New

Magnetic measuring system

IP54 IP67

DESIGNED
FOR ENGINEERING

MAGNETIC MEASURING SYSTEM

MPI-R10 the measuring system is a complete system for the measurement of linear and angular displacement. The multiple functions of the display, connected to the dedicated sensor FC-MPI, allow MPI-R10 to adapt to various types of measuring, making the whole system suitable for different measuring and cutting machines.
FC-MPI sensor, moving along the magnetic band M-BAND, allows precise alignment and positioning, reducing time and machining procedures to the minimum. The sensor is also characterised by a snap-in assembly for a quick and easy connection to the display.

Magnetic measuring system

Absence of contact between moving parts

- IP54, IP67 protection level.
- No wear: no need of maintenance.
- Not affected by moisture, dust, oils and process residues.
- Insensitive to vibrations.

Power supply

The internal lithium battery 1/2 AA 3.6 V ensures a battery life of over 4 years.
Buffered memory during battery substitution.

Display

Multifunction 7 digit LCD with 4 function keys. Absolute / incremental mode.
Programmable measuring unit.
Linear and angular displacement.
Up to 10 programmable offset.
32 programmable target position. Resolution: 0.01 mm - 0.001 in - 0.01Â°Precision: Â±0.1mm
Repeat accuracy: 0.1 mm

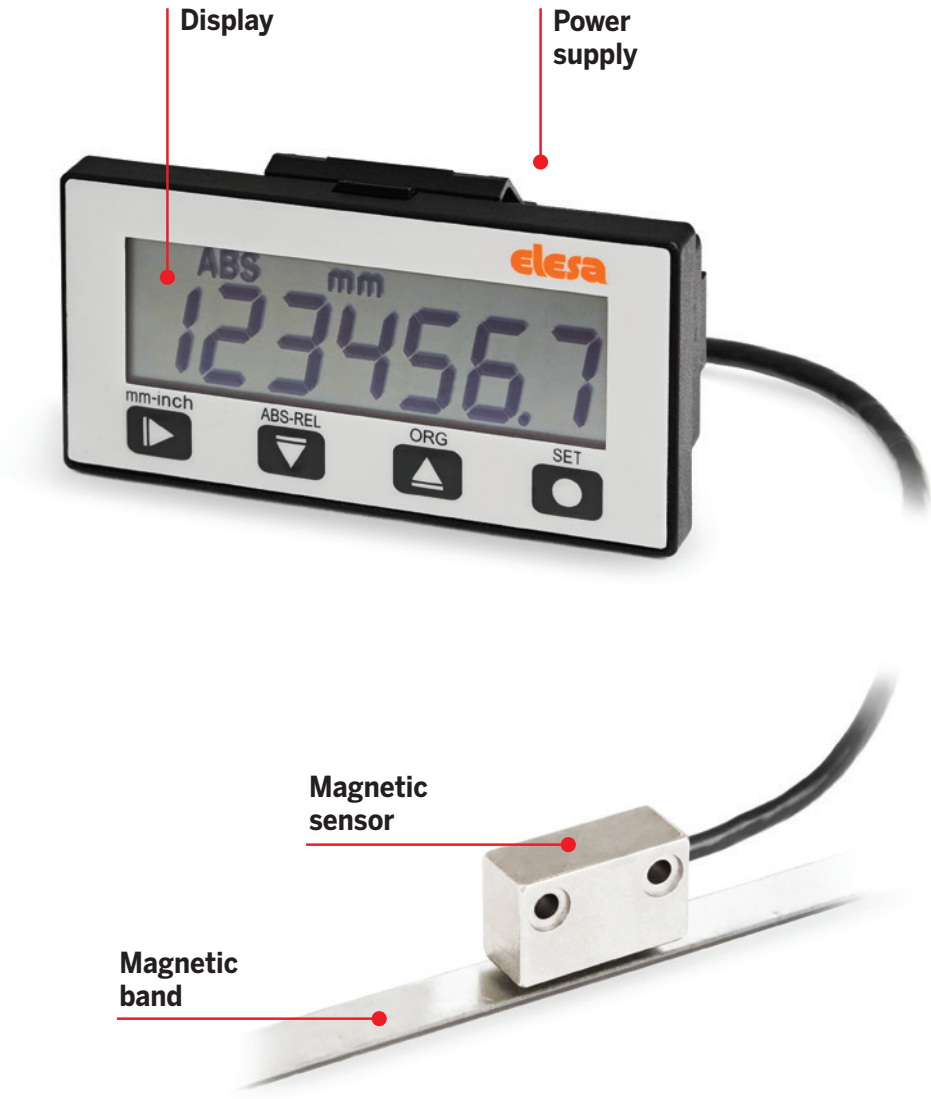
Magnetic sensor

Replaceable snap-in cable with multiple lengths.
Programmable operating speeds from 1 to 5 m / s.
Distance between sensor and magnetic band to ensure a correct reading of the displacement: 1 mm max.

Magnetic band

Magnetic pole pitch 5 mm.
Easy assembly thanks to the adhesive tape.
Cover strip for protection against possible mechanical damages.

MAGNETIC MEASURING SYSTEM



MPI-R10

Magnetic measuring system

Length and angle modes

CASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Retaining wing in acetal resin based (POM) technopolymer, black colour, matte finish.

PLATE WITH KEYBOARD
Polycarbonate resistant to greases, oils, alcohol and mineral acids.

PROTECTION CLASS
- IP54, see EN 60529 table.
- IP67, see EN 60529 table.

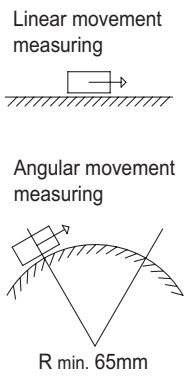
FEATURES AND APPLICATIONS
MPI-R10 measuring system connected to a specific sensor FC-MPI (see page -), combined with the magnetic band M-BAND-10 (see page -), is a complete system for the measurement of linear and angular displacement (with a minimum radius of 65 mm).
Characterised by an extremely easy assembly, it allows precise alignment and positioning, reducing time and machining procedures to the minimum.
- Maximum ease of assembly and disassembly operations of the device from the panel, thanks to a system with retention wing (ELESA PATENT).
- 7-digit LCD of 12 mm height and special characters.
- Programmable with 4 multifuction keys.
- Values displayed in millimeters, inches or angular degrees.
- Display of absolute or incremental mode.
- Up to 10 programmable offset values.
- Storage and display of 32 target positions.
- Long-life internal lithium battery.
- Buffered memory during battery substitution.
- Housing for FC-MPI connector with snap-in assembly system for easy insertion and removal.

For further information read the operating instructions.

SPECIAL EXECUTIONS ON REQUEST
The display of special plate may be supplied with customised graphic symbols, marks or writings.

MAGNETIC SENSOR WITH CABLE
FC-MPI (see page 6) to be ordered separately.

ACCESSORIES ON REQUEST
Magnetic band M-BAND-10 (see page 7).



Mechanical and electrical characteristics	
Power supply	Lithium battery 1/2 AA 3.6 V (included in the supply).
Battery life	4 years
Display	7-digit LCD of 12 mm height and special characters
Reading scale	-199999; 999999
Number of decimal digits	programmable
Unit of measure	millimeters, inches or angular degrees.
Max operating speed	1 ÷ 5 m/s programmable (1)
Resolution (2)	0.01 mm - 0.001 in - 0.01°
Precision (3)	±0.1mm
Repeatability (4)	0.001 mm
Self-diagnostic	Battery check, sensor check, magnetic tape check
Protection class	IP54 or IP67
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +60 °C
Relative humidity	Max. 95% at 25°C without condensation
Operating environment	Internal use
Polarity inversion	Protected

(1) Reading speed affects battery life.
(2) Resolution: the smallest variation in length that the system is able to display.
(3) Accuracy: the maximum deviation of the value measured by the system with respect to the real value.
(4) Repeatability: the degree of closeness between a measurement series of the same sample, when the individual measurements are made, leaving the measurement conditions unchanged.

ASSEMBLY INSTRUCTIONS

- Drill the sheet (thickness 0.7÷2 mm) according to the template dimensions.
- Remove all drilling burrs before fitting the case.
- Fit the lower part of the case into the housing and press until the complete snap fitting (Fig.1).

BATTERY REPLACEMENT INSTRUCTIONS

- Remove the indicator from its seat, applying pressure to the retention wing bringing it to the stop with the aid of a slotted screwdriver (Fig.2).
- Unscrew the AISI 304 stainless steel self-tapping screw with six-lobe socket for TORX® T06 tool and remove the closing plate (Fig.3).
- Replace the battery paying attention not to invert the polarity (see the position indicated on the cover).
- The replacement of the battery if carried out within 10 seconds (duration of the buffer power supply) avoids the loss of the configuration parameters.

Drilling template

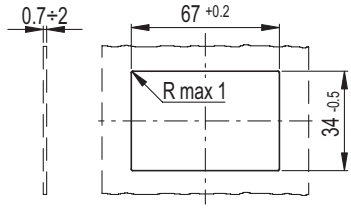


Fig.1

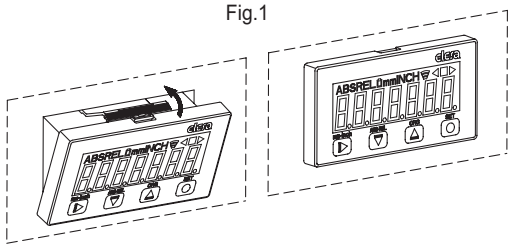


Fig.2

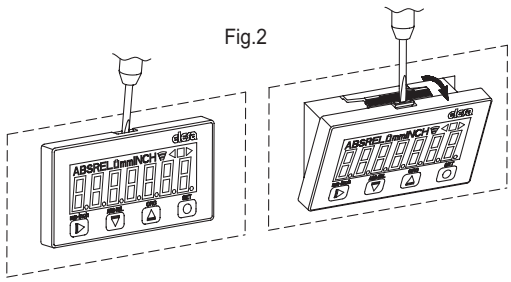
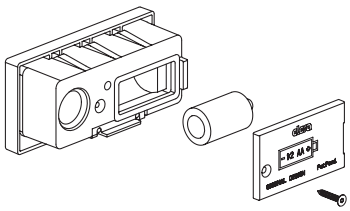
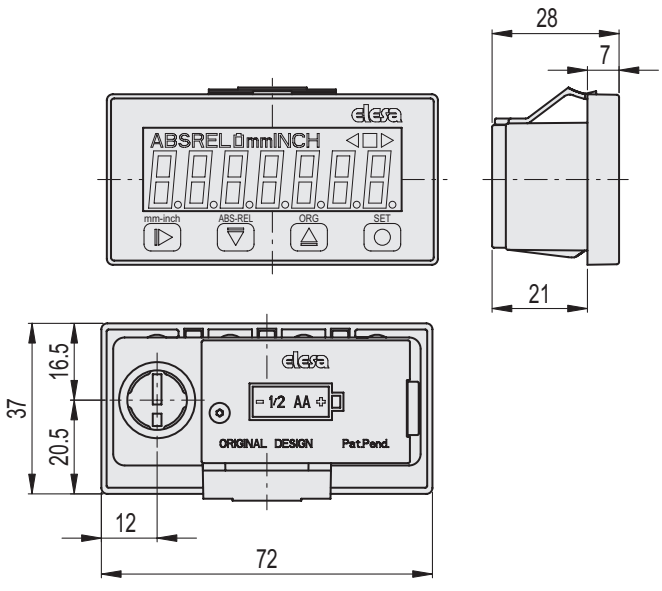


Fig.3





Code	Description	Protection class	⚖
CE.99951	MPI-R10-IP54	IP54	50
CE.99956	MPI-R10-IP67	IP67	50

Magnetic sensor with cable for MPI-R10

SENSOR
Die-cast zinc alloy nickel-plated body

CABLE
Shielded cable with black PVC sheath Ø 3.5 mm, bending radius when moving ≥ 34 mm.

CONNECTOR (IP67 PROTECTION)
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
NBR rubber O-Ring.

FEATURES AND APPLICATIONS
Snap assembly that facilitates insertion and guarantees correct connection even in the presence of vibrations or accidental tears.

SPECIAL EXECUTIONS ON REQUEST
Magnetic sensor with cable of different lengths (max. 5 m).

ASSEMBLY INSTRUCTIONS
- Insert the connector in the appropriate seat of the magnetic measuring system MPI-R10, and push it in until it clicks (Fig.1).
- Fix the magnetic sensor by using M3 screws (not included in the supply). Distance between sensor and magnetic band to ensure a correct reading of the displacement: max 1 mm.

DISASSEMBLY INSTRUCTIONS
The connector can be removed simply by pulling with your fingers, gripping the appropriate notches. If necessary, use a slotted screwdriver to lever in the housing shown in Fig.2.

Fig.1

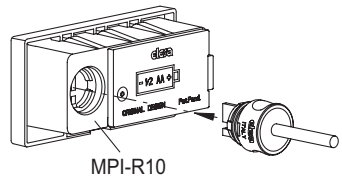
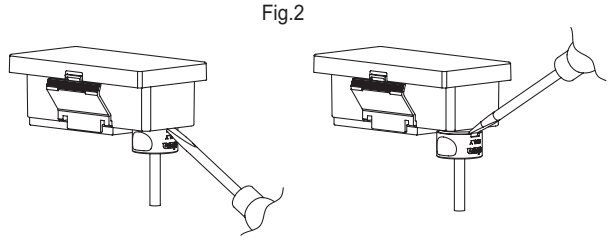
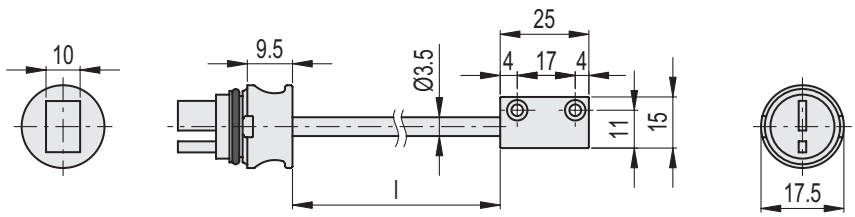


Fig.2





Code	Description	l Cable length [mm]	⚖
CE.99961-02	FC-MPI-02	200	27
CE.99961-03	FC-MPI-03	300	39
CE.99961-05	FC-MPI-05	500	47
CE.99961-08	FC-MPI-08	800	59
CE.99961-12	FC-MPI-12	1200	75
CE.99961-20	FC-MPI-20	2000	107
CE.99961-25	FC-MPI-25	2500	127

M-BAND-10

Magnetic band

Length and angle modes

FEATURES AND APPLICATIONS

The magnetic band M-BAND-10 is made of two separate parts: the magnetic band and the cover strip. The magnetic band is made of a magnetic tape, a carrier strip and an adhesive tape (Fig.2). The cover strip is made of a protection strip and an adhesive tape (Fig.1).

SPECIAL EXECUTIONS ON REQUEST

Magnetic band with length different from the standard executions shown in the table, up to 25 m maximum.

ASSEMBLY INSTRUCTIONS

1. The cover strip must be installed over the magnetic band to protect it against possible mechanical damages.
2. Clean the mounting surface carefully.
3. Remove the protective foil from the adhesive tape of the magnetic band.
4. Stick the magnetic band on the mounting surface.
5. Clean the mounting surface carefully.
6. Remove the protective foil from the adhesive tape of the magnetic band.
7. Stick the cover strip on the magnetic band.
8. In the absence of a seat for the housing of M-BAND-10, secure the ends of the cover strip to prevent unintentional peeling.

Fig.1

Cover strip

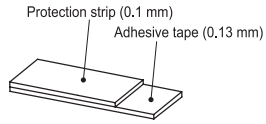


Fig.2

Magnetic band

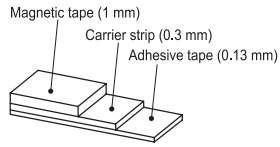
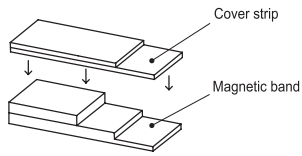
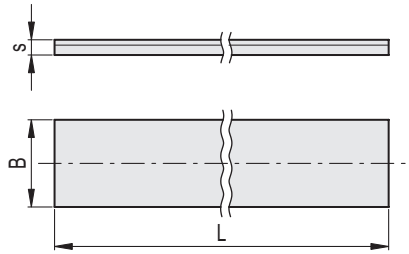


Fig.3

Proper assembling





Technical data	
Precision	± 40 µm
Material	magnetic tape: nitrilic rubber
	carrier strip: stainless steel
	cover strip: stainless steel
	acrylic adhesive tape
Length	magnetic band: 10 mm ± 0.20 mm
	cover strip: 10 mm ± 0.20 mm
Thickness	magnetic band: 1.43 ± 0.15 mm
	cover strip: 0.23 mm
Magnetic pole pitch	5 mm
Operating and storage temperature	-40 ÷ +100 °C
Linear thermic expansion factor	17 x 10^{-6}/K

Code	Description	Band length [mm] L	Band width [mm] B	Band nominal thickness [mm] s	⚖
CE.99903-05	M-BAND-10-05	500	10	1.66	40
CE.99903-06	M-BAND-10-06	600	10	1.66	48
CE.99903-07	M-BAND-10-07	700	10	1.66	56
CE.99903-08	M-BAND-10-08	800	10	1.66	64
CE.99903-09	M-BAND-10-09	900	10	1.66	72
CE.99903-10	M-BAND-10-10	1000	10	1.66	80
CE.99903-11	M-BAND-10-11	1100	10	1.66	88
CE.99903-12	M-BAND-10-12	1200	10	1.66	96
CE.99903-13	M-BAND-10-13	1300	10	1.66	104
CE.99903-14	M-BAND-10-14	1400	10	1.66	112
CE.99903-15	M-BAND-10-15	1500	10	1.66	120

Code	Description	Band length [mm] L	Band width [mm] B	Band nominal thickness [mm] s	⚖
CE.99903-16	M-BAND-10-16	1600	10	1.66	128
CE.99903-17	M-BAND-10-17	1700	10	1.66	136
CE.99903-18	M-BAND-10-18	1800	10	1.66	144
CE.99903-19	M-BAND-10-19	1900	10	1.66	152
CE.99903-20	M-BAND-10-20	2000	10	1.66	160
CE.99903-25	M-BAND-10-25	2500	10	1.66	200
CE.99903-30	M-BAND-10-30	3000	10	1.66	240
CE.99903-35	M-BAND-10-35	3500	10	1.66	280
CE.99903-40	M-BAND-10-40	4000	10	1.66	320
CE.99903-45	M-BAND-10-45	4500	10	1.66	360
CE.99903-50	M-BAND-10-50	5000	10	1.66	400

Find out more on **elesa-ganter.com**

ELESA S.p.A.
Via Pompei 29
20900 Monza (MB)
Italy
+39 039 28 11 1
info@elesa.com
elesa.com

OTTO GANTER GmbH & Co. KG
Triberger Straße 3
78120 Furtwangen
Germany
+49 7723 65 07 0
info@ganternorm.com
ganternorm.com

DESIGNED
FOR ENGINEERING

ZDEPEGMPIR10ENG20