

SERIES MTM-A

Magnetic translational measuring system - ABSOLUTE



The absolute MTM-A measuring system is based on the physical principle of magnetism and is used for a high-precision determination of the position, the moved distance and/or the speed. Based on this wear-free and contactless absolute measuring system, MTM-A is suitable for fixed round rod profiles, e. g. non-rotating piston rods of hydraulic cylinders in mobile automation tasks.



System consisting of:

- Round rod / piston rod (provided by the customer for coding by ELGO)
- Application related sensor (ELGO made)
- Mechanical accessories for sensor adaptation on request

Special features:

- Absolute position / path determination at round profile rods
- Wear-free, contactless measurement principle
- Very robust and proven measuring technology
- Insensitive to contamination
- High shock and vibration resistance
- Interface: Analog output or CANopen
- Power supply 10 ... 30 VDC

Technical Data:

Mechanical Data

Measurement principle	absolute
Repeat accuracy	± 1 increment
System accuracy	± 1 mm at max. 2450 mm measuring length (standard)
Distance sensor - round rod	1.0 mm with 10 mm wide coding 1.5 mm with 20 mm wide coding or all-round coding
Round rod diameter	min. 20 mm
Measuring length	max. 2450 mm (available in 10 mm steps)
Material sensor head	aluminium, galvanized
Dimensions sensor head	L x B x H = 52 x 16 x 30 mm
Sensor cable length	standard: 1.5 m (others on request)
Weight sensor head	approx. 50 g without cable (cable: approx. 60 g/m)
Mounting position of MTM-A system	depends on application

Electrical Data

Power supply voltage	10 ... 30 VDC
Residual ripple	10 ... 30 VDC <10 %
Consumption	max. 80 mA
Available Interfaces	V04 = 12 bit analog output (voltage)* 0.5 ... 4.5 V V10 = 12 bit analog output (voltage)* 0 ... 10 V I20 = 12 bit analog output (current)* 0 ... 20 mA I24 = 12 bit analog output (current)* 4 ... 20 mA CA0 = CANopen standard (DS406)
Connection type	Standard: open cable ends Option: 5-pin M12 x 1 round connector
Maximum operating speed	up to 2.0 m/s

Environmental Conditions

Store temperature	-25 ... +85° C
Operating temperature	-25 ... +85° C
Humidity	max. 95 %, non-condensing
Protection class (entire system)	standard: IP65 / optionally: IP69K
Influence of external magnet on the coding of the round rod	External magnetic fields must not exceed 64 mT (640 Oe; 52 kA/m) on the coded round rod surface, as this can damage or destroy the round rod coding.

*) The analog output variant (voltage or current) can be specified with the order (see type designation on next page)

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Type designation:

Series / Type	Sensor						Round Rod / Cylinder				
MTMA	XX	XXX	X	XXX	X	X	XXXX	XX	X	XXX	XXX

Version No.:
 00 = standard version
 01 = first special version

Cable length (max. 10.0 m):
 015 = 1.5 m (standard)
 050 = 5.0 m (example)

Sensor holder:
 O = without (holder provided by customer)
 H = holder as accessory part (on request)

Interface:
 V04 = Analog, voltage (0.5 ... 4.5 V)
 V10 = Analog, voltage (0 ... 10 V)
 I20 = Analog, current (0 ... 20 mA)
 I24 = Analog, current (4 ... 20 mA)
 CA0 = CANopen standard (DS406)

Protection class:
 N = Standard IP65
 H = Heavy Duty IP69K

Connection options:
 0 = open cable ends (standard)
 2 = 5-pin round connector M12 x 1 at signal cable

Measurement range in mm:
 1000 = 1000 mm (example); up to max. 2450 mm possible;
 available in steps of 10 mm (e. g. 1010 mm)

System accuracy:
 01 = 1 mm at max. 2450 mm measuring length (standard)

Coding:
 1 = coded 10 mm wide magnetic track
 2 = coded 20 mm wide magnetic track
 3 = coded total scope (on request)

Round rod diameter in mm:
 050 = Ø 50 mm (example); minimum Ø = 20 mm
 Available Ø in mm: 20, 22, 25, 28, 32, 36, 40, 45, 50, 56, 63, 70, 80, 90, 100,
 110, 125, 140, 160, 180, 200, 220, 250, 280, 320 and 360

Cylinder outer diameter in mm:
 100 = Ø 100 mm (example); minimum Ø = 40 mm
 Available Ø in mm: 40, 50, 63, 80, 100, 110, 120, 125, 160, 200, 250, 320 and 400

Connections:

Open cable ends:

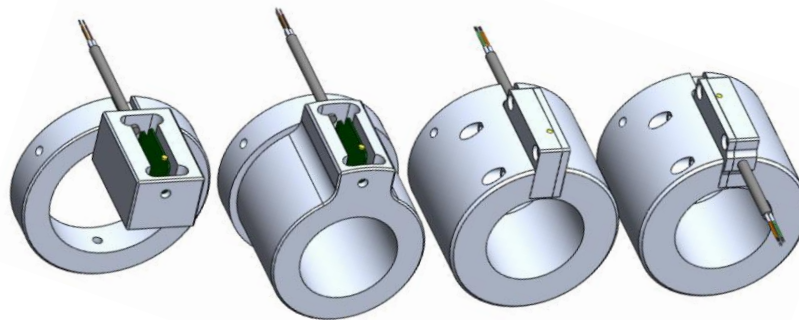
Color	Analog	CAN
black	0 V / GND	0 V / GND
brown	+VCC	+VCC
red	TEACH	-
orange	-	-
green	Analog OUT	CAN HIGH
yellow	Analog GND	CAN LOW

Connection option 2: 5-pin M12 round connector (socket, soldering side)

Pin	Analog	CAN
1	TEACH	Shield
2	+VCC	+VCC
3	0 V / GND	0 V / GND
4	Analog OUT	CAN HIGH
5	Analog GND	CAN LOW

With shielded versions, the shield is connected to the housing

Examples for customized sensor adaptations (can be realized by ELGO on request)



Integration example:

