Guided Absolute Length Measuring System

Features

- No reference necessary
- Direct measuring
- Measuring length's up to 650 mm
- High resolution of 0,01 mm
- Repeating accuracy +/- 0,01 mm
- Very robust against dust and dirt
- Easy installation

Applications

- Handling systems
- Conveyor– and Storage techniques
- Paper cutting machines
- Hydraulic presses
- Pick and Place - Systems

FMAX series

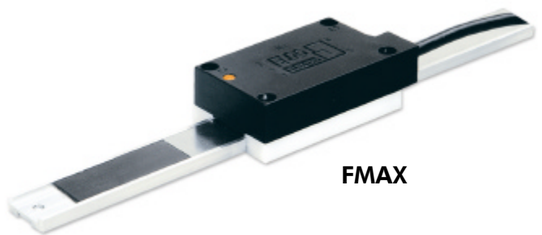
The magnetic absolute length measuring system FMAX consists of the guide rail with integrated magnetic tape and a guide carriage, in which the three sensors and the translator are accommodated. The advantage when " absolute " measurement consists of the fact that position modifications are detected also in the dead status. This is a substantial safety aspect.

As interfaces for the time being RS422 and RS232 are available. Further planned SSI, CAN open Encoder of profiles, PROFI-Bus DP and RS485.
All interfaces are accommodated in the housing with the sensors and the translator.

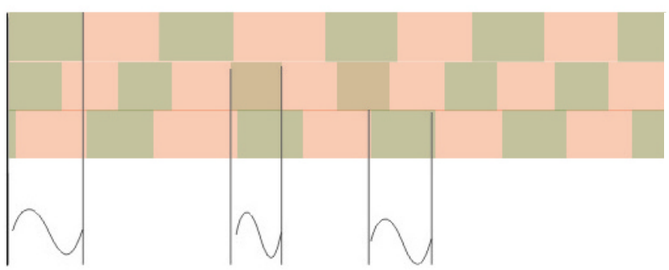
The resolution of the system amounts to 0.01 mm. With the max. measuring length of 650 mm it can be used with short length-movements, where a reference run is not possible or required. At the same time it offers the advantage of the complete guidance, which brings a substantially smaller expense of installation with itself.

Principle of function

Three sensors sliding across a magnetic tape with following north- and south pole magnetization, described with three tracks. Due to the different lengths of the three magnetic tracks always develops a same phase offset which supplies the absolute value together with the signals of the sensors. Coding on the magnetic tape repeats itself all 650 mm.



FMAX



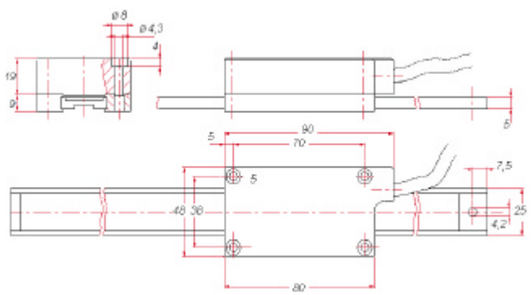
Fine interpolation track
Fine interpolation track
Fine interpolation track

Guided Absolute Length Measuring System

Technical specifications

Power supply	10-30 VDC +/- 10 % ripple < 5 %
Consumption	150 mA max.
Output level	5 V-TTL (RS422) - 5 V ... + 5 V (RS232)
Repeating precision	+/- 0,01 mm
Precision of the system in mm for 20 °C	+/- (100 + 20 x L) L = measuring length in meters
Resolution	0,01 mm
Output frequency	500 Hz (2 msec)
Measuring length	650 mm max.
Operating temperature	0 - 50 °C
Store temperature	0 - 70 °C
Humidity	non-condensing 80 % max.
Protection class	IP 54 (standard) IP65 (Option V)
Sensor housing / guide carriage	
Housing (L x W x H)	90 x 48 x 28 mm
Magnetic tape	
Expansion coefficient	$\alpha = 16 \times 10^{-6} K^{-1}$
Length expansion	$\Delta L = L \times \alpha \times \Delta\vartheta$
Dimensions (W x H)	25 mm x 6 mm
Guide rail	
Material	Alu-Profile, blanc
Wires	
Wire lengths	30,0 m max.
wire exit (Radius of bending)	minimal 60 mm

Dimensions



Type designation

A - B - C - D - E - F

A Series
FMAX guide carriage with sensors and translator

B Version
000 Elgo standard
001 1. customer version

C Signal wire length
01.5 1,5 m (standard length)
or 1,0 / 3,0 / 5,0 / 8,0 / ... / 30,0 m

D Resolution
2 0,01 mm

E Interface
422 RS422

F Options
V casted version IP65

Examples: *FMAX-000-03.0-2-422-0*
FMAX-000-10.0-2-422-0-V

A - B - C

A Series
FSMAB guide rail

B Version
000 Elgo standard
001 1. Customer specific version

C Measuring length in mm
0650 measuring length max.
total length = measuring length + 150 mm

Example: *FSMAB-000-0650*

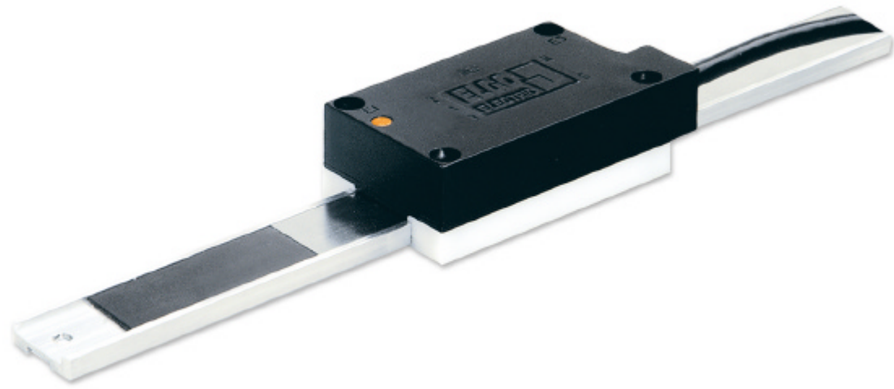
FMAX_E_07-03

ELGO ELECTRIC

Positioning– and
Length measuring systems
ELGO Electric GmbH

Carl-Benz-Str.1 -. D-78239 Rielasingen - Tel.: ++49 (0)7731/93 39-0 - Fax: ++49 (0)7731/213 11 - info@elgo.de - www.elgo.de

ELGO ELECTRIC



FMAX series

Guided, magnetic Absolute Measuring System