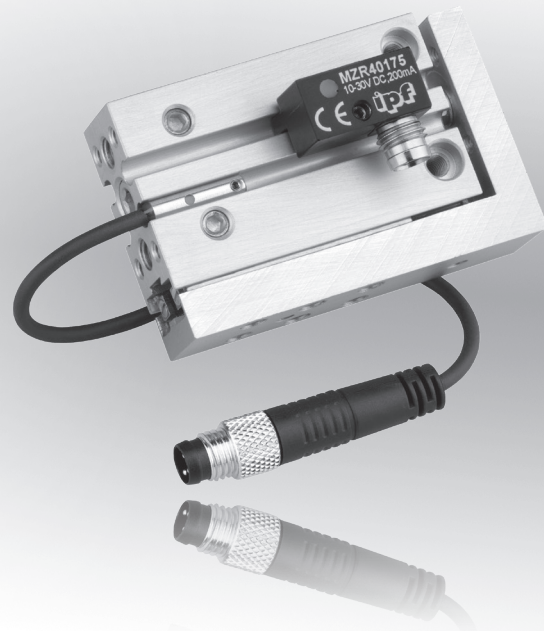


dimensions            **10 x 16 x 19.5mm**  
                              **∅ 3.6 x 20.5mm**  
                              **∅ 4.0 x 20.5mm**

**C-groove cylinders**    sensor surface            **middle area**

- ✓ temperature range up to +130°C
- ✓ wear-free and impact-resistant since fully electronic
- ✓ robust metal housing
- ✓ high locking power
- ✓ fast mounting
- ✓ very short design
- ✓ LED display, except for the +130°C version
- ✓ connection via cable, M8-connector, M8- or M12-cable connector



**cylinder sensors for 4mm round groove for Festo or SMC cylinders**



**description**

For many tasks in automation technology, it is necessary to detect movements in pneumatic and hydraulic cylinders and to precisely detect the position of the piston. Here, magnetic cylinder sensors are used.

The electronic cylinder sensors of the **MZR4** series are used for contactless and wear-free position detection in control technology. They offer a large switching distance yet still have a small design.

Because magnetic fields penetrate all non-magnetizable materials, the cylinder magnets are detected through walls made of non-ferrous metal, stainless steel and aluminum.

The electronic cylinder sensors can be used on all cylinders

from leading manufacturers and are directly interchangeable with reed switches that use three-wire system technology. Through the absolute wear-free mode of operation, they ensure maximum operational dependability and reliability.

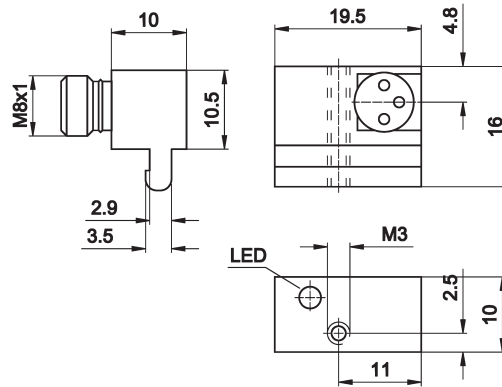
To retain the same position when replacing a cylinder switch, the locking stop

**AM000111** is available as an accessory.

**application examples**

- ▶ position detection of a cylinder piston
- ▶ end position sensing

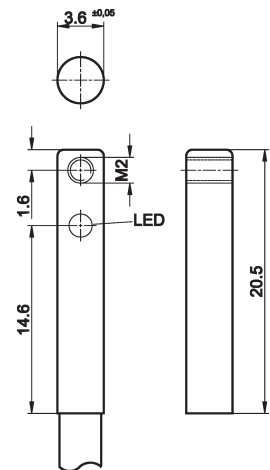
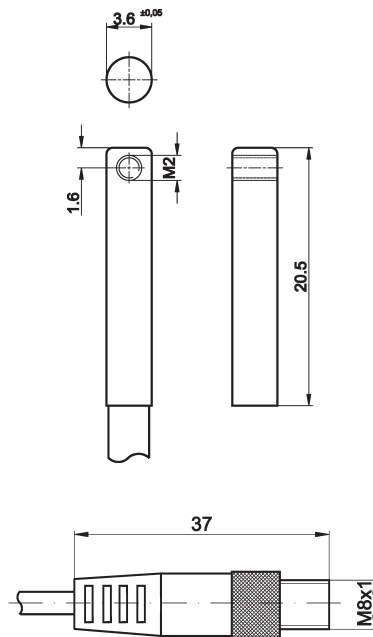
article-no.	MZR40175
version	for Festo cylinders
operating temperature	-25 ... +70°C
connection	M8-connector



### TECHNICAL DATA

sensor surface (active)	middle area
output signal	npn, no
operating voltage	10 ... 30V DC
current consumption (w/o load)	≤ 15mA
output current (max. load)	200mA
voltage drop (max. load)	2.0V DC
hysteresis	typ. 1mm
repeatability	±0.1mm
switching frequency	1kHz
display (signal)	yellow LED
short-circuit protection	+
reverse polarity protection	+
housing material	zinc diecast
dimensions	10x16x19.5mm
operating temperature	-25 ... +70°C
degree of protection (EN 60529)	IP67
connection	M8-connector, 3-pin
connection accessories	e.g. VK200075
mounting accessories	-

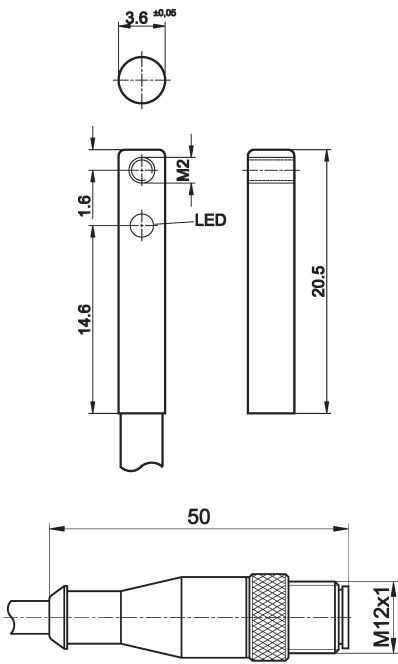
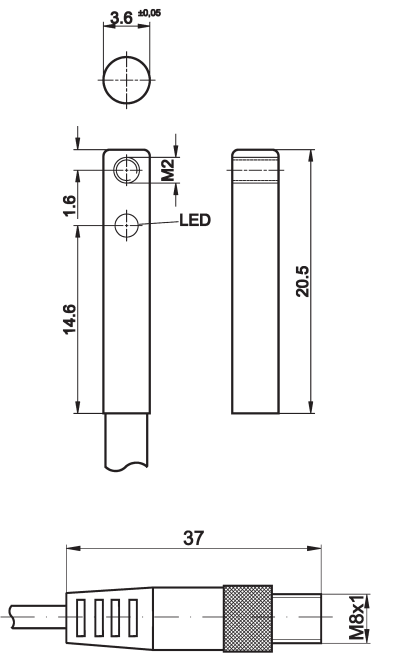
article-no.	MZR40158	MZR401A8
version	for Festo cylinders	for Festo cylinders
operating temperature	-25 ... +130°C	-25 ... +70°C
connection	M8-cable connector, teflon, 300mm	2m cable



**TECHNICAL DATA**

sensor surface (active)	middle area	middle area
output signal	pnp, no	pnp, no
operating voltage	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 15mA	≤ 15mA
output current (max. load)	150mA	150mA
voltage drop (max. load)	2.0V DC	2.0V DC
hysteresis	typ. 1mm	typ. 1mm
repeatability	±0.1mm	±0.1mm
switching frequency	1kHz	1kHz
display (signal)	-	yellow LED
short-circuit protection	+	+
reverse polarity protection	+	+
housing material	zinc diecast	stainl. steel
dimensions	∅ 3.6x20.5mm	∅ 3.6x20.5mm
operating temperature	-25 ... +130°C	-25 ... +70°C
degree of protection (EN 60529)	IP67	IP67
connection	M8-cable connector, teflon, 3-pin	2m cable, PUR, 3-wire
connection accessories	e.g. <b>VK200075</b>	-
mounting accessories	<b>AM000081</b> adapter, <b>AM000111</b> positive stop	<b>AM000081</b> adapter, <b>AM000111</b> positive stop
<b>Note:</b>	The output stage is located in the connector!	



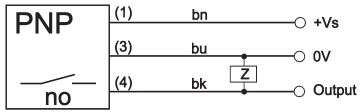
article-no.	<b>MZR40128</b>	<b>MZR40178</b>
version	<b>for Festo cylinders</b>	<b>for Festo cylinders</b>
operating temperature	<b>-25 ... +70°C</b>	<b>-25 ... +70°C</b>
connection	<b>M12-cable connector, PUR, 300mm</b>	<b>M8-cable connector, PUR, 300mm</b>
article-no.	MZR401E8	MZR401F8
version	for Festo cylinders	for Festo cylinders
operating temperature	-25 ... +70°C	-25 ... +70°C
connection	M12-cable connector, PUR, 600mm	M8-cable connector, PUR, 600mm
article-no.	-	MZR401K8
version	-	for Festo cylinders
operating temperature	-	-25 ... +70°C
connection	-	M8-cable connector, PUR, 1000mm
preferred types are shown in <b>bold!</b>		
<b>TECHNICAL DATA</b>		
sensor surface (active)	middle area	middle area
output signal	pnp, no	pnp, no
operating voltage	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC
hysteresis	typ. 1mm	typ. 1mm
repeatability	±0.1mm	±0.1mm
switching frequency	1kHz	1kHz
display (signal)	yellow LED	yellow LED
short-circuit protection	+	+
reverse polarity protection	+	+
housing material	stainl. steel	stainl. steel
dimensions	∅ 3.6x20.5mm	∅ 3.6x20.5mm
operating temperature	-25 ... +70°C	-25 ... +70°C
degree of protection (EN 60529)	IP67	IP67
connection	M12-cable connector, PUR, 3-pin	M8-cable connector, PUR, 3-pin
connection accessories	e.g. <b>VK200025</b>	e.g. <b>VK200075</b>
mounting accessories	<b>AM000081</b> adapter, <b>AM000111</b> positive stop	<b>AM000081</b> adapter, <b>AM000111</b> positive stop

article-no.	<b>MZR401A9</b>	<b>MZR40129</b>	<b>MZR40179</b>
version	for SMC cylinders	for SMC cylinders	for SMC cylinders
operating temperature	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C
connection	2m PUR cable	M12-cable connector, 300mm	M8-cable connector, 300mm
article-no.	-	MZR401E9	MZR401F9
version	-	for SMC cylinders	for SMC cylinders
operating temperature	-	-25 ... +70°C	-25 ... +70°C
connection	-	M12-cable connector, 600mm	M8-cable connector, 600mm
preferred types are shown in <b>bold!</b>			
<b>TECHNICAL DATA</b>			
sensor surface (active)	middle area	middle area	middle area
output signal	pnp, no	pnp, no	pnp, no
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 10mA
output current (max. load)	150mA	150mA	150mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC
hysteresis	typ. 1mm	typ. 1mm	typ. 1mm
repeatability	±0.1mm	±0.1mm	±0.1mm
switching frequency	1kHz	1kHz	1kHz
display (signal)	yellow LED	yellow LED	yellow LED
short-circuit protection	+	+	+
reverse polarity protection	+	+	+
housing material	stainl. steel	stainl. steel	stainl. steel
dimensions	Ø 4.0x20.5mm	Ø 4.0x20.5mm	Ø 4.0x20.5mm
operating temperature	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C
degree of protection (EN 60529)	IP67	IP67	IP67
connection	2m PUR cable, 3-wire	M12-cable connector, PUR, 3-pin	M8-cable connector, PUR, 3-pin
connection accessories	-	e.g. <b>VK200025</b>	e.g. <b>VK200075</b>
mounting accessories	<b>AM000111</b> positive stop	<b>AM000111</b> positive stop	<b>AM000111</b> positive stop



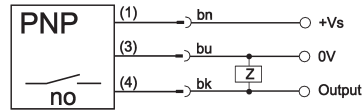
### connection

#### cable device



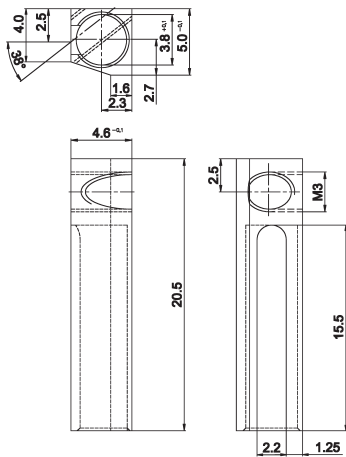
wire colors: bn = brown (1), bu = blue (3), bk = black (4)

#### connector device

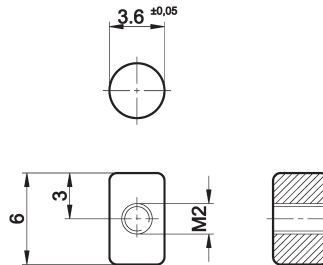


cable connector with rotatable outside thread

#### AM000081 adapter



#### AM000111 positive stop



### ACCESSORIES

article-no.	description	material
AM000081	adapter for T-groove	aluminum
AM000111	positive stop for C-groove	stainl. steel

This data sheet only contains the available standard variants. For other output / connection variants, we kindly ask that you contact us.

We are happy to supply the right cable socket for the plug equipment. You will find a list in the "accessories" section of the catalog under **ipf-SENSORFLEX**® "cable sockets" or in the search window on our homepage [www.ipf-electronic.com](http://www.ipf-electronic.com) (using the search term "VK").

**Warning:** Never use these devices in applications where the safety of a person depends on their functionality.

This data sheet as well as your personal contact can be found at [www.ipf-electronic.com](http://www.ipf-electronic.com)