Connection type head A	Connection type head B	Type	Part no.
	Male connector, M8, 4-pin, straight, unshielded	Screw-type terminals	STE-0804-G	6037323

THE INTELLIGENT POSITION SENSOR FOR LARGE CYLINDERS







Additional information

Detailed technical data 23

Ordering information 24

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Connection diagram 25

Recommended accessories 26

Product description

MPA position sensors continuously detect the piston position of pneumatic actuators using a direct, non-contact method. The sensors in the MPA product family are ideal for large piston diameters and long strokes. The sensor settings can be adjusted during installation and during operation later on, using a teach field or – depending on the variant – using IO-Link. The sensors continuously supply data via analog outputs

or IO-Link, enabling flexible machine concepts and making it possible to solve tasks in areas such as quality monitoring and process control in conjunction with pneumatic cylinders and drives. This continuous transfer of position data upgrades the functionality of the pneumatic cylinders by making them more intelligent – and, as a result, more versatile.

At a glance

- Position sensor for use on pneumatic cylinders
- Sensor variants with measuring ranges of 107 mm to 1,007 mm
- Analog outputs (for current or voltage), switching output, and IO-Link
- Mounting with adapters on a multitude of cylinder types (tie-rod cylinders, round body cylinders, profile cylinders)

Your benefits

- Straightforward installation as no position elements or additional mechanical components are required for coupling with the piston rod
- Can be integrated into the machine at any time, as the sensor is attached to the cylinder externally
- Easy adjustment of sensor settings and parameters during operation using a teach pad or IO-Link
- More flexibility compared to conventional cylinder sensors, as it is possible to define multiple switching points in the smallest of spaces
- Maximum reliability thanks to the rugged aluminum housing and non-contact measurement principle
- Advanced diagnostic options thanks to data transmission via IO-Link

→ www.sick.com/MPA

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

Cylinder types with adapter	Round body cylinder Tie-rod cylinder T-slot cylinder Festo cylinder DSBC SMC cylinder CP96
Measuring range	107 mm ... 1,007 mm ¹⁾ (depending on type)
Housing length	109 mm ... 1,009 mm (depending on type)
Output function	Analog, IO-Link
Analog output (voltage)	0 V ... 10 V
Analog output (current)	4 mA ... 20 mA
Teach-in	✓
Enclosure rating ²⁾	IP 65, IP 67, IP 68

¹⁾ ± 1 mm.

²⁾ According to EN 60529.

Mechanics/electronics

Supply voltage ¹⁾	15 V DC ... 30 V DC
Power consumption ²⁾	≤ 35 mA
Max. load resistance ³⁾	≤ 500 Ω
Min. load resistance ⁴⁾	≥ 2 kΩ
Protection class	III
Required magnetic field sensitivity, typ.	2 mT
Resolution, typ. ⁵⁾	0.03% FSR (max. ≥ 0.06 mm)
Linearity error, typ. ⁶⁾	0.5 mm
Repeat accuracy, typ. ⁷⁾	0.06% FSR (≥ 0.1 mm)
Sampling rate, typ. ⁸⁾	1.15 ms
IO-Link	✓
Status indicator LED	✓
Reverse polarity protection	✓
Short-circuit protection	✓
Ambient operating temperature	-20 °C ... +70 °C
Shock and vibration resistance	30 g, 11 ms/10 Hz ... 55 Hz, 1 mm
EMC ⁹⁾	According to EN 60947-5-2
Housing material	Aluminum, plastic
Cable material	PUR
Conductor cross-section	0.08 mm ²
UL File No.	NRKH.E181493

¹⁾ Reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

²⁾ Without load.

³⁾ Power output, at 24 V.

⁴⁾ Voltage output.

⁵⁾ FSR: Full Scale Range; max. measuring range.

⁶⁾ At 25 ° C, linearity error (maximum deviation) depending on response curve and minimal deviation function.

⁷⁾ At 25 ° C, repeatability magnet movement in one direction.

⁸⁾ Only in standard mode, not in IO-Link mode.

⁹⁾ The analog measured value can deviate under transient conditions.

Ordering information

Other models → www.sick.com/MPA

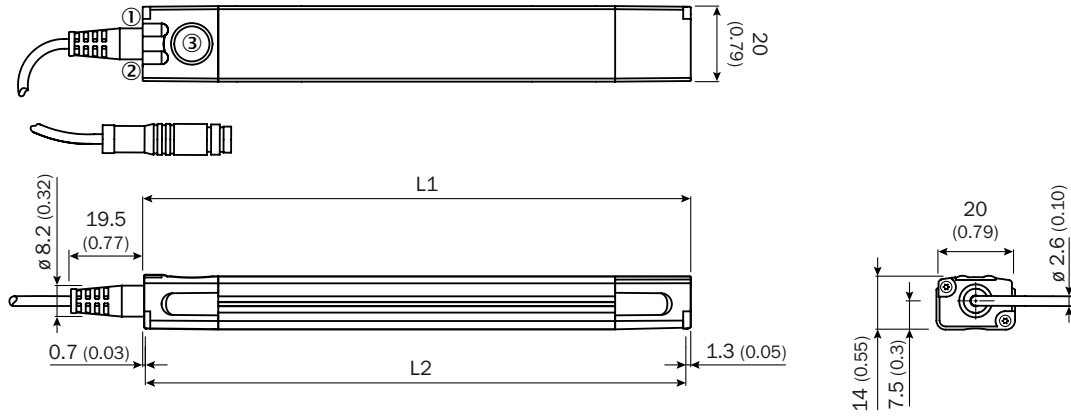
- **Output function:** Analog, IO-Link
- **Teach-in:** ✓
- **Cable material:** PUR

Measuring range ¹⁾	Housing length	Connection ²⁾	Connection diagram	Type	Part no.
107 mm	109 mm	Cable, 2 m	Cd-354	MPA-107THTUO	1059443
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-107THTPO	1059442
143 mm	145 mm	Cable, 2 m	Cd-354	MPA-143THTUO	1059445
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-143THTPO	1059444
179 mm	181 mm	Cable, 2 m	Cd-354	MPA-179THTUO	1059447
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-179THTPO	1059446
215 mm	217 mm	Cable, 2 m	Cd-354	MPA-215THTUO	1059449
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-215THTPO	1059448
251 mm	253 mm	Cable, 2 m	Cd-354	MPA-251THTUO	1059451
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-251THTPO	1059450
287 mm	289 mm	Cable, 2 m	Cd-354	MPA-287THTUO	1059453
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-287THTPO	1059452
323 mm	325 mm	Cable, 2 m	Cd-354	MPA-323THTUO	1059455
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-323THTPO	1059454
359 mm	361 mm	Cable, 2 m	Cd-354	MPA-359THTUO	1059457
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-359THTPO	1059456
395 mm	397 mm	Cable, 2 m	Cd-354	MPA-395THTUO	1059459
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-395THTPO	1059458
431 mm	433 mm	Cable, 2 m	Cd-354	MPA-431THTUO	1059461
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-431THTPO	1059460
467 mm	469 mm	Cable, 2 m	Cd-354	MPA-467THTUO	1059463
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-467THTPO	1059462
503 mm	505 mm	Cable, 2 m	Cd-354	MPA-503THTUO	1059465
		Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-503THTPO	1059464
539 mm	541 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-539THTPO	1059466
575 mm	577 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-575THTPO	1059467
611 mm	613 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-611THTPO	1059468
647 mm	649 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-647THTPO	1059469
683 mm	685 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-683THTPO	1059470
719 mm	721 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-719THTPO	1059471
755 mm	757 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-755THTPO	1059472
791 mm	793 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-791THTPO	1059473
827 mm	829 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-827THTPO	1059474
863 mm	865 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-863THTPO	1059475
899 mm	901 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-899THTPO	1059476
935 mm	937 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-935THTPO	1059477
971 mm	973 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-971THTPO	1059478
1,007 mm	1,009 mm	Cable with M8 male connector, 4-pin, 0.3 m	Cd-355	MPA-1007THTPO	1059479

¹⁾ ± 1 mm.

²⁾ Do not bend below 0 °C.

Dimensional drawing (Dimensions in mm (inch))

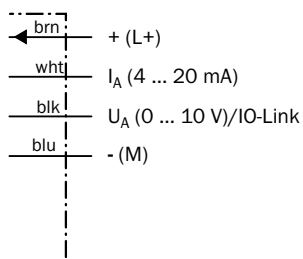


	Total length (L1) mm	Measuring range (L2) mm		Total length (L1) mm	Measuring range (L2) mm
MPA-107	109	107	MPA-575	577	575
MPA-143	145	143	MPA-611	613	611
MPA-179	181	179	MPA-647	649	647
MPA-215	217	215	MPA-683	685	683
MPA-251	253	251	MPA-719	721	719
MPA-287	289	287	MPA-755	757	755
MPA-323	325	323	MPA-791	793	791
MPA-359	361	359	MPA-827	829	827
MPA-395	397	395	MPA-863	865	863
MPA-431	433	431	MPA-899	901	899
MPA-467	469	467	MPA-935	937	935
MPA-503	505	503	MPA-971	973	971
MPA-539	541	539	MPA-1007	1,009	1,007

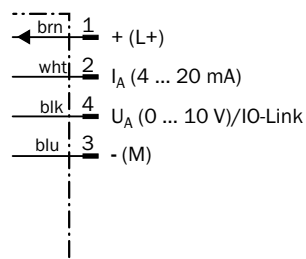
- ① Function signal indicator 1
- ② Function signal indicator 2
- ③ Teach-Pad

Connection diagram

Cd-354




Cd-355




Recommended accessories

Mounting systems


For profile cylinders and tie-rod cylinders

Figure	Material	Measuring range sensor (amount of required brackets)	Description	Type	Part no.
	Aluminum alloy (adapter), Stainless steel V2A (mounting-/fixing screw)	107 mm ... 251 mm (2 pcs.) 287 mm ... 431 mm (3 pcs.) 467 mm ... 647 mm (4 pcs.) 683 mm ... 791 mm (5 pcs.) 827 mm ... 1,007 mm (6 pcs.)	For tie-rod cylinder (diameter tie-rod max. 18 mm)	BEF-KHZPZ1MPA	2065578


For round body cylinders

Figure	Material	Measuring range sensor (amount of required brackets)	Description	Type	Part no.
	Stainless steel V2A	107 mm ... 359 mm (2 pcs.)	For round body cylinders with diameter up to 85 mm	BEF-KHZR085MPA	2066626
		395 mm ... 647 mm (3 pcs.)	For round body cylinders with diameter up to 135 mm	BEF-KHZR135MPA	2066627
		683 mm ... 935 mm (4 pcs.) 971 mm ... 1,007 mm (5 pcs.)	For round body cylinders with diameter up to 210 mm	BEF-KHZR210MPA	2066628


For T-slot cylinders

Figure	Material	Measuring range sensor (amount of required brackets)	Description	Type	Part no.
	Stainless steel V2A (bracket/mounting screw), Brass (fixing screw/sliding nut)	107 mm ... 251 mm (2 pcs.) 287 mm ... 431 mm (3 pcs.) 467 mm ... 647 mm (4 pcs.) 683 mm ... 791 mm (5 pcs.) 827 mm ... 1,007 mm (6 pcs.)	For T-slot cylinders	BEF-KHZT01MPA	2065575



For Festo cylinders DSBC

Figure	Material	Measuring range sensor (amount of required brackets)	Description	Type	Part no.
	Stainless steel V2A	107 mm ... 251 mm (2 pcs.) 287 mm ... 431 mm (3 pcs.) 467 mm ... 647 mm (4 pcs.) 683 mm ... 791 mm (5 pcs.) 827 mm ... 1,007 mm (6 pcs.)	Sensor adapter DSBC-32	BEF-KHZPF032MPA	2086744
			Sensor adapter DSBC-40	BEF-KHZPF040MPA	2086745
			Sensor adapter DSBC-50	BEF-KHZPF050MPA	2086746
			Sensor adapter DSBC-63	BEF-KHZPF063MPA	2086747
			Sensor adapter DSBC-80	BEF-KHZPF080MPA	2086748
			Sensor adapter DSBC-100	BEF-KHZPF100MPA	2086749
			Sensor adapter DSBC-125	BEF-KHZPF125MPA	2086750

For SMC cylinders CP96


Figure	Material	Messbereich Sensor (Anzahl benötigter Halter)	Description	Type	Part no.
	Stainless steel V2A	107 mm ... 251 mm (2 pcs.) 287 mm ... 431 mm (3 pcs.) 467 mm ... 647 mm (4 pcs.) 683 mm ... 791 mm (5 pcs.) 827 mm ... 1,007 mm (6 pcs.)	Sensor adapter CP96-63	BEF-KHZTS063MPA	2086756
			Sensor adapter CP96-80	BEF-KHZTS080MPA	2086757
			Sensor adapter CP96-100	BEF-KHZTS100MPA	2086758
			Sensor adapter CP96-125	BEF-KHZTS125MPA	2086759

Mounting brackets¹⁾

Figure	Material	Measuring range sensor (amount of required brackets)	Description	Type	Part no.
	Stainless steel V2A (bracket/mounting screw), Brass (fixing screw)	107 mm ... 251 mm (2 pcs.) 287 mm ... 431 mm (3 pcs.) 467 mm ... 647 mm (4 pcs.) 683 mm ... 791 mm (5 pcs.) 827 mm ... 1,007 mm (6 pcs.)	Bracket for low mounting	BEF-WNLO1MPA	2065973
		Bracket for lateral mounting	BEF-WNZ01MPA	2065577	

¹⁾ For measuring application with separate encoder (e.g. magnet).

Magnets

Figure	Description	Type	Part no.
	Magnet with mounting hole for M4 countersunk screw, Ø 15.2 mm, height 6 mm	Magnet	5327349

Others



Figure	Description	Type	Part no.
	Label Holder, 2.5 mm to 3.5 mm, 10 pcs.	LABEL HOLDER	2086019

Connection systems



Connecting cables with female connector

M8, 4-pin, PUR, halogen-free, Oil / grease resistant


- **Cable material:** PUR, halogen-free
- **Connector material:** TPU

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-0804-G02MC	6025894
			5 m, 4-wire	DOL-0804-G05MC	6025895
	Female connector, M8, 4-pin, angled, unshielded	Cable, Flying leads	2 m, 4-wire	DOL-0804-W02MC	6025897
			5 m, 4-wire	DOL-0804-W05MC	6025898

Female connectors (ready to assemble), M8, 4-pin

Figure	Connection type head A	Connection type head B	Type	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Screw-type terminals	DOS-0804-G	6009974
	Female connector, M8, 4-pin, angled, unshielded	Solder connection	DOS-0804-W	6009975

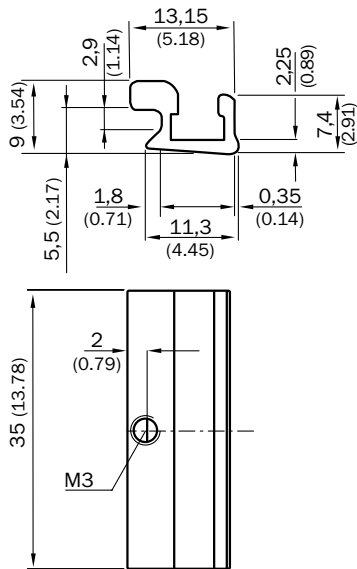
Male connectors (ready to assemble), M8, 4-pin

Figure	Connection type head A	Connection type head B	Type	Part no.
	Male connector, M8, 4-pin, straight, unshielded	Screw-type terminals	STE-0804-G	6037323

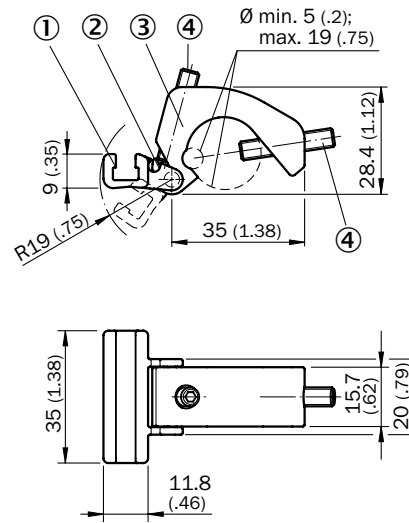
Dimensional drawings accessories (Dimensions in mm (inch))

Brackets for cylinder sensors

BEF-KHZ-ST1

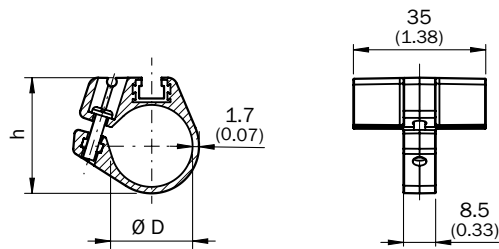


BEF-KHZ-PT1



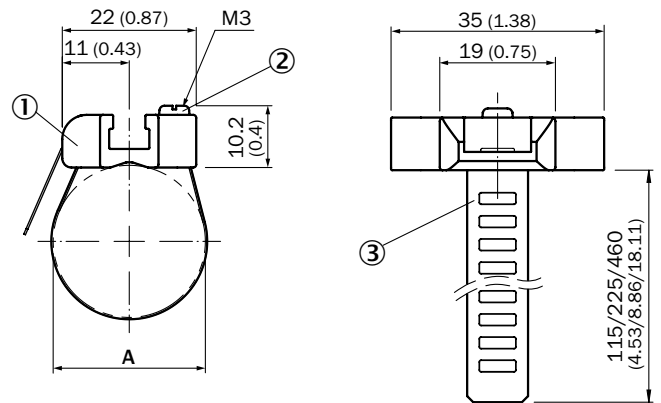
- ① Sensoradapter with T-slot
- ② Fixing for cable \varnothing 3.2 mm (0.126 inch)
- ③ Cylinderadapter
- ④ Mounting screws M5

BEF-KHZ-RT-xx



Part no.	Type	\varnothing D	\varnothing D (cylinder piston)	H
2077681	BEF-KHZ-RT-12	13.5	12	22.4
2077680	BEF-KHZ-RT-16	17.7	16	26.6
2077679	BEF-KHZ-RT-20	21.7	20	30.6
2077678	BEF-KHZ-RT-25	26.8	25	35.7
2077677	BEF-KHZ-RT-32	34	32	42.9
2077676	BEF-KHZ-RT-40	42	42	50.9
2077675	BEF-KHZ-RT-50	52.9	50	61.8
2077674	BEF-KHZ-RT-63	65	63	73.9

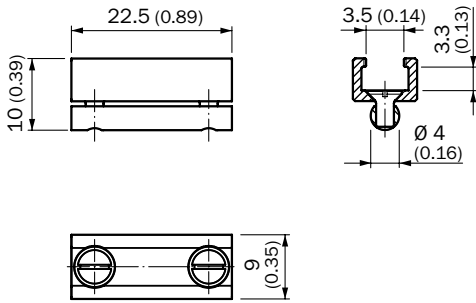
BEF-KHZ-RT1-xx



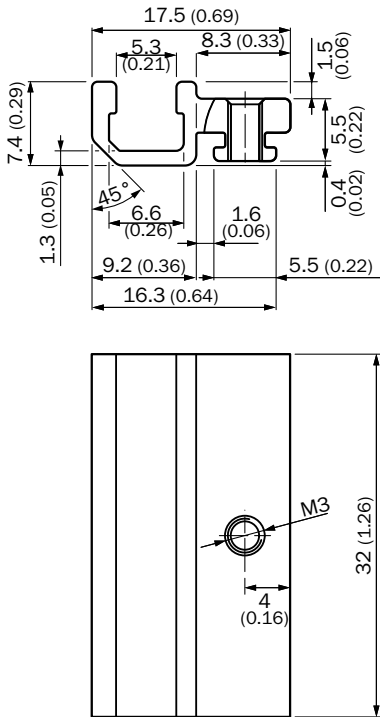
- ① Sensoradapter with T-slot
- ② Fixing screw
- ③ Strap

Part no.	Type	\varnothing D (cylinder piston)
2077682	BEF-KHZ-RT1-25	8 ... 25
2077683	BEF-KHZ-RT1-63	8 ... 63
2077684	BEF-KHZ-RT1-130	8 ... 130

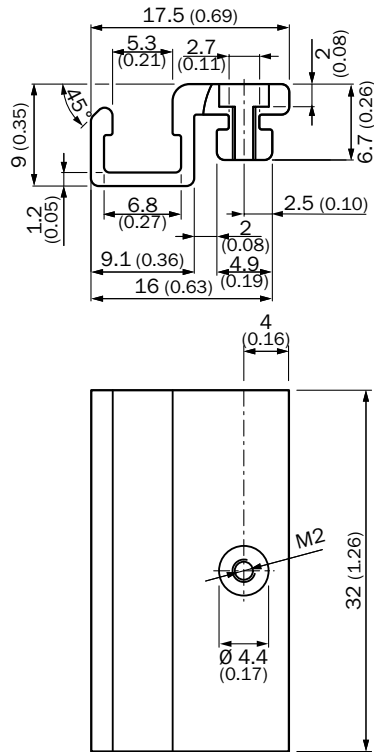
BEF-KHZ-CT23



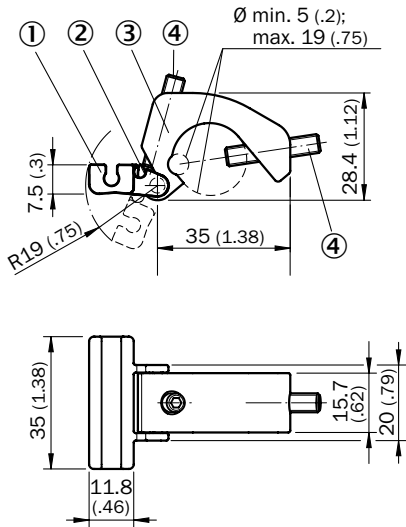
BEF-KHZ-TT2



BEF-KHZ-TT1

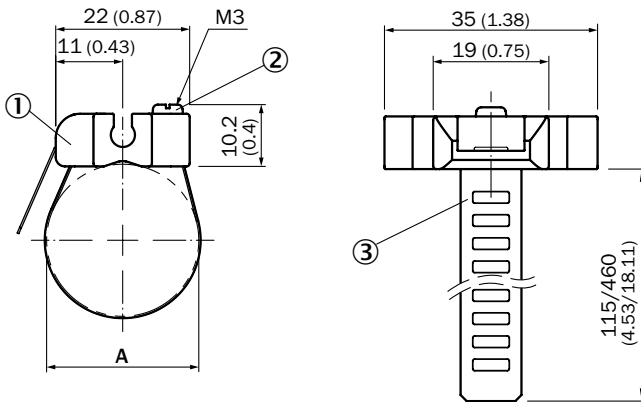


BEF-KHZ-PC1



- ① Sensoradapter with C-slot for magn. cylinder sensors
- ② Fixing for cable \varnothing 3.2 mm (0.126 inch)
- ③ Cylinderadapter
- ④ Mounting screws M5

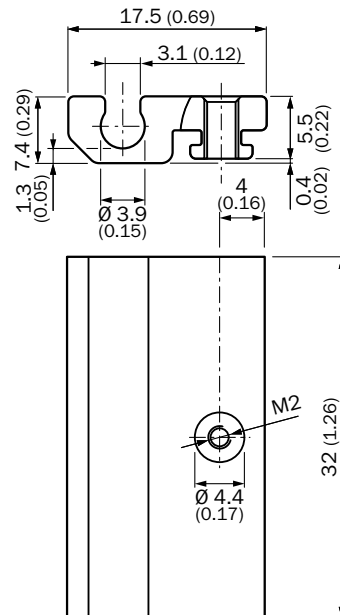
BEF-KHZ-RC1-1xx



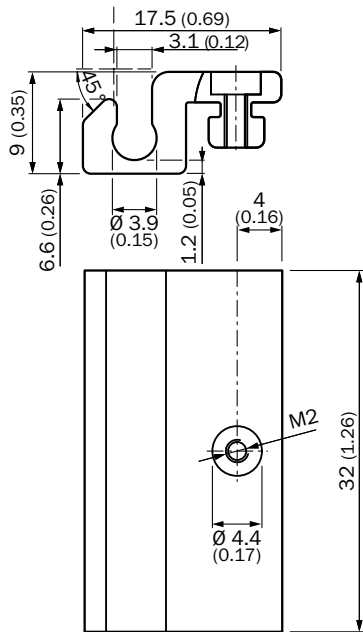
- ① Sensoradapter with C-slot for round body cylinder
- ② Fixing screw
- ③ Strap

Part no.	Type	\varnothing D (cylinder piston)
2077673	BEF-KHZ-RC1-25	8 ... 25
2077672	BEF-KHZ-RC1-130	8 ... 130

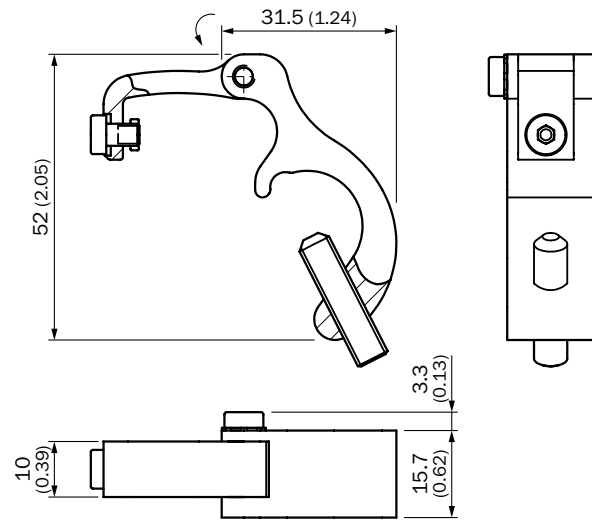
BEF-KHZ-TC2



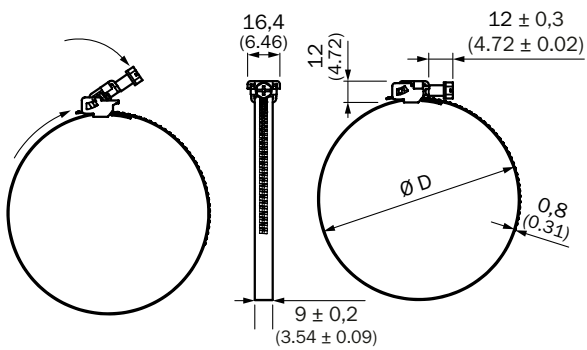
BEF-KHZ-TC1



BEF-KHZPZ1MPA



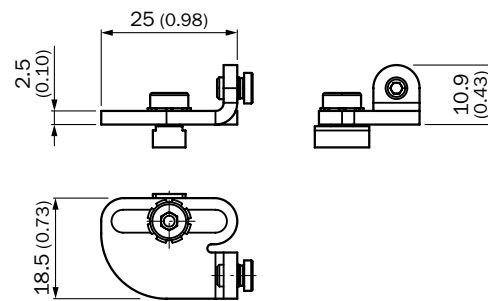
BEF-KHZRxxxMPA



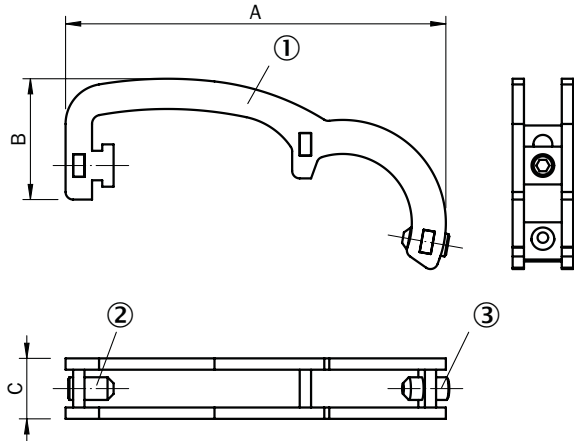
Diameter
(D) mm

BEF-KHZR085MPA	25 - 100
BEF-KHZR135MPA	25 - 150
BEF-KHZR210MPA	25 - 225

BEF-KHZT01MPA



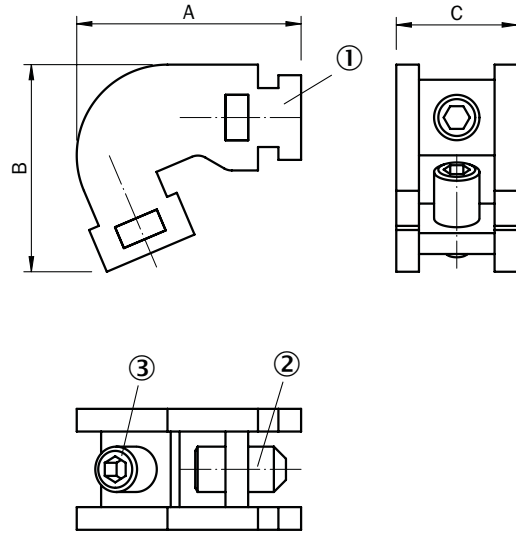
KHZPFxxxMPA



- ① Sensor adapter
- ② Mounting screw wrench size 1,5 for sensor
- ③ Mounting screw wrench size 1,5 for cylinder

Part no.	Type	A	B	C
2086744	KHZPF032MPA	38.7	16	8
2086745	KHZPF032MPA	40.7	16	8
2086746	KHZPF032MPA	46.1	16	8
2086747	KHZPF032MPA	50.3	16	8
2086748	BEF-KHZ-RT-32	54.6	16	8
2086749	BEF-KHZ-RT-40	55.5	17.3	8
2086750	BEF-KHZ-RT-50	58.4	23.4	8

BEF-KHZTSxxxMPA

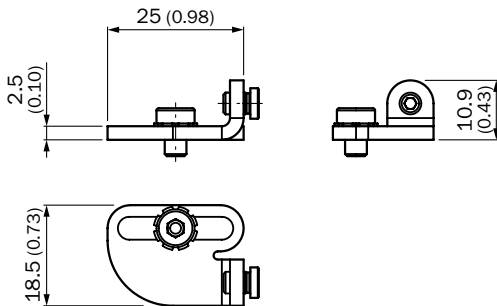


- ① Sensor adapter
- ② Mounting screw wrench size 1,5 for sensor
- ③ Mounting screw wrench size 1,5 for cylinder

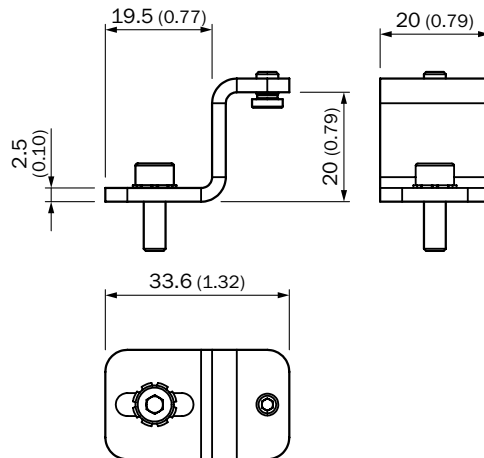
Part no.	Type	A	B	C
2086756	BEF-KHZTS063MPA	10.9	11.7	8
2086757	BEF-KHZTS080MPA	14.8	13.7	8
2086758	BEF-KHZTS100MPA	14.8	12.9	8
2086759	BEF-KHZTS125MPA	14.6	12.2	8

Mounting brackets and mounting plates

BEF-WNL01MPA

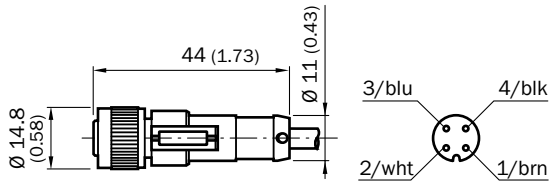


BEF-WNZ01MPA

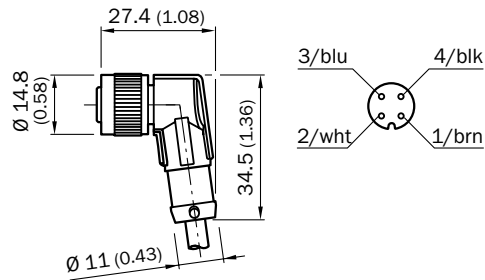


Plug connectors and cables

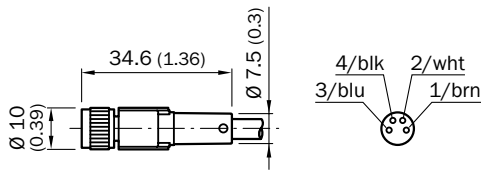
DOL-1204-G02MC (6025900)
DOL-1204-G05MC (6025901)



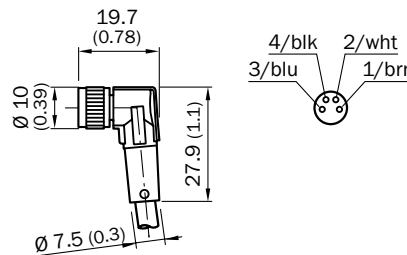
DOL-1204-W02MC (6025903)
DOL-1204-W05MC (6025904)



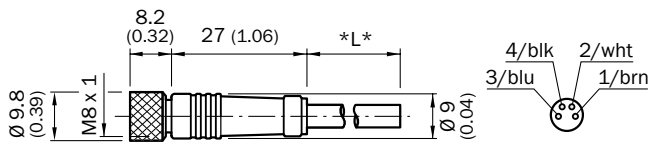
DOL-0804-G02MC (6025894)
DOL-0804-G05MC (6025895)



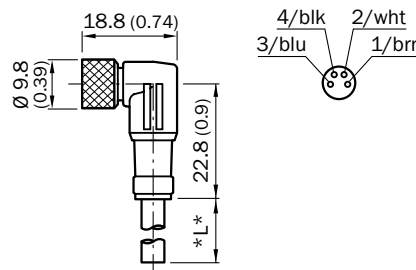
DOL-0804-W02MC (6025897)
DOL-0804-W05MC (6025898)



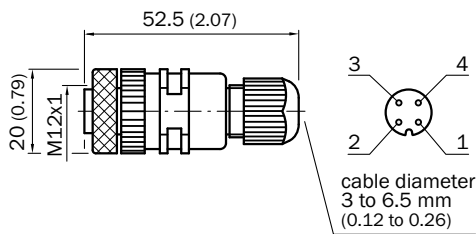
DOL-0804-G02M (6009870)
DOL-0804-G05M (6009872)



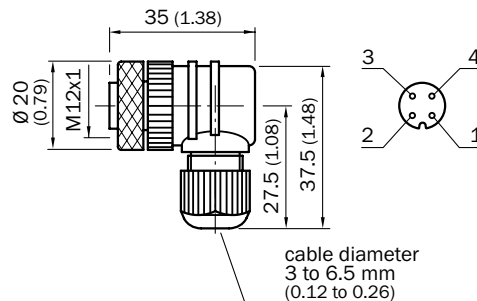
DOL-0804-W02M (6009871)
DOL-0804-W05M (6009873)



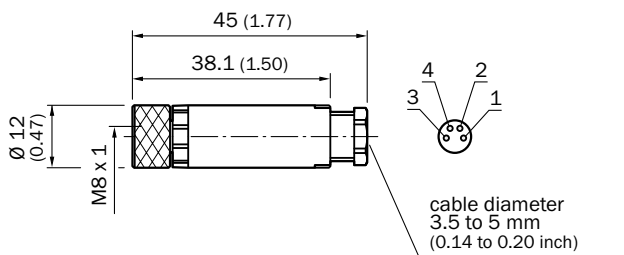
DOS-1204-G (6007302)



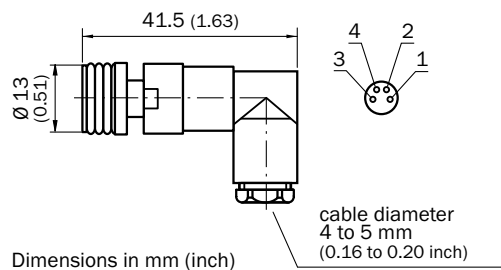
DOS-1204-W (6007303)



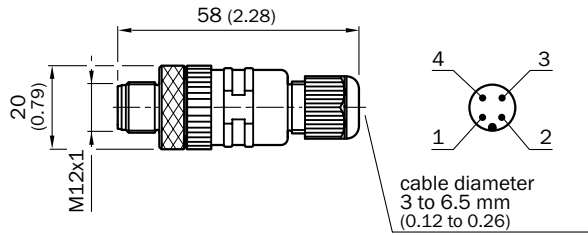
DOS-0804-G (6009974)



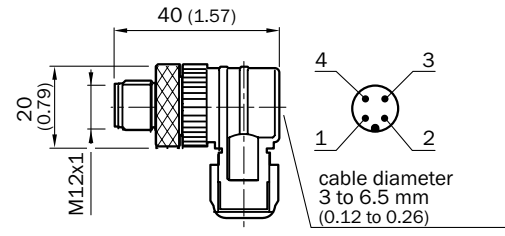
DOS-0804-W (6009975)



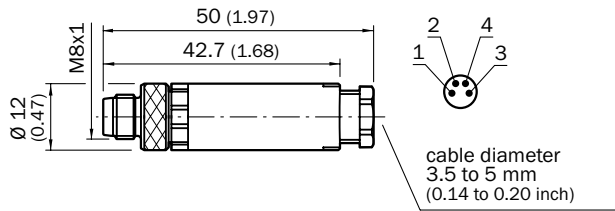
STE-1204-G (6009932)



STE-1204-W (6022084)

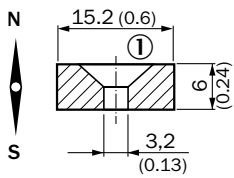


STE-0804-G (6037323)



Magnets

Magnet (5327349)



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