



## MZCG

EXTREMELY SHORT CYLINDER SENSOR FOR  
PNEUMATIC GRIPPERS AND MINIATURE CYLINDERS

Magnetic cylinder sensors

**SICK**  
Sensor Intelligence.

# MZCG - EXTREMELY SHORT CYLINDER SENSOR FOR PNEUMATIC GRIPPERS AND MINIATURE CYLINDERS

The MZCG magnetic cylinder sensor from SICK is specially designed for the detection of piston position in pneumatic grippers and miniature cylinders with C-slots, which are used in handling and assembly, robotics and the electronics industry, to name a few examples. This tiny device shows its true might anywhere space is limited. With a housing of only 12.2 mm and a 90° rotated radial cable connection, the MZCG is optimal for small drives.

The fixing concept makes mounting quick and easy: Simply insert into the C-slot in the sensor via drop-in and fasten into the cylinder in no time. The MZCG fits in a wide range of C-slots of the most common gripper and cylinder manufacturers due to its universal housing design. This reduces storage costs, enables flexible machine design and simplifies service.

## The new MZCG at a glance:

### Flexible cable

Drag-chain suitable robotic cable, ideal for the use of robots

### Mounting screw

Simply and safe:  
Quick fixing in all c-slots

### Drop-in Mounting

Simply insert the sensor from above instead of screw-in or slide-in laterally

### Status LED

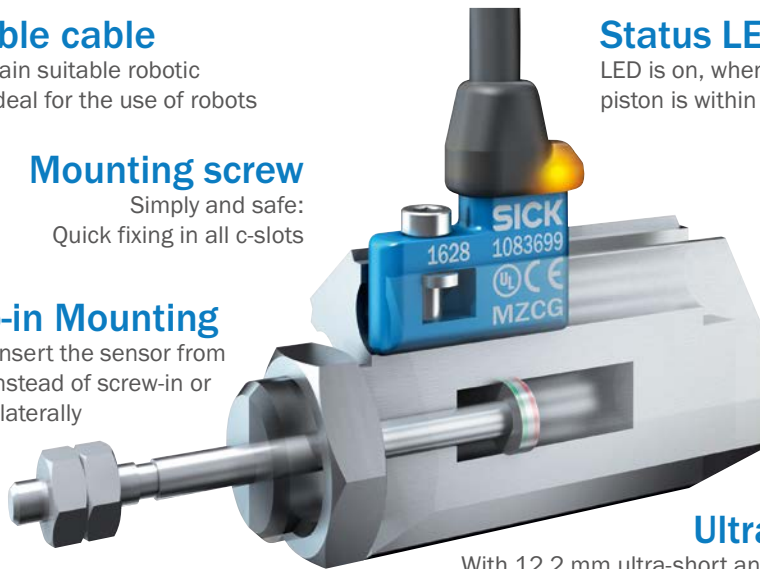
LED is on, when cylinder piston is within detection range

### Sensor

Short switching point enables precise processes, higher frequency and increases efficiency

### Ultra-short housing

With 12.2 mm ultra-short and universal, thus suitable for all commonly used grippers and cylinders with c-slot



Intelligent fixing concept: The sensor can be locked in no time thanks to the non-detachable screw.



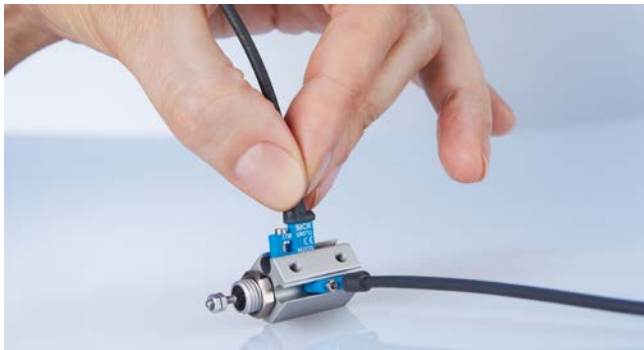
Comparison mounting MZCG (left gripper) to MZC1 (right gripper)



### Quick and easy mounting

Thanks to the universal construction, the MZCG can be easily inserted into the C-slot from above. The new fixing concept with a non-detachable screw ensures quick and secure fixing in C-slots.

- ▶ Result: Less time and effort for cabling, saves time and money



Easy drop-in mounting and secure fixing in C-slots thanks to the fixing concept

### Minimal space requirements

A 90° rotated cable connection allows for flexible mounting if space is tight. In spite of the small construction, the sensor ensures maximum functionality at minimum weight.

- ▶ Result: Low space requirements, less weight and time and effort for cabling, saves time and money



Saves space due to the radial cable connection and the small construction

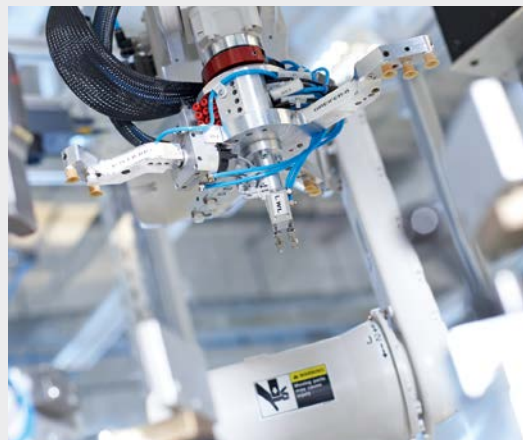
### Universal use

#### Applications:

- Piston position detection in micro pneumatics
- Precise position detection in pneumatic grippers in micro pneumatics, gripper devices on mounting robots, grippers, miniature swivel drives, precision sledge units

#### Industries:

Robotics, small parts handling, medical technology, packaging technology



# EXTREMELY SHORT CYLINDER SENSOR FOR PNEUMATIC GRIPPERS AND MINIATURE CYLINDERS



## Product description

The MZCG magnetic cylinder sensor detects the piston position in pneumatic grippers and pneumatic miniature cylinders. Thanks to its very small design, the MZCG is particularly well-suited for the C-slots of very small pneumatic actuators such as are used in handling and assembly, robotics or the elec-

tronics industry. The sensor is simply inserted in the C-slot and can be quickly and safely fastened on the cylinder. The MZCG fits in a wide range of C-slots of various manufacturers due to its universal housing design. This reduces storage costs, enables flexible machine design and easier service.

## At a glance

- Extremely small housing (12.2 mm) for applications in pneumatic grippers and miniature cylinders
- Fits in all commonly-used C-slots, e.g. from Schunk, Zimmer, Festo or SMC
- Short, precise switching point, ideal for applications with small stroke
- Cable suitable for drag chain
- LED for indicating the output state
- IP68 enclosure rating

## Your benefits

- Extremely small housing saves installation space, thereby increasing efficiency of the system
- Shorter switching point optimized for gripper applications increases process efficiency due to higher PSDI times
- Suitable for a wide range of applications: It fits into all standard C-slots, regardless of the cylinder profile or make. Reduced storage costs, flexible machine design and easier service
- Inserting the sensor into the slot is quick and easy
- The rugged mounting holds the sensor in the required position, even when exposed to shock and vibration, and increases the reliability



## Additional information

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

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

<b>Cylinder type</b>	C-slot
<b>Housing length</b>	12.2 mm
<b>Output type</b>	NPN / PNP (depending on type)
<b>Switching frequency</b>	1,000 Hz
<b>Output function</b>	NC / NO (depending on type)
<b>Enclosure rating</b>	IP68
<b>Specials</b>	Visual installation aid, IO-Link (depending on type)

## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Power consumption <sup>1)</sup></b>	≤ 10 mA
<b>Voltage drop</b>	≤ 2.5 V
<b>Continuous current I<sub>a</sub></b>	≤ 100 mA
<b>Protection class</b>	III
<b>Response sensitivity, typ.</b>	1.7 mT
<b>Overrun distance, typ.</b>	2 mm
<b>Hysteresis, typ.</b>	≤ 0.4 mT
<b>Reproducibility <sup>2)</sup></b>	≤ 0.1 mT
<b>Reverse polarity protection</b>	✓
<b>Short-circuit protection</b>	✓
<b>Power-up pulse protection</b>	✓
<b>Ambient operating temperature</b>	-30 °C ... +80 °C
<b>Shock and vibration resistance</b>	30 g, 11 ms / 10 ... 55 Hz, 1 mm
<b>EMC</b>	According to EN 60947-5-2
<b>Housing material</b>	Plastic
<b>Cable material</b>	PUR
<b>Conductor cross-section</b>	0.14 mm <sup>2</sup>
<b>UL File No.</b>	NRKH.E181493

<sup>1)</sup> Without load.<sup>2)</sup> U<sub>b</sub> and T<sub>a</sub> constant.

Ordering information

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

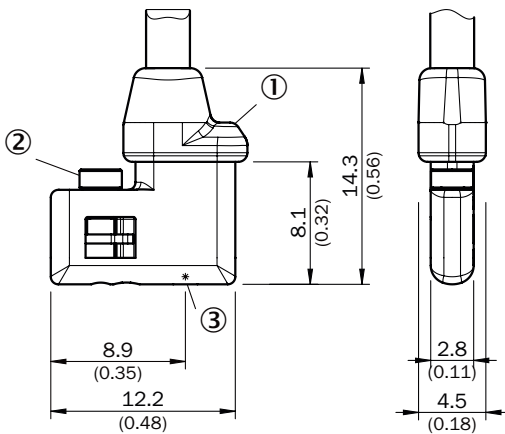
- **Specials:** –
- **Overrun distance, typ.:** 2 mm
- **Magnetic field sensitivity, min.:** 1.7 mT

Output function	Output type	Connection type	Enclosure rating	Cable material	Connection diagram	Type	Part no.
NO	PNP	Cable, 3-wire, 5 m	IP68	PUR	cd-001	MZCG-1Z7PS-KUB	1083715
		Cable, 3-wire, 2 m	IP68	PUR	cd-001	MZCG-1Z7PS-KUO	1083711
		Cable with connector M8, 3-pin, with knurled nuts, 0.5 m	IP68	PUR	cd-002	MZCG-1Z7PS-KRO	1083703
		Cable with connector M8, 3-pin, 0.3 m	IP68	PUR	cd-002	MZCG-1Z7PS-KPO	1083699
		Cable with connector M12, 3-pin, 0.3 m	IP68	PUR	cd-002	MZCG-1Z7PS-KQO	1083707
	NPN	Cable, 3-wire, 5 m	IP68	PUR	cd-001	MZCG-1Z7NS-KUB	1083717
		Cable, 3-wire, 2 m	IP68	PUR	cd-001	MZCG-1Z7NS-KUO	1083713
		Cable with connector M8, 3-pin, with knurled nuts, 0.5 m	IP68	PUR	cd-002	MZCG-1Z7NS-KRO	1083705
		Cable with connector M8, 3-pin, 0.3 m	IP68	PUR	cd-002	MZCG-1Z7NS-KPO	1083701
		Cable with connector M12, 3-pin, 0.3 m	IP68	PUR	cd-002	MZCG-1Z7NS-KQO	1083709
NC	PNP	Cable with connector M8, 3-pin, with knurled nuts, 0.5 m	IP68	PUR	cd-004	MZCG-1Z7PO-KRO	1083704
	NPN	Cable with connector M8, 3-pin, with knurled nuts, 0.5 m	IP68	PUR	cd-004	MZCG-1Z7NO-KRO	1083706

- **Specials:** Visual installation aid, IO-Link
- **Overrun distance, typ.:** 2 mm
- **Magnetic field sensitivity, min.:** 1.7 mT

Output function	Output type	Connection type	Enclosure rating	Cable material	Connection diagram	Type	Part no.
NO	PNP	Cable with connector M8, 3-pin, with knurled nuts, 0.5 m	IP68	PUR	cd-401	MZCG-1Z7PSAKRO	1091296

Dimensional drawing (Dimensions in mm (inch))

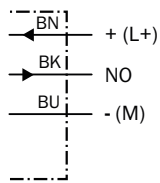


- ① Indication LED
- ② Fixing screw
- ③ Position sensor element

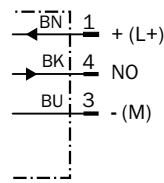


## Connection diagram

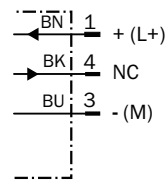
Cd-001



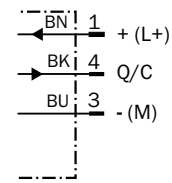
Cd-002



Cd-004



Cd-401



## Recommended accessories

### Connection systems

Connecting cables with female connector, M12, 3-pin, PUR, halogen-free

- **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, 3-pin, straight, A-coded, unshielded	Open cable ends	2 m, 3-wire, PUR, halogen-free	YF2A13-020UB1XLEAX	2095604
			5 m, 3-wire, PUR, halogen-free	YF2A13-050UB1XLEAX	2095605
	Female connector, M12, 3-pin, angled, A-coded, unshielded	Open cable ends	2 m, 3-wire, PUR, halogen-free	YG2A13-020UB1XLEAX	2095752
			5 m, 3-wire, PUR, halogen-free	YG2A13-050UB1XLEAX	2095753

Connecting cables with female connector, M8, 3-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, 3-pin, straight, A-coded, unshielded	Open cable ends	2 m, 3-wire, PUR, halogen-free	YF8U13-020UA1XLEAX	2094782
			5 m, 3-wire, PUR, halogen-free	YF8U13-050UA1XLEAX	2094788
	Female connector, M8, 3-pin, angled, A-coded, unshielded	Open cable ends	2 m, 3-wire, PUR, halogen-free	YG8U13-020UA1XLEAX	2094794
			5 m, 3-wire, PUR, halogen-free	YG8U13-050UA1XLEAX	2095586

Female connectors (ready to assemble), M8, 3-pin

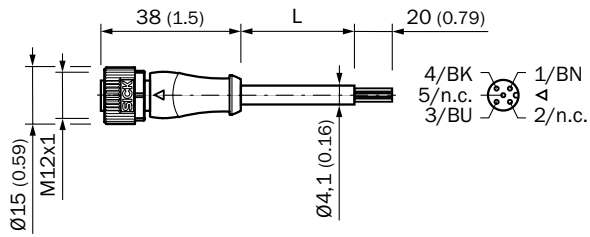
Figure	Connection type head A	Connection type head B	Type	Part no.
	Female connector, M8, 3-pin, straight, unshielded	Screw-type terminals	DOS-0803-G	7902077
	Female connector, M8, 3-pin, angled, unshielded	Solder connection	DOS-0803-W	7902078

Sensors for C-slot cylinders (Dimensions in mm (inch))

Plug connectors and cables

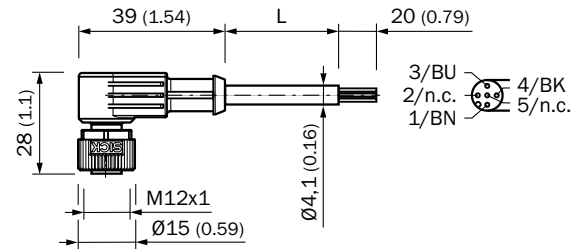
YF2A13-020UB1XLEAX (2095604)

YF2A13-050UB1XLEAX (2095605)



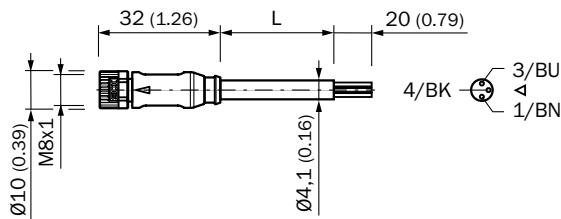
YG2A13-020UB1XLEAX (2095752)

YG2A13-050UB1XLEAX (2095753)



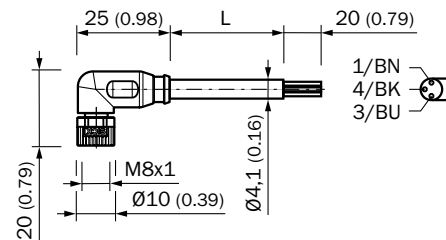
YF8U13-020UA1XLEAX (2094782)

YF8U13-050UA1XLEAX (2094788)

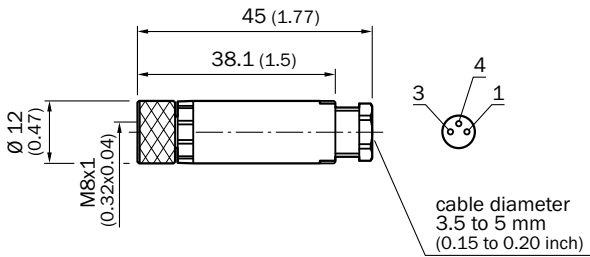


YG8U13-020UA1XLEAX (2094794)

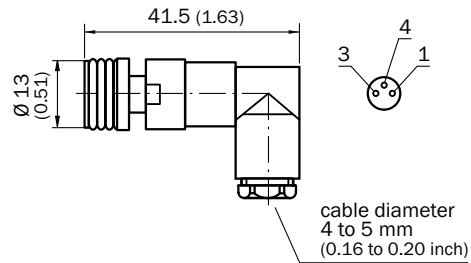
YG8U13-050UA1XLEAX (2095586)



DOS-0803-G (7902077)



DOS-0803-W (7902078)









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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.

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