

INSTALLATION GUIDE

Magnetostrictive Sensor Series MAZ

For more information please see the data sheet at www.waycon.biz/products/magnetostrictive-transducers/

FIRST STEPS

WayCon Positionsmesstechnik GmbH would like to thank you for the trust you have placed in us and our products. This manual will make you familiar with the installation and operation of our magnetostrictive sensors. Please read this manual carefully before initial operation!

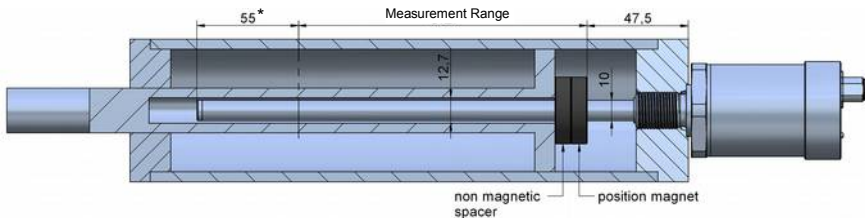
Unpacking and checking:

Carefully lift the device out of the box by grabbing the housing. After unpacking the device, check it for any visible damage as a result of rough handling during the shipment. Check the delivery for completeness. If necessary consult the transportation company, or contact WayCon directly.

MOUNTING INSIDE A CYLINDER

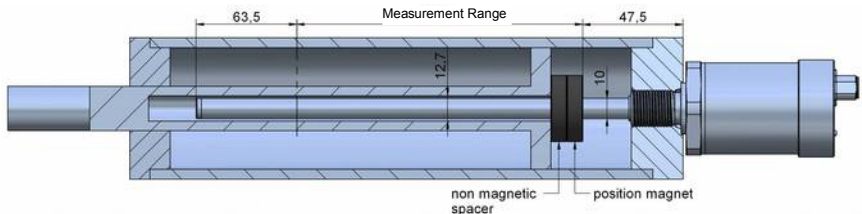
The cylinder head (in which the threaded hole will be drilled for inserting the transducer) must be made of non-magnetic material. The residual magnetization caused by drilling the threaded hole must be less than 4 Gauss.

MAZ-A, MAZ-S: Mounting inside a cylinder



* for strokes over 1000 mm, the non-active zone (55 mm) becomes 60 mm because the tip includes a M4x6 threaded hole.

MAZ-C: Mounting inside a cylinder



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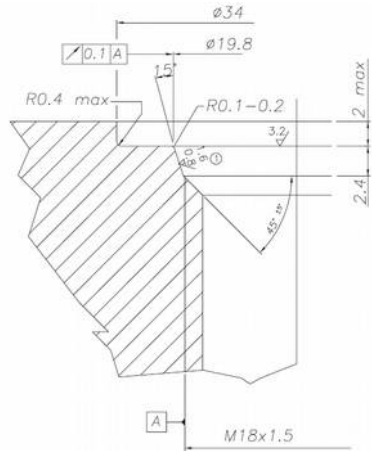
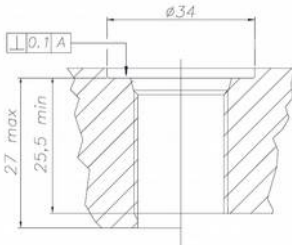
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MOUNTING INSIDE A CYLINDER

Thread M18x1,5

The sealing surface must be free from scratches longitudinal or spiral.
 Ro 1.6 µm for sealing with NON-pulsating pressure
 Ro 0.8 µm for seals with pulsating pressure



Suggested o-ring:

PARKER 6-349 15,4x2,1
 Material: Viton 90° Shore-A
 Mixes: PARKER N552-90

TECHNICAL DATA

Sampling time MAZ-A	[ms]	0.5, MR 50...300 mm	1, MR 350...1100 mm	1.5, MR 1200...2000 mm	2, MR 2250...3000 mm	3, MR 3250...4000 mm
Sampling time MAZ-C	[ms]	1, MR 50...1200 mm	2, MR 1200...2400 mm	4, MR >2400 mm		
Sampling time MAZ-S	[ms]	1, MR 50...1000 mm	2, MR 1100...2000 mm	4, MR >2000 mm		
Dimension A: MAZ-A	[mm]	measurement range + 178.2		measurement range + 183.2		
Dimension A: MAZ-C	[mm]	measurement range + 187.2				
Dimension A: MAZ-S	[mm]	measurement range + 178.2		measurement range + 183.2		

MR: measurement range

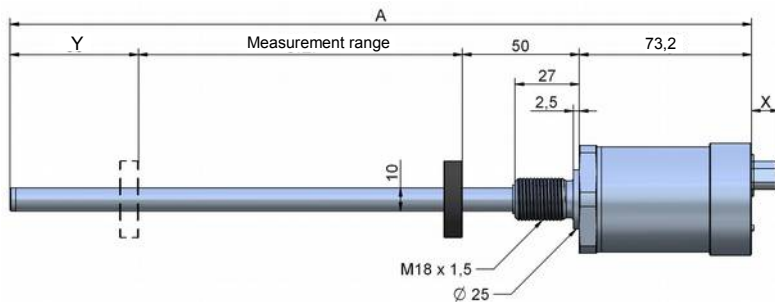
DIAGNOSTICS OF MODELS WITH LEDS

Red LED	Meaning analogue output	Meaning SSI/CANopen output
on	Transducer powered and working correctly	Echo absent (magnet out of measurement range or internal device error)
off	Transducer not powered	Transducer working correctly
flashing	Echo absent (magnet out of measurement range or internal device error)	



TECHNICAL DRAWING

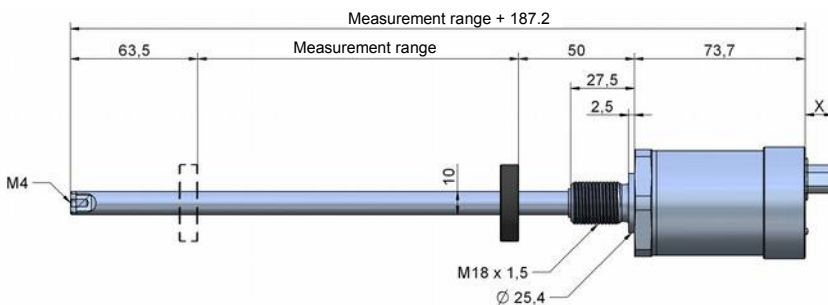
MAZ-A: Analog output



Measurement range	A	Y
50 – 1000	MR + 178.2 mm	55 mm
1250 – 4000	MR + 183.2 mm	60 mm

Version	X
MAZ-A-A	12.2 mm
MAZ-A-B	9.5 mm

MAZ-C: CANOpen output



Version	X
MAZ-C-A	12.2 mm
MAZ-C-B	9.5 mm

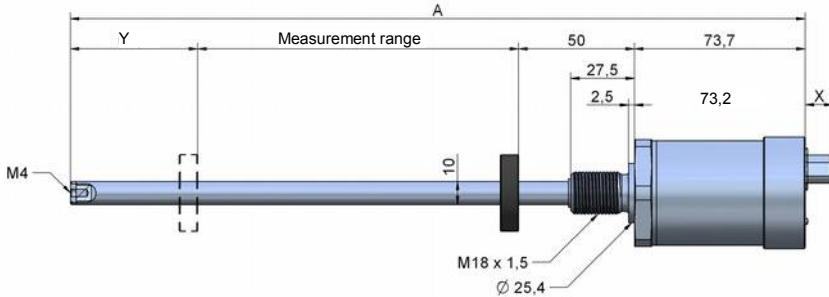
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TECHNICAL DRAWING

MAZ-S: SSI output

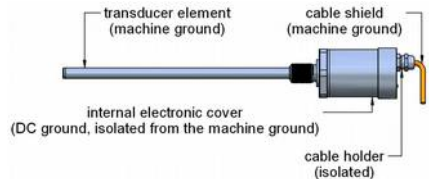
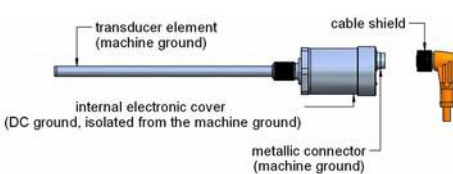


Measurement range	A	Y	Version	X
50 – 1000	MR + 178.2 mm	55 mm	MAZ-S-A	12.2 mm
1250 – 4000	MR + 183.2 mm	60 mm	MAZ-S-B	9.5 mm

ELECTRICAL CONNECTION

- The transducer must be installed away from sources of magnetic fields, both static and 50 Hz (electric motors, solenoids, etc.).
- The 24 VDC feed must be dedicated to the transducer or must be drawn directly from the power terminals and as near as possible.
- The sensors must be powered with non-distributed networks and always at lengths of less than 30 m.

MAZ Grounding



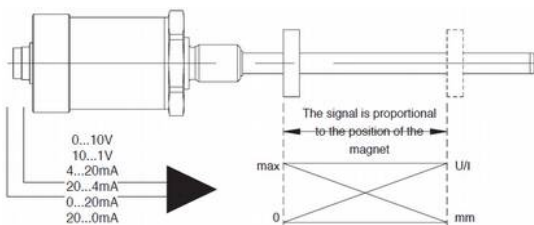


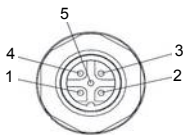
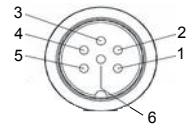
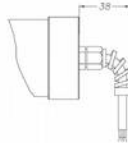
ELECTRICAL CONNECTION ANALOG

The magnetostrictive transducers of the MAZ-A series supply a direct analog output in voltage (0...10 VDC) and current (4...20 mA and 0...20 mA).

All the outputs can have reverse action (10...0 VDC; 20...4 mA; 20...0 mA).

The outputs are direct, no signal conditioning is required if they are interfaced with a controller or measuring instrument.



			
Function	MAZ-AA 5-pole, M12	MAZ-AB 6-pole, M16	MAZ-AF cable, 7-pole
Output 1 (position): 0..10 V, 4..20 mA	1	1	grey
GND output 1 (0 V)	2	2	pink
Output 2 (inverse position): 10..0 V, 20..4mA	3	3	yellow
GND output 2 (0 V)	2	4	green
Supply +	5	5	blue
Supply GND	4	6	white

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ELECTRICAL CONNECTION CANopen

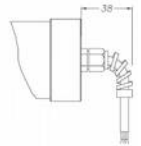
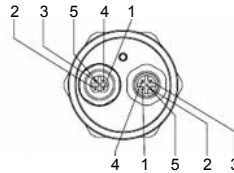
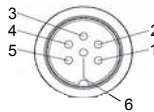
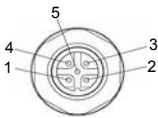
Supply: 24 VDC, $\pm 20\%$
 Baud rate: 500 kBaud
 Interface: CANopen DS-301 V4.01
 Device Profile: DS-406 V2.0
 Standard node number: 127

Please also see supplement „Additional Information CANopen“.

CANopen Data Protocol

SOF	Arbitration	Control	Data Field	CRC	ACK	EOF	Interframe Space
1	11	1	6	0 – 8 Bytes	15	1 1 1	7
							≥ 3 Bits

Type	Cursors	PD01	PD02	PD03	PD04
A	1	Position, 4 Byte integer Speed, 2 Byte integer Cams, 1 Byte integer	no data	no data	no data
B	2	Position 1, 2 Byte integer Speed 1, 4 Byte integer Cams 1, 1 Byte integer	Position 2, 4 Byte integer Speed 2, 2 Byte integer Cams 2, 1 Byte integer	no data	no data

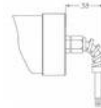
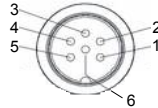


Function	MAZ-C-A	MAZ-C-B	MAZ-C-Y		MAZ-C-F
	5 pole connector, M12	6 pole connector, M16	male	female	cable, 4 pole
CAN L	5	1	5	5	blue
CAN H	4	2	4	4	white
CAN GND (n.c.)	1	3	1	1	-
n.c.	-	4	-	-	-
Supply +	2	5	2	2	red
Supply GND	3	6	3	3	black



ELECTRICAL CONNECTION SSI

Supply: 10...32 VDC
Please also see supplement „Additional Information SSI“.



Function

MAZ-S-B
6 pole connector, M16

MAZ-S-F
PVC cable, 6 pole

Data -

1

orange

Data +

2

orange / w white

Clock +

3

green / w white

Clock -

4

green

Supply +

5

blue / w white

Supply GND

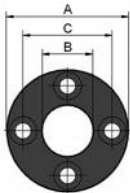
6

blue

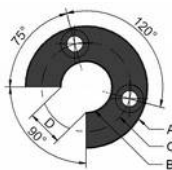
MAGNETIC CURSOR

Please order magnetic cursor separately (not included in the delivery of the sensor).

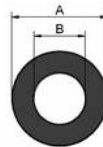
Order Code	A	B	C	D
PCUR022	32.8	13.5	23.9	-
PCUR023	32.8	13.5	23.9	11.0
PCUR024	25.4	13.5	-	-
PCUR026 for liquids	52.4	12.0	44.0	-
PCUR027 for liquids	52.4	15.0	44.0	-



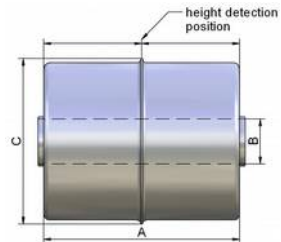
PCUR022



PCUR023



PCUR024



PCUR026/027

Note:

PCUR026 and PCUR027 are supplied with kit PKIT036 for floating cursor for liquids.
Material PCUR026, PCUR027: stainless steel AISI 316



ACCESSORIES

Connection cable analog output, 5-pole, shielded, connector M12

K5P2M-S-M12	2 m, connector, straight
K5P5M-S-M12	5 m, connector, straight
K5P10M-S-M12	10 m, connector, straight
K5P2M-SW-M12	2 m, connector, angular
K5P5M-SW-M12	5 m, connector, angular
K5P10M-SW-M12	10 m, connector, angular



Cable for CANopen output, 5-pole, shielded, PUR

K5P2M-SB-M12-CAN	connector M12, straight, to coupling M12
K5P2M-S-M12-CAN	connector M12, straight, open cable head
K5P2M-B-M12-CAN	female connector M12, straight, open cable head

Connection cables SSI on request

DECLARATION OF EC-CONFORMITY

WayCon Positionsmesstechnik GmbH
Mehlbeerenstrasse 4
82024 Taufkirchen / Germany

Classification
Series

This is to certify that the products
Magnetostrictive Sensors
MAZ

fulfill the current request of the following EC-directives:
EMV-directive 2004/108/EU (until April 19th, 2016)
2014/30/EU (from April 20th, 2016)

applied harmonized standards:
EN 61000-6-2:2005, EN 61000-6-4:2007, EN 61326-1:2006

The declaration of conformity loses its validity if the product is misused or modified without proper authorisation.

Taufkirchen, 24.02.2016

Andreas Träger, CEO