ETMA 1 / 2

MAGNETIC INCREMENTAL LINEAR SENSOR

MAIN FEATURES

Incremental linear system based on magnetic principle without wear thanks to no-contact technology. Thanks to high IP rating ETMA is suitable for harsh environment applications such as marble and glass working machines, washing systems machines.

- 0,01 mm max resolution (after quad eval)
- Power supply up to +28 VDC with several electronic interfaces available
- Up to 4 m/s travel speed
- IP 67 as protection grade
- Cable output, connector available on cable end

UNI EN ISO 9001:2008

ORDERING CODE

ETMA	1	Z	5	P	S	PR3	. XXX

SERIES
magnetic incremental linear sensor ETMA

RESOLUTION
0,1 mm 1
0,04 mm 2

ZERO PULSE
without zero pulse S
with zero pulse Z

POWER SUPPLY
(with L electronic interface) 5 V DC 5
(with L or PC electronic interface) 8 ... 24 V DC 8/24
5 ... 28 V DC 5/28

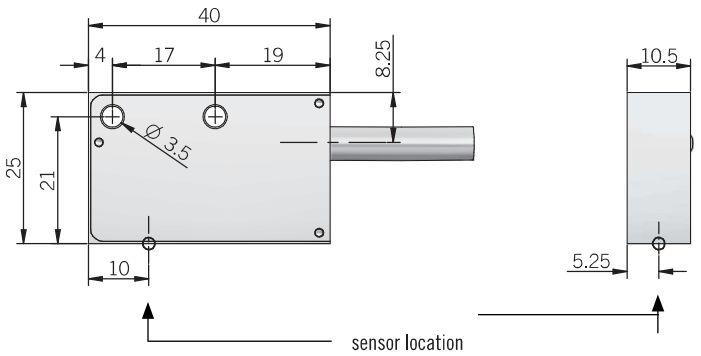
ELECTRONIC INTERFACE
push-pull P
(AEIC-7272) protected push-pull PC
line driver L
power supply 5/28 V - output RS-422 RS

ENCLOSURE RATING
IP 67 S

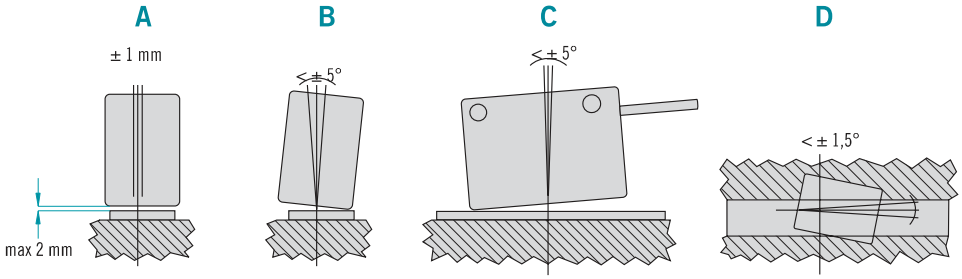
OUTPUT TYPE
cable length 3 m PR3
preferred cable lenght 3 / 6 / 10 / 20 m, others on request

VARIANT
custom version XXX

ETMA 1 / 2



Mechanical tolerances

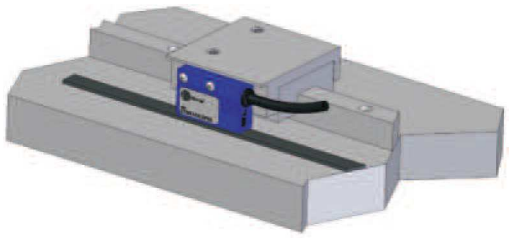


dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	ETMA1 = 0,1 mm (0,025 mm after quad eval) ETMA2 = 0,04 mm (0,01 mm after quad eval)
Zero pulse	ETMA1 = every 5 mm ETMA2 = every 2 mm
Power supply	5 = 4,5 ... 5,5 V DC 5/28 = 4,75 ... 29,4 V DC 8/24 = 7,6 ... 25,2 V DC (reverse polarity protection)
Current consumption without load	30 mA max
Max load current	20 mA / channel
Output type *	push-pull line driver HTL / RS-422
Linearity error	± 0,025 mm (ETMA 1) ± 0,01 mm (ETMA 2)
Travel speed	4 m/s
Electromagnetic compatibility	IEC 61000-6-2 IEC 61000-6-4

**output levels according to power supply, for further details please see under Technical basics section*



MECHANICAL SPECIFICATIONS

Enclosure rating	IP 67 (IEC 60529)
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	20 G, 10 ... 2000 Hz (IEC 60068-2-6)
Housing material	anodized aluminium
Fixing	n. 2 holes ø 3,5 mm
Operating temperature	-10° ... +60°C (+14° ... +140°F)
Storage temperature	-25° ... +70°C (-13° ... +158°F)
Working distance from magnetic tape	ETMA 1 < 1,5mm with magnetic tape protection ETMA 1 < 2mm without cover ETMA 2 < 0,5mm with magnetic tape protection ETMA 2 < 1mm without cover
Weight	150 g (5,29 oz)

CONNECTIONS

Function	Cable output Push-pull	Cable output Line driver
+V DC	red	red
0 V	black	black
Ch. A	green	green
Ch. A-	/	brown
Ch. B	yellow	yellow
Ch. B-	/	orange
Ch. Z	blue	blue
Ch. Z-	/	white
⏚	shield	shield

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EBMA
MAGNETIC TAPE

MAIN FEATURES

- Magnetic tape to be used with ETMA
- Easy mounting due to premounted double side adhesive
- 2 mm or 5 mm pole pitch
- High pole accuracy
- Available in reels up to 50 m

ORDERING CODE

EBM A 1 - 10 .XXX

SERIES
magnetic tape EBM

TAPE TYPE
standard magnetic tape A

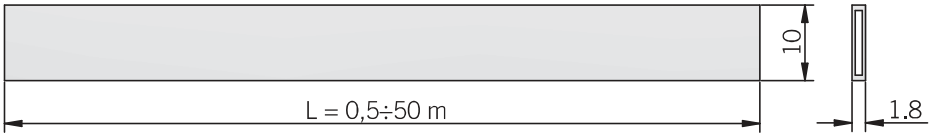
PITCH
5mm pitch for ETMA 1 1
2mm pitch for ETMA 2 2

separate the code with a dash -

TAPE LENGTH
from 0,5 m to 50 m 10

VARIANT
custom version XXX

EBM



dimensions in mm

GENERAL SPECIFICATIONS

Operating temperature	-40° ... +100°C (-40° ... +212°F)
Accuracy	± 0,04 mm/m
Linear expansion coefficient	17* 10^{-6} m/K
Bending radius	100 mm min

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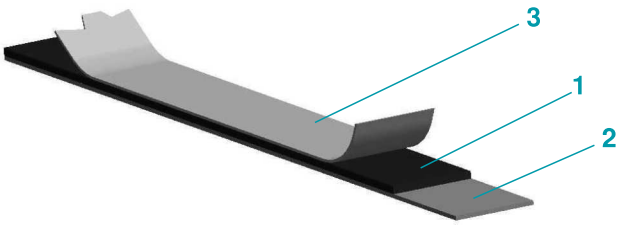
GENERAL SPECIFICATIONS

As shown in the figure below, Eltra magnetic tape is composed by three layers:
1 - a flexible magnetic tape made of ferrite bonded into a nitrile rubber matrix;
2 - a stainless steel tape used to create a shield against any external magnetic fluxes and other external agents. Furthermore it's glued to the upper layer in order to give the correct mechanical consistency to the magnetic tape;
3 - a steel tape, magnetically transparent and with the function to protect mechanically the magnetic layer; it is the most rigid part and therefore is supplied separately due to transport and application needs. It must be sticked on layer 1 by the user.



*1 + 2 thickness = 1,8 mm
*3 thickness = 0,25 mm

To prevent damage from possible internal stresses in the magnetic tapee rolled up with magnetic layer facing outwards, with a minimum internal diameter of 300 mm.

TIPS TO STICK ON THE MAGNETIC TAPE

Fixing pressure.
The magnetic tape is adhesive. Therefore it is important optimum contact between surfaces for right use. A good pressure must be uniformly applied to guarantee a perfect result.

Glueing temperature.
In order to guarantee optimal sticking it is recommended a surface temperature between 20 °C and 35 °C. Maximum adhesion is obtained after 72 hours at temperature of 21 °C. Please do not apply magnetic tape when surface temperature is lower than 10 °C.

Application materials.
Magnetic tape must be placed on dry, smooth and clean surfaces. Surfaces must be cleaned with aqueous solution. Matallic surfaces like brass, copper etc. must be protected to prevent possible oxidation.

CHEMICAL AGENTS AND MAGNETIC TAPE BEHAVIOUR

Null effect chemicals	Medium effec chemicals	Strong effect chemicals
motor oil	JP-4 fuel	aromatic hydrocarbons (benzene, toluene, xylene, trichloroethylene, freon 10)
transmission oil	gasoline	ketones (acetone)
ATF (automatic transmission fluid)	heptane	mineral acids (hydrochloric, sulphuric, nitric, phosphoric, boric)
hydraulic oil	alcohols	
kerosene		
antifreeze		
detergents, disinfectants (Clorox®)		
turpentine		
water		
salt spray		