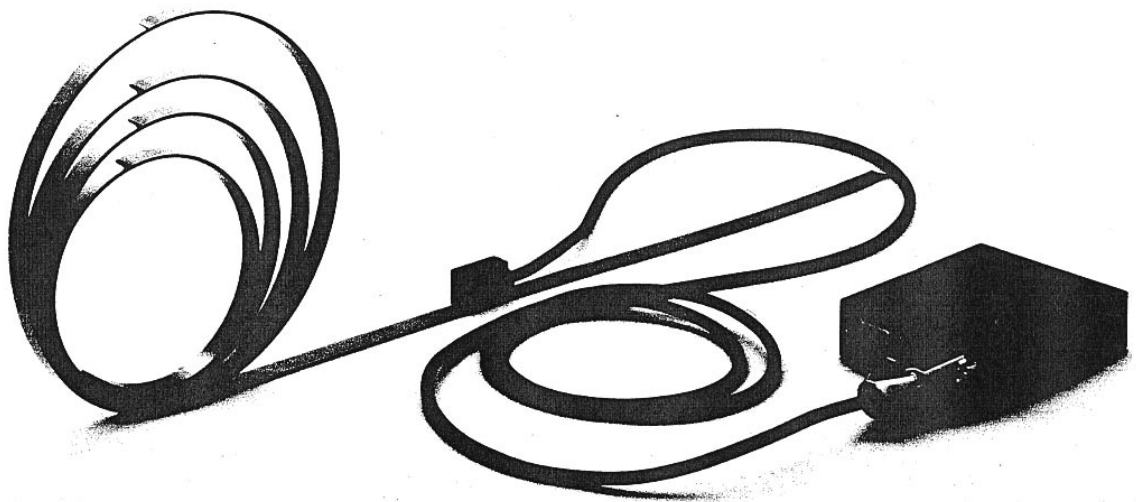


SERIES MX 20

Magnetic Length Measuring System

1/100 mm Resolution



Magnetic Length Measuring System, Series MX 20

Essential Features

The 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 0,01 mm/m and resolution of 0,01 mm this type of measuring system can achieve a longer length (up to 25 m) with better accuracy. Backlash, slip, screw pitch, gearbox or other mechanical errors are eliminated with this direct measurement system.

Simple Mounting

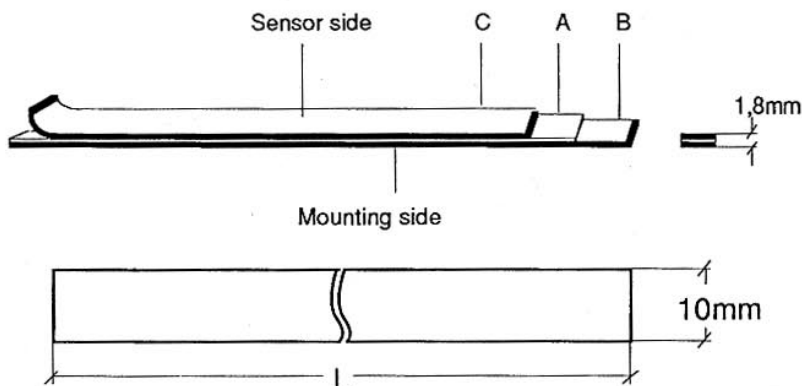
The tape is simple to attach to the machine (eg by means of double sided sticky tape). Due to its high flexibility it can cope with uneven surfaces or radii without affecting accuracy. A second steel tape is fitted on top of the magnetic tape, to protect it. The equipment will operate satisfactorily with a measuring gap of 0,1 to 2,0 mm.

High Environmental Protection Class

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

Magnetic Tape MB 20.40

The complete tape comprises 3 components.



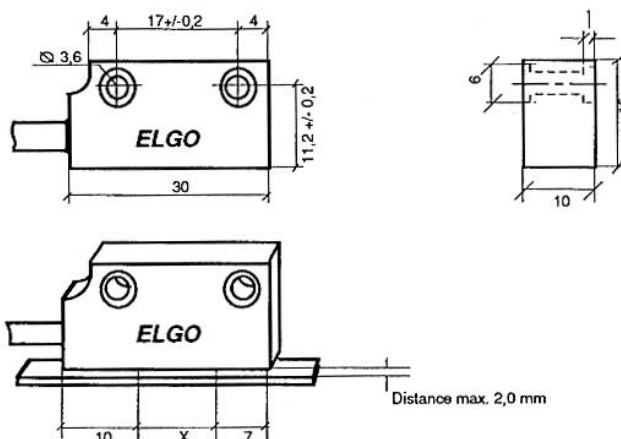
Can be supplied in lengths from 0,5 to 25 m.

- 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.

Sensor MS 20.60

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

Dimensions:



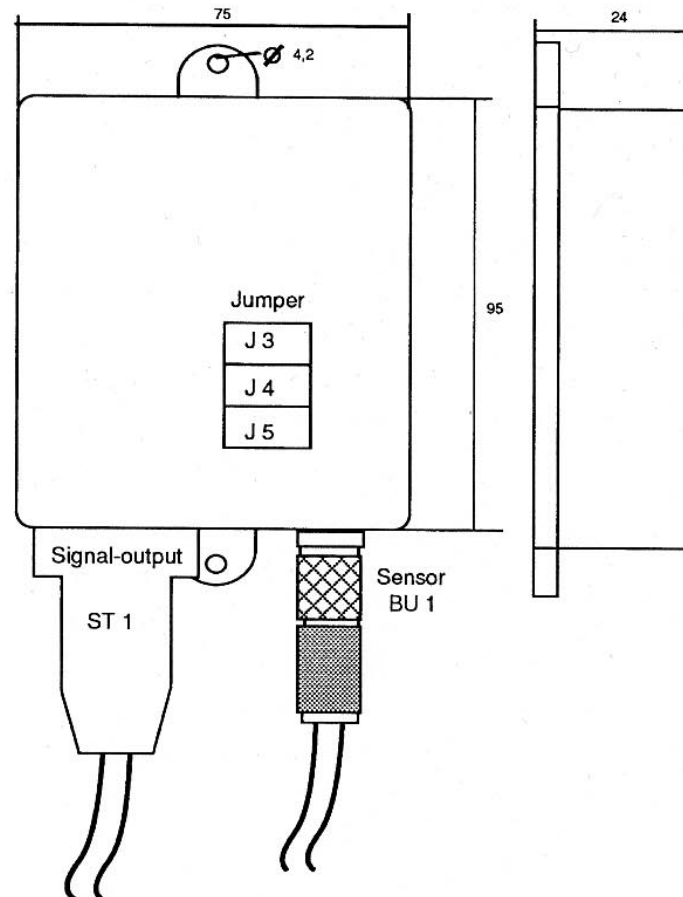
Over the distance X, the gap between sensor and measuring tape must fall between 0,1 and 2,0 mm.

Sensor Cable Length - signal processing

The sensor is supplied in a set together with the Pulse conditioning module MC20. The sensor is available in the following standard-length: 1 m, 3 m, 5 m, 8 m, 10 m, 15 m. Special lengths can be manufactured to order.

Attention: Sensor and conditioning Module are sold as a calibrated system.

Pulse-Condition Modul MC 20



Connections ST 1 :

Pin	Function
Pin1	0V
Pin 2	10-30 Volt
Pin 3	Channel A
Pin 4	Channel B
Pin 7	Channel \bar{A}
Pin 8	Channel \bar{B}

Programming of the output frequency

With the jumper J3, J4 the output frequency can be programed.

Jumper-Function

Output-frequency	J 3	J 4	max-speed. of the system
5 KHz			0,2 m/sec. = 12 m/min.
10 KHz	X		0,4 m/sec. = 24 m/min.
20 KHz		X	0,8 m/sec. = 48 m/min.
80 KHz	X	X	3,2 m/sec. = 192 m/min.

Technical Data

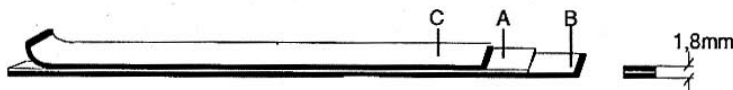
Magnetic Sensor MS 20

The sensors are only available together with MC 20. The cable length cannot be changed later.

Maximum speed: 3,2 m/sec.
 Cable length: 1m,3m,5m,8m,10m,15m
 Cable diameter: 5,3 mm
 Cable bend radius: min. 60 mm
 Connector diameter: 12,5 mm
 Housing: Metal
 Protection: IP 67/ Nema 4
 Mounting attitude: any
 Air gap to strip: 0,1 mm to 2 mm
 Temperature: -20 to +70° C

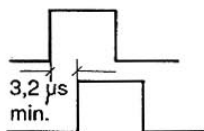
Hints on mounting the Tape

Use double sided sticky tape (or other adhesive). It is important that the base tape **B** on the bonded rubber tape **A** are firmly fixed to the machine bed. The separately delivered tape **C** is only for mechanical protection. The Sensor operates with a gap of 0,1 to 2,0 mm from the Tape C. The tape can be mounted at any angle.



Electronic Conditioning Module MC 20

Supply voltage: 10-30 VDC
 Output voltage: 10-30 VDC / 5 VDC
 Output circuit: Push-Pull max. 20 mA
 Power consumption: 100 mA
 Output signals: 2x90 degrees phased square wave signals suitable for indicators and controllers.



Operating temperature: 0 to + 50°C
 Resolution: 0,04 mm per pulse (0,01 mm with 4 times multiplier in the counter)
 Housing: plastic PVC
 Protection: IP 00 (DIN 40050)
 Dimensions: Width 75 mm, Height 95 mm, Depth 24 mm
 Mounting: in any attitude

Order code sample : MC 20.01.80.00.03,0

Magnetic Tape MB 20.40

This comprises magnetic material bonded to ferrous tape. A stainless steel protection tape is supplied loose. Also included is a double-side adhesive strip. Available in rolls from 0,5 to 25 m in length.

Length: 0,5 to 25 m
 Repeat accuracy 0,01 mm
 Accuracy at 20°C in mm: $\pm(0,025 + 0,02 \times L)$ (L = Length in m)
 Temperature coefficient: $0,000016 \times 1^\circ\text{C}$
 Operating temperature: -20° to + 70°C
 Protection: IP 67
 Dimensions: 10 mm x 1,8 mm x length
 Mounting attitude: any
 Aluminium cover: available in 2 m lengths

Order code: MB 20.40.(Length in meters)

Ordering Code for conditioning module with sensor:

MC20.XX.XX.XX.XX,X			
Resolution	Input voltage	Output voltage	Signal form
01= 1/100 mm	00 = 10 - 30 V	10 - 30 V	A, B
05= 5/100 mm	01 = 10 - 30 V	10 - 30 V	A, \bar{A} , B, \bar{B}
10= 1/10 mm	02 = 10 - 30 V	5 V TTL	A, \bar{A} , B, \bar{B}
Output-frequency			
05= 5 KHz			
10= 10 KHz			
20= 20 KHz			
80= 80 KHz			

Sensor-Length Standard: 1m,5m,8m,10m,15m