

SERIES MTM-Q

Magnetic translational measuring system - QUASI ABSOLUTE



The MTM-Q 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 single-track measuring system, ELGO offers these "quasi absolute" systems for fixed round rod profiles, e. g. non-rotating piston rods of hydraulic cylinders. A rechargeable battery line integrated in the sensor transforms the incremental measuring system into a quasi-absolute measuring system, as the current position is - even in the de-energized state - permanently detected and further processed internally.



System consisting of:

- Round rod / piston rod (provided by the customer for coding by ELGO)
- Application related sensor (ELGO made)

Special features:

- 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	quasi absolute
Repeat accuracy	± 1 increment
System accuracy in μm at 20°C	$\pm (1000 + 20 \times L)$ L = measuring length in meters
Distance sensor - round rod	10 mm wide coding: max. 2 mm 20 mm wide coding: max. 5 mm
Basic pole pitch of round rod	16 mm
Round rod diameter	min. 20 mm
Measuring length	up to max. 2500 mm (available in 10 mm steps)
Sensor cable length	standard: 1.5 m (others on request)
Weight	MTM-Q with short sensor holder: approx. 170 g; MTM-Q with long sensor holder: approx. 180 g; cable: approx. 60 g/m
Mounting position MTM-Q-System	depends on application

Electrical Data

Power supply voltage	10 ... 30 VDC
Residual ripple	10 ... 30 VDC <10 %
Consumption	max. 150 mA
Battery operating time	up to 1 year after power-off (under optimal charging and ambient conditions)
Available Interfaces	12 bit analog output (voltage)* 0.5 ... 4.5 V 12 bit analog output (current)* 4 ... 20 mA CANopen standard (DS406)
Connection type	Connection option 0: open cable ends Connection option 1: 8-pin M12 x 1 round connector on housing Connection option 2: 8-pin M12 x 1 round connector on signal cable
Maximum operating speed	up to 2.0 m/s

Environmental Conditions

Store temperature	$-25 \dots +85^\circ\text{C}$
Operating temperature	$-25 \dots +85^\circ\text{C}$
Humidity	max. 95 %, none-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					
MTMQ	XX	XXX	X	XXX	X	X	XXXX	XX	X	X	XXX	XXX

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

Cable length (max. 10.0 m):
 015 = 1.5 m (standard)
 072 = 7.2 m (example)

Sensor holder:
 S = short version
 L = long version

Interface:
 001 = Analog, voltage (0,5 ... 4,5 V)
 002 = 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)
 1 = 8-pin round connector M12 x 1 on sensor housing
 2 = 8-pin round connector M12 x 1 at signal cable

Measurement range in mm:
 1000 = 1000 mm (example); up to max. 2500 mm possible;
 available in steps of 10 mm (e. g. 1010 mm)

Pole pitch of magnetic track:
 16 = 16 mm

Width of magnetic track:
 1 = 10 mm
 2 = 20 mm

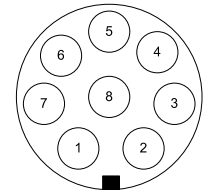
Number of magnetic tracks:
 1 = single track system
 2 = dual track system

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 und 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:

M12 x 1: 8 pin round connector



(socket, soldering side)

Pin assignment:

Pin	Color	Analog	CAN
1	black	0 V/GND	0 V/GND
2	brown	+VCC	+VCC
3	red	SET 1	n. c.
4	orange	SET 2	n. c.
5	green	Analog OUT	CAN high
6	yellow	Analog GND	CAN low
7	n. c.	n. c.	n. c.
8	n. c.	n. c.	n. c.

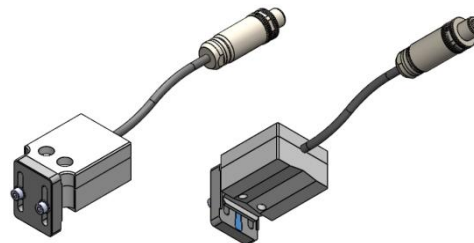
With shielded versions, the shield is connected to the housing

Single track coded system:

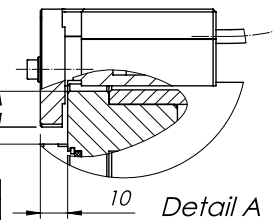
Sensor housing with holder and optional round connector:



Example: single-track-coding with round connector

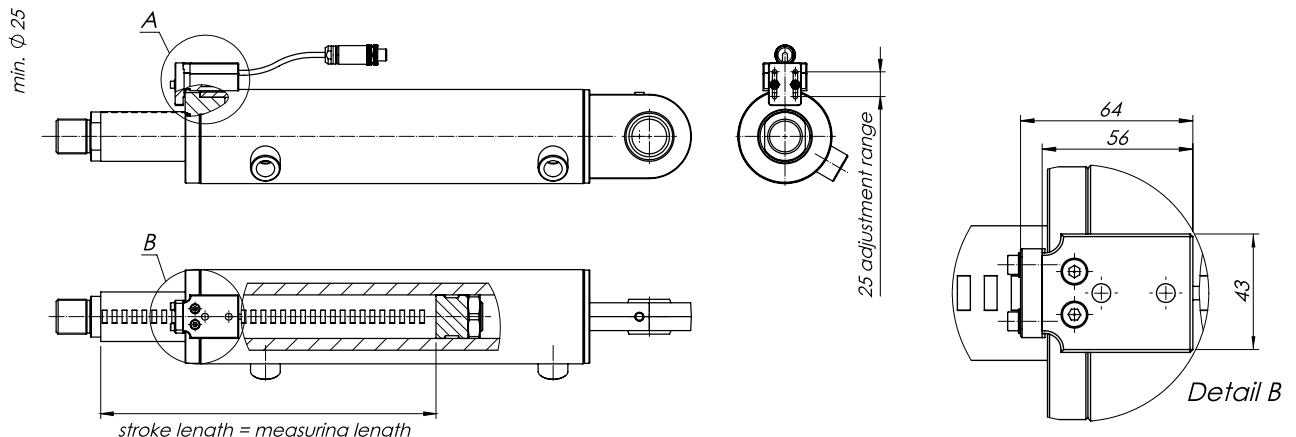


Sensor distance 1-7



version sensor holder	y min.	y max.
standard	05mm	30mm
long	17mm	42mm

Dimensions:



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 Measuring | Positioning | Control

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