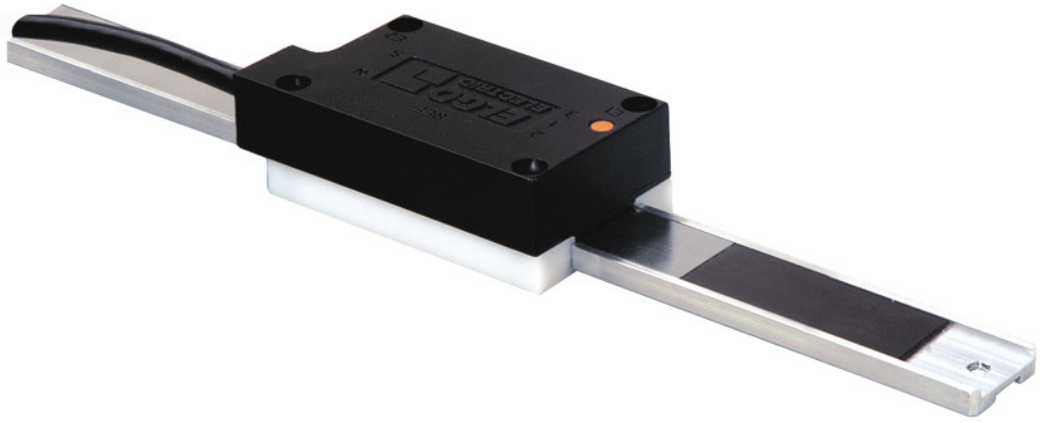
ELGO ELECTRONIC

FMAX

Guided Absolute Length Measuring System



- No reference procedure required
- Direct and wear free measurement
- Measuring lengths up to 650 mm
- High resolution of 0.01 mm
- Repeat accuracy ± 0.01 mm
- Very robust against dust and dirt
- Interfaces: RS232, RS422 or SSI
- Fast and easy installation

FMAX **-** Guided Absolute Length Measuring System

General

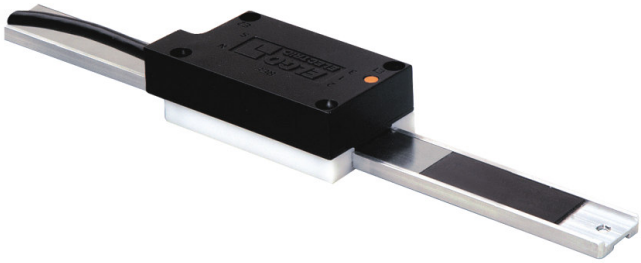
FMAX is an absolute magnetic length measuring system which is used exclusively for linear movements. It consists of a guide carriage (where the sensor technology and translator circuit are placed) and a guide rail "FSMAB". The guide carriage is contactless guided over the magnetic tape, which is already installed on the guide rail.

Applications

Typical applications are paper cutting machines, hydraulic presses, wood- and sheet metal processing machines.

Product features:

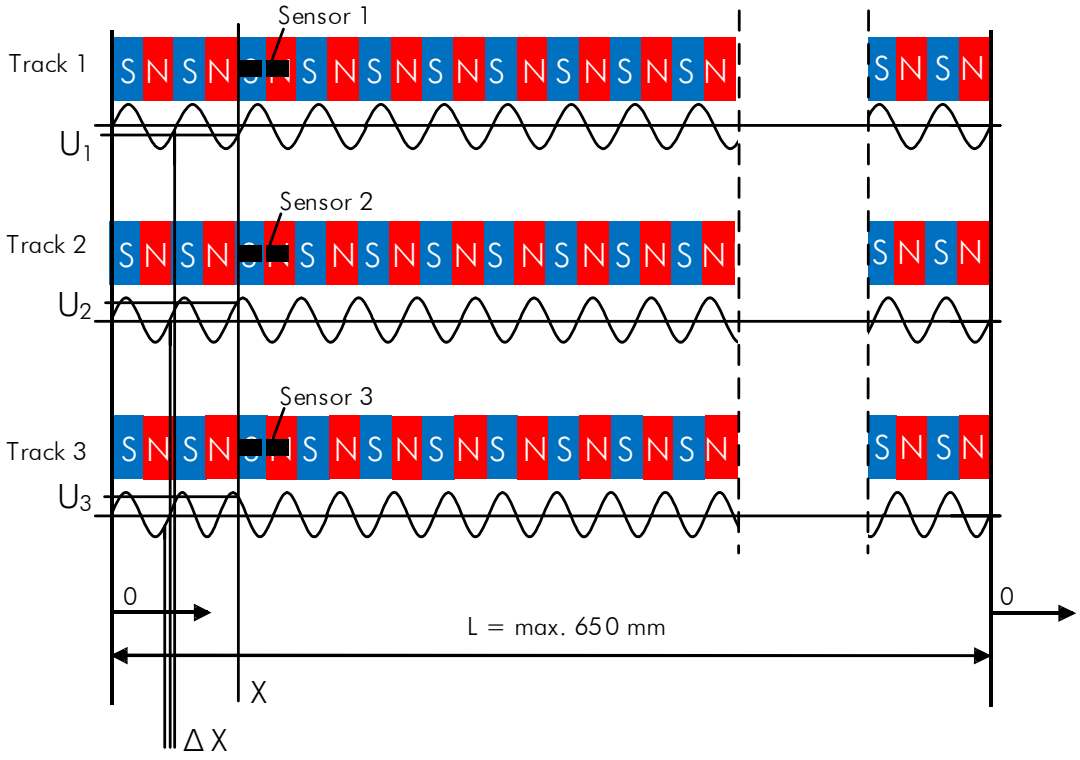
- No reference necessary
- Direct measuring
- Measuring lengths up to 650 mm
- High resolution of 0.01 mm
- Repeat accuracy ± 0.01 mm
- Very robust against dust and dirt
- Interfaces: RS232, RS422 or SSI
- Easy installation



Functional Principle

Three sensors are guided over a magnetic tape, recorded with three tracks. The following illustration shows three magnetic tracks with north- and south pole magnetization, sensed by magneto-resistive resistor measuring bridges. Between the single magnetic tracks there always is an equal shifting ΔX. This is evaluated together with the single signals of the resistive resistor measuring bridges and delivers an absolute value.

An unambiguous classification of a absolute position is possible by the combination of the phasing of the three magnetic tracks. The phase position zero repeats every 650 mm's for each of the three tracks.



FMAX **-** Guided Absolute Length Measuring System

Technical Data:

Mechanical Data	
Measuring principle	absolute
Repeat accuracy	± 1 increment
System accuracy in μm at 20°C:	± (50 + 20 x L) L = measuring length in meters
Distance sensor / tape	guided version: mechanically fixed unguided version: max. 0,5 mm
Housing material	zinc die-cast, black
Guide rail	aluminium profile
Dimensions (without rail)	L x W x H= 90 x 48 x 23 mm
Magnetic tape type	FSMAB (guide rail, factory assembled with magnetic tape)
Magnetic tape pole pitch	5 mm
Maximum measuring length	650 mm
Connections	open cable ends (plug connectors on request
Sensor cable	drag chain suitable; 2 x 0.75 mm², 6 x 0.14 mm²; radial flexibility 60 mm min.
Gewicht	approx. 200 g without cable; cable approx. 60 g/m; guide rail with tape approx. 390 g/m
Electrical Data	
Power supply voltage	+ 10 ... 30 VDC
Residual ripple:	10 … 30 V: <10%
Current consumption:	max. 150 mA
Interfaces	RS422, RS232 or SSI
System resolution	0.01 mm
Operating speed	max. 0.5 m/s
Output frequency	500 Hz (20 ms)
Environmental Conditions	
Storage temperature	-25 °C ... +85 °C
Operation temperature	-10 °C ... +70 °C (-25 °C ... +85 °C on request)
Humidity	max. 80 %, non-condensing
Protection class	IP54 (IP65 with option V)

Type Designation:

For orders, please use the following code:

FMAX - _ _ - _ _ _ - _ _ _ _ - _ _ _ _ - _

AA - BBB - CCCC - DDDD - E

A Version
- 00 = *ELGO* standard
- 01 = First special version

B Cable length
- 030 = 3.0 m
- 050 = 5.0 m
- 080 = 8.0 m
- 100 = 10.0 m

C Resolution
- 0010 = 0.01 mm

D Interface
- 2320 = RS232
- 4220 = RS422
- SSG0 = SSI Gray code
- SSB0 = SSI binary code

E Options
- U = unguided version
- V = sealed version

Example:

FMAX - 00 - 030 - 0010 - 4220 - U - V

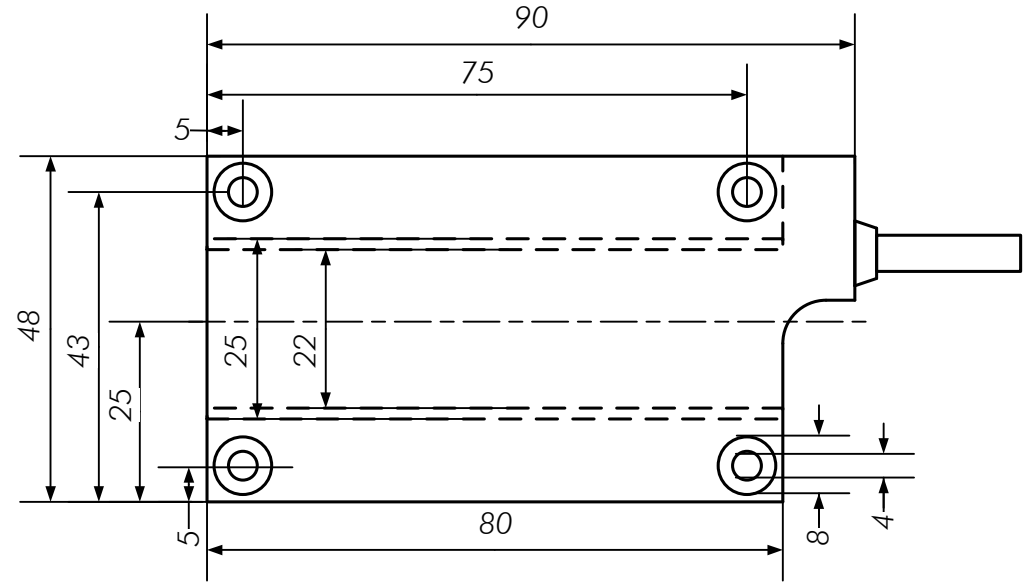
Standard FMAX with 3.0 m cable length, 0.1 mm resolution, RS422 interface, as unguided and sealed version.

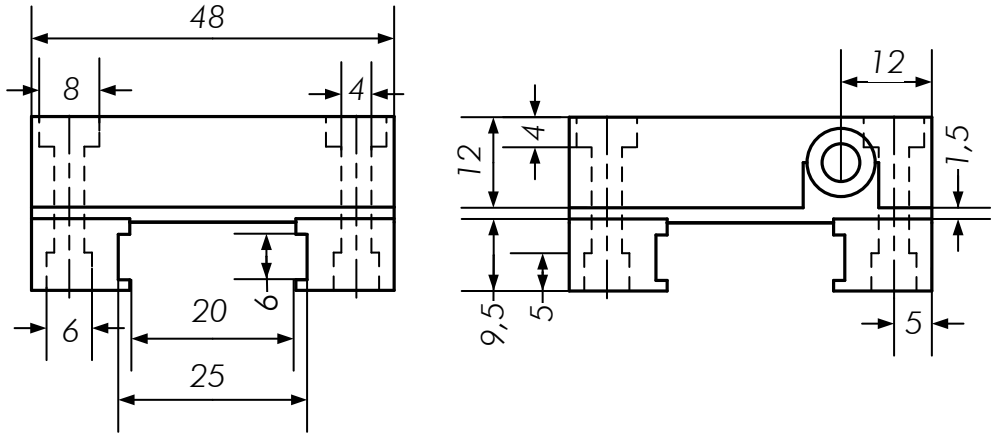
Your order:

FMAX - _ _ - _ _ _ - _ _ _ _ - _ _ _ _ - _

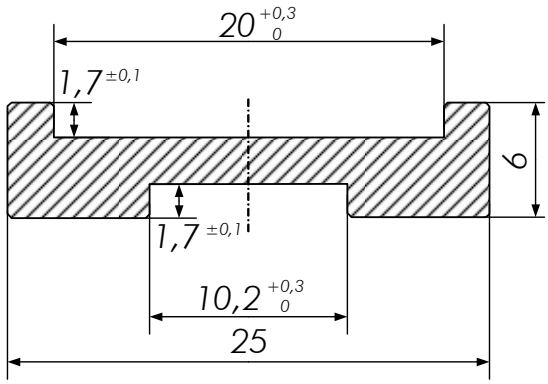
AA - BBB - CCCC - DDDD - E

Dimensions:





Dimensions FSMAB (Accessories):



Accessories:

Order Designation	Description
FSMAB-XXXX*	Guide rail for FMAX (total length = measuring length + 150 mm) *) XXXX = measuring length in mm; 0650 = max. possible length of 650 mm)

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