

# Magnetic field sensor

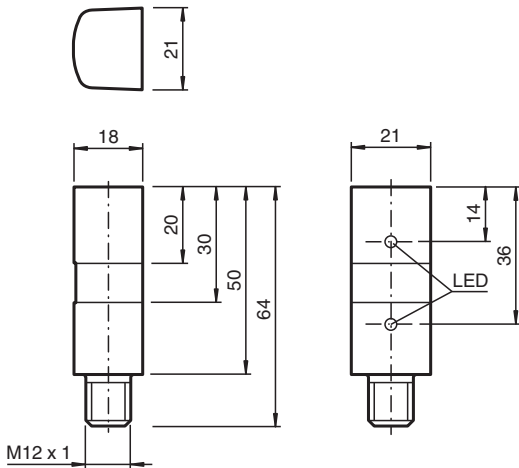
## MB-F32-A2-V1



- For mounting on a hydraulic cylinder
- Detects the piston position through the cylinder wall
- Suitable for magnetic, hydraulic cylinders made of steel



### Dimensions



### Technical Data

#### General specifications

Switching function		complementary
Output type		PNP
Connection		Switching output 1 : pin 4 Switching output 2 : pin 2
Installation		on the cylinder
Output polarity		DC
Switching range	$s_b$	typ. 50 mm
Output type		4-wire

#### Nominal ratings

Operating voltage	$U_B$	10 ... 30 V DC
Reverse polarity protection		reverse polarity protected
Short-circuit protection		pulsing
Voltage drop	$U_d$	$\leq 1.5$ V
Operating current	$I_L$	0 ... 100 mA
No-load supply current	$I_0$	$\leq 30$ mA

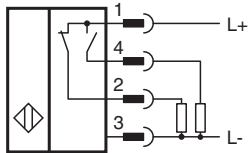
#### Functional safety related parameters

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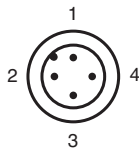
## Technical Data

MTTF <sub>d</sub>	739 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %
<b>Indicators/operating means</b>	
LED indication	red: switching state output 1 yellow: switching state output 2
<b>Compliance with standards and directives</b>	
Standard conformity	
Standards	EN IEC 60947-5-2
<b>Approvals and certificates</b>	
CCC approval	CCC approval / marking not required for products rated ≤36 V
<b>Ambient conditions</b>	
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>	
Connection type	Connector plug
Housing material	Polyamide (PA)
Sensing face	Polyamide (PA)
Degree of protection	IP67
Connector	
Threading	M12 x 1
Number of pins	4
Dimensions	
Height	21 mm
Width	18 mm
Length	50 mm

## Connection



## Connection Assignment



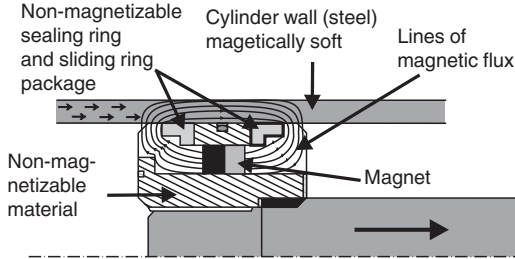
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

**Additional Information**

**Magnetic System**

Primary Construction of the Magnetic System



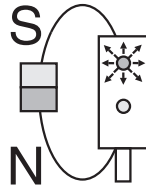
For this sensor principle it is not sufficient to simply mount the permanent magnet onto the piston. A magnetic system has to be constructed which conducts the magnetic flux of the permanent magnets directly into the cylinder wall in order to achieve the strongest possible magnetization. For further details regarding the construction of magnetic systems, refer to the manual. A field trial is generally recommended before practical operation!

**Magnets**

The magnets are axially magnetized. It must be ensured that all magnets are mounted with the same polarity!

**Definition of polarity**

An approaching permanent magnet with the north pole pointing towards the cable connection of the sensor causes output 1 to respond and the red LED to light.



**Antivalent output**

By means of the sensor's antivalent output stage the appropriate output can be chosen depending on the polarity of the magnetic system or the mounting location of the sensor

**Mounting**

The sensor is mounted directly on the surface towards the cylinder axis. For this purpose, pressure bands, tightening straps, or hose band clamps can be used.

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