MX17 series

Magnetic Length Measuring System
Magnetic Length Measuring System, Series MX 17

Essential Features
A flexible tape is precisely calibrated with north and south poles. These divisions are picked up by a Sensor. The space between poles on the tape provides an analogue sinusoidal voltage output for the sensor.

High Accuracy
With a maximum cumulative error of 0.02 mm/m and resolution of 0.1 mm this measuring system can achieve a longer length (up to 25 m) with better accuracy. Backlash, slippage, screw pitch, gearbox or other mechanical errors are eliminated with this direct measurement system.

Simple Mounting
The tape is simple to attach to the machine (eg by means of double sided sticky tape). Due to its high flexibility it can cope with uneven surfaces or radii without affecting accuracy. A second steel tape is fitted on top of the magnetic tape, to protect it. The equipment will operate satisfactorily with a measuring gap of 0.1 to 2.5 mm.

High Environmental Protection Class
The magnetic measuring system offers the greatest protection against hostile environments. Sensor and tape are protected to IP66.

Sensor MS 17.60
The Sensing Head provides the signal from which the pulse output is created by the electronic system.

Dimensions:

Over the distance X, the gap between sensor and measuring tape must fall between 0.1 and 2.5 mm.

Sensor Cable Length – signal processing
Since the resistance of the cable has an influence on the signal, the sensor is supplied in standard length 3.0 m. Other lengths are available on request (30 m max.) This comprises a 6 core flexible cable with screen, with D connector fitted.
Pulse Conditioning Module MC 17.50
To satisfy the broadest range applications, the electronic control module is supplied as a separate item.

Output Signals:

Channel A

Channel B

Resolution of 0.1 mm is achieved by counting all 4 edges of the output.

Connection plan:

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L1</td>
</tr>
<tr>
<td>2</td>
<td>N</td>
</tr>
<tr>
<td>3</td>
<td>220 V 50 Hz</td>
</tr>
<tr>
<td>4</td>
<td>E</td>
</tr>
<tr>
<td>5</td>
<td>OV</td>
</tr>
<tr>
<td>6</td>
<td>10 to 30 V*</td>
</tr>
<tr>
<td>7</td>
<td>A</td>
</tr>
<tr>
<td>8</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Encoder</td>
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<tr>
<td></td>
<td>Output</td>
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</tbody>
</table>

*can also be delivered as 5 V TTL option.

Magnetic Tape MB 17.40
The complete tape comprises 3 components.

A. The magnetised highly flexible tape, whose underside is bonded to:

B. A ferrous flexible steel tape. This tape shields the rubber tape from mechanical damage and at the same time forms the magnetic path. This provides security against external magnetic influences. A and B are supplied factory bonded.

C. To enable the above tape to be flexible for transport and mounting, the third steel tape (nonferrous) is supplied separately. This is used to protect the magnetic tape from mechanical damage and is fitted over the tape.

Can be supplied in lengths from 0.5 to 25 m.
Technical Data

Sensor
Maximum operating speed: 100 KHz
= 300 m/min
Cable Length: 3 m (other on request)
Operating Temperature: -5 degrees to +45 degrees
Protection: IP 66
Mounting attitude: any

Electronic Conditioning Module
Mains input: 220 V 50 Hz
Output voltage: 10 – 30 V DC –
MC 17.50
5 V DC –
MC 17.51
Power consumption: 5 VA
Output: 2 x 90 degrees phased square wave signals suitable for position indicators and controllers.
Resolution: 0.4 mm per pulse
(0.1 mm with 4 times multiplier in counter)
Protection: IPOO
Dimensions: Width 75mm
Height 73mm
Depth 113mm
Mounting: In any attitude, on DIN rail.

Magnetic Tape
This comprises magnetic material bonded to ferrous tape. A stainless steel protection tape is supplied loose.
It can be supplied in lengths from 0.5 to 25 m rolled up.
Accuracy: 0.02 mm/m
Temperature coefficient: 0.000011 mm/°C
Operating temperature: -5°C to +45°C
Mounting attitude: any

Hints on mounting of the Tape
Use double sided sticky tape (or other adhesive).
It is important that the base tape B with the bonded rubber tape A is firmly fixed to the machine bed.
The separately delivered tape C is only for mechanical protection of the rubber tape and not necessary for measurement purposes.
The Sensor operates with a gap of 0.1 to 2.5 mm from the Tape C.
The tape can be mounted at any angle.

Additional Equipment
The following Elgo controllers and indicators can be connected directly to the Magnetic measuring system.

Position Indicator
Series 30 6 digit with memory
10 mm red LED
Series 52 6 digit with preset function
10 mm red LED
Series 55 Indicator with selection of absolute/incremental and inch/metric.

Position Controller
Series 71 P Single axis controller
Fast/slow/stop positioning
Series 85 P Single axis controller with larger keypad
Series 87 P Programmable axis controller
Series 88 P Simple 2 axis single dimension controller
Series 98 P 2 axis programmable controller

Ordering Code:
Sensor
S 17.60 + length of cable required, in m.
(3 m standard, 30 m max.)

Electronic conditioning module:
MC 17.50 (or MC 17.51)

Magnetic Tape:
MB 17.40 + length of tape required, in m
(max 25 m)
Aluminium cover available in 2 m lengths
Liability exclusion / Guarantee

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