



cylinder sensors 1400

design 5 x 4.6 x 18mm

5 x 6.5 x 27mm 10.2 x 16 x 25mm

T-groove cylinder sensor surface middle range



- √ fully electronic microsensor
- √ robust metal housing
- √ high locking power
- √ quick mounting
- √ very short design
- ✓ short-circuit and reverse polarity protection
- ✓ LED-display except for +130°C version
- ✓ connection with M8-, M12-connector or cable
- ✓ versions with PUR- or teflon-cable

mounting from above temperature range up to +130°C









description

For many tasks in the automation industry it is necessary to know the sequence of movements in the pneumatic cylinders and to detect accurately the position of the pistons. A choice of fully electronic sensors as well as reed switches is available to accomplish this.

Under certain conditions, e.g. high vibration, high switching frequencies or where very precise switch-points are required, reed switches have severe limitations. The lack of shortcircuit protection, the high sensitivity to inductive voltage spikes and especially the mechanical wear of the switch contacts all give rise to frequent problems in day-to-day use. These weaknesses have led to a demand from industrial users for a sensor that will guarantee long-term troublefree operation and avoid machine downtime with the resulting loss of production.

To this end ipf electronic offers a range of magnetic cylinder sensors, which can be used to detect the position of the pistons within pneumatic cylinders. They guarantee the highest level of operation safety and reliability thanks to the absolutely wear-free mode of operation.

The electronic cylinder sensors have been designed to work with cylinders from all major manufacturers and are directly interchangeable with reed switches that use 3-wire technology.

application examples

- position recognition of a cylinder piston
- ▶ limit of travel enquiry





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article-no.	MZ0701A2	MZ070122	MZ070172
connection	cable	M12-cable connector	M8-cable connector
operating temperature	-25 +70°C	PUR, 300mm -25 +70°C	PUR, 300mm -25 +70°C
	-23 + 70 C		
article-no.	-	MZ0701E2 M12-cable connector	MZ0701F2 M8-cable connector
connection	-	PUR, 600mm	PUR, 600mm
operating temperature	-	-25 +70°C	-25 +70°C
article-no.	-	MZ0701J2	_
connection	-	M12-cable connector	-
		PUR, 1000mm	
operating temperature	-	-25 +70°C	
Preferential types are printed bold!	- 5 - -	⊢ 5−-	- 5 - -
	4.5. 4.5. 4.5. 4.5. 4.5. 4.5. 4.5. 4.5.	4.5_ 4.5_ 2.5	13.5 10.5
TECHNICAL DATA	u 2.5	length 50	length 37
active sensor surface	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)	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC
hysteresis	typical 1mm	typical 1mm	typical 1mm
repeatability	± 0.1mm	± 0.1mm	± 0.1mm
sampling frequency	1kHz	1kHz	1kHz
status display	yellow LED	yellow LED	yellow LED
short-circuit protection	+	+	+
reverse polarity protection	+	+	+
housing material	aluminium	aluminium	aluminium
design	5x6.5x27mm	5x6.5x27mm	5x6.5x27mm
operating temperature	-25 +70°C	-25 +70°C	-25 +70°C
system of protection (EN 60529)	IP67	IP67	IP67
connection	cable, 2m, PUR	M12-connector, 3-pin	M8-connector, 3-pin
connection accessories		e.g. VK200025 , 2m, straight, PUR	e.g. VK200075 , 2m, straight, PUR
mounting accessories	positive stop AM000076 cable clip AM000087	positive stop AM000076 cable clip AM000087	positive stop AM000076 cable clip AM000087
	5, , , 40 (0) 2257 (0)		



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article-no.	MZ070173	MZ0701A6	MZ070126
connection	M8-connector	cable, 2m PUR	M12-cable connector PUR, 300mm
operating temperature	-25 +70°C	-25 +70°C	-25 +70°C
article-no.		_	MZ0701E6
connection	-	-	M12-cable connector PUR, 600mm
operating temperature	-	-	-25 +70°C
article-no.			MZ0701J6
connection	-	-	M12-cable connector PUR, 1000mm
operating temperature			100,100011111
Preferential types are printed bold!			
	8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1.6 max 4.6	1.6 max 4.6
	11.8 3 LED 22 4.5	EED 65	LED ©
			length 50
TECHNICAL DATA			
t':			
	middle area	middle area	middle area
output signal	pnp, no	pnp, no	pnp, no
active sensor surface output signal operating voltage	pnp, no 10 30V DC	pnp, no 10 30V DC	pnp, no 10 30V DC
output signal operating voltage current consumption (w/o load)	pnp, no 10 30V DC ≤ 15mA	pnp, no 10 30V DC ≤ 15mA	pnp, no 10 30V DC ≤ 15mA
output signal operating voltage current consumption (w/o load) output current (max. load)	pnp, no 10 30V DC ≤ 15mA 200mA	pnp, no 10 30V DC ≤ 15mA 200mA	pnp, no 10 30V DC ≤ 15mA 200mA
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability sampling frequency	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability sampling frequency	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability sampling frequency status display short-circuit protection	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability sampling frequency status display short-circuit protection reverse polarity protection	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + +	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + +	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + +
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability sampling frequency status display short-circuit protection reverse polarity protection housing material	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED +	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED +	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED +
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability sampling frequency status display short-circuit protection reverse polarity protection housing material design	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability sampling frequency status display short-circuit protection reverse polarity protection housing material design operating temperature	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 10.2x16x25mm	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 5x4.6x18mm	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 5x4.6x18mm
operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis repeatability sampling frequency status display short-circuit protection reverse polarity protection housing material design operating temperature system of protection (EN 60529)	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 10.2x16x25mm -25 +70°C	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 5x4.6x18mm -25 +70°C	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 5x4.6x18mm -25 +70°C
output signal	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 10.2x16x25mm -25 +70°C IP67	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 5x4.6x18mm -25 +70°C IP67	pnp, no 10 30V DC ≤ 15mA 200mA 2.0V DC typical 1mm ± 0.1mm 1kHz yellow LED + + aluminium 5x4.6x18mm -25 +70°C IP67





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TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) woltage drop (max. load) woltage drop (max. load) woltage drop (max. load)	PUR, 300mm -25 +70°C MZ0701F6 3-cable connector PUR, 600mm -25 +70°C MZ0701K6 3-cable connector PUR, 1000mm -25 +70°C	teflon, 300mm -25 +70°C	MZ070156 M8-cable connector teflon, 600mm -25 +130°C
operating temperature article-no. connection M8 operating temperature Preferential types are printed bold! TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	B-cable connector PUR, 600mm -25 +70°C MZ0701K6 B-cable connector PUR, 1000mm -25 +70°C	max 4.8	M8-cable connector teflon, 600mm -25 +130°C
TECHNICAL DATA active sensor surface butput signal poperating voltage current consumption (w/o load) butput current (max. load) woltage drop (max. load) woltage drop (max. load)	PUR, 600mm -25 +70°C MZ0701K6 8-cable connector PUR, 1000mm -25 +70°C	max 4.8	teflon, 600mm -25 +130°C
TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) woltage drop (max. load) woltage drop (max. load)	-25 +70°C MZ0701K6 3-cable connector PUR, 1000mm -25 +70°C	max 4.8	-25 +130°C
TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) voltage drop (max. load)	MZ0701K6 B-cable connector PUR, 1000mm -25 +70°C	max 4.8	max 4.6
TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	B-cable connector PUR, 1000mm -25 +70°C	LED 2	LED E
Freferential types are printed bold! FECHNICAL DATA Cactive sensor surface putput signal poperating voltage current consumption (w/o load) putput current (max. load) woltage drop (max. load)	PUR, 1000mm -25 +70°C	LED 2	LED E
Freferential types are printed bold! FECHNICAL DATA Cactive sensor surface putput signal poperating voltage current consumption (w/o load) putput current (max. load) woltage drop (max. load)	1.6 max. 4.6 sp. 1.6 s	LED 2	LED E
TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	LED &	LED 2	LED E
TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	LED &	LED 2	LED E
TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	h 37	length 37	
TECHNICAL DATA active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)			length 37
active sensor surface output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load) hysteresis			
output signal operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	middle area	middle area	middle area
operating voltage current consumption (w/o load) output current (max. load) voltage drop (max. load)	pnp, no	pnp, no	pnp, no
current consumption (w/o load) putput current (max. load) voltage drop (max. load)			
output current (max. load) voltage drop (max. load)	10 30V DC ≤ 15mA	10 30V DC ≤ 15mA	10 30V DC ≤ 15mA
oltage drop (max. load)	200mA	200mA	200mA
	2.0V DC	2.0V DC	2.0V DC
1,30010313	typical 1mm	typical 1mm	typical 1mm
repeatability	± 0.1mm	± 0.1mm	± 0.1mm
sampling frequency	1kHz	1kHz	1kHz
tatus display	yellow LED	yellow LED	yellow LED
short-circuit protection	+	+	+
everse polarity protection	+	+	+
nousing material	aluminium	aluminium	aluminium
design	5x4.6x18mm	5x4.6x18mm	5x4.6x18mm
operating temperature	-25 +70°C	-25 +70°C	-25 +130°C
system of protection (EN 60529)	IP67	IP67	IP67
	3-connector, 3-pin g. VK200075 , 2m, straight, PUR	M8-connector, 3-pin e.g. VK200075 , 2m, straight, PUR	M8-connector, 3-pin e.g. VK200075 , 2m, straight, PUR
	ive stop AM000076 ble clip AM000087	positive stop AM000076 cable clip AM000087	positive stop AM000076 cable clip AM000087



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connection cable device



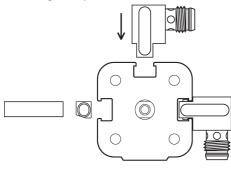
wire colors: bn = brown (1), bu = blue (3), bk = black (4)

cable connector with rotatable outside thread

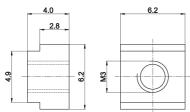
connector device



mounting example



positive stop AM000076



ACCESSORIES

article-no.	description	material
AM000076	positive stop for T-groove	zinc
AM000086	cable clip for T-groove	plastic

This data sheet contains the standard versions only. Kindly request the availability of other output- and connection functions.

We will be pleased to supply the matching cable socket for your devices with connector. Please refer to the list in catalog chapter "accessories" under "cable sockets **ipf**-**SENSORFLEX**®" or search our website for "VK".

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



