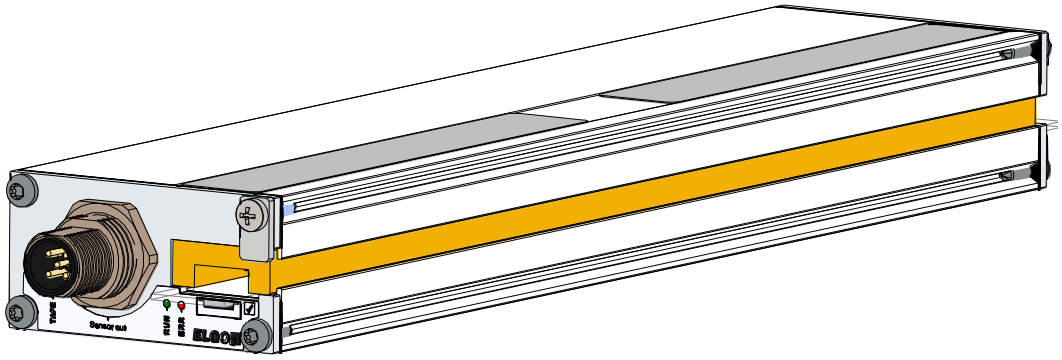
ELGO ELECTRONIC

LIMAX2M

Magnetic Absolute Shaft Information System



- Absolute measurement for hoisting heights up to 130 m
- Resolutions: 62,5 / 125 / 250 / 500 or 1000 µm
- Insensitive to dirt, smoke and humidity
- Travel speed up to 4 m/s
- Diverse interfaces available
- No referencing necessary
- Easy and flexible to install
- Vertical installation of the magnetic tape
- Wear-free, contactless and noiseless measuring principle

LIMAX2M - Magnetic Absolute Shaft Information System

General:

The absolute shaft information system LIMAX2M with its significant advantages is a particularly affordable, non-sensitive and easy-to-install alternative to conventional shaft information systems. Due to the absolute measurement principle, referencing is not required after commissioning. Compared to other shaft information systems, LIMAX2M is characterized by an extraordinarily low price.

LIMAX2M is able to cover lifting heights up to 130 meters and speeds up to 4 m/s.

The 2M in the type designation stands for "Mini" and means the smallest sensor design of the LIMAX2 series. With its low space requirement, LIMAX2M is also ideally suited for retrofitting and modernization of existing elevator systems.

A simple and flexible mounting ensures quick installation or replacement of the measuring system.

LIMAX2M

Magnetic Tape:

For measurement of the lift position, the sensor requires an absolute coded magnetic tape of the type AB20-80-10-1-R-D-15-BK80, which carries the unique position information as a magnetic code. The magnetic tape is mounted free-hanging in the shaft by using an ELGO mounting set (see accessories on the last page). At the lower end, the tape is tensioned while it is guided along the cabin by a plastic guidance at the sensor. The actual measurement resp. scanning is basically contactless. The guidance merely serves to keep the correct distance to the sensor.

Resolution:

Depending on the requirements, an appropriate system resolution can be defined with the order (see type designation). The available standard resolutions are 62.5 / 125 / 250 / 500 and 1000 μm.

Available Interfaces:

For communication with the lift control, an interface can be defined with the order (see type designation). Available are CANopen, RS485, RS422 or SSI interfaces with different protocols resp. codings. Customer-specific solutions are also available on request.

Status LEDs:

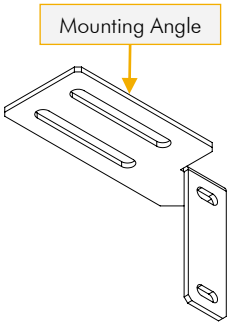
The LIMAX2M sensor has 3 status LEDs which serve for various messages, e. g. operational readiness or error states of the system, magnetic tape and interface.

Connections:

By default the LIMAX2M sensor is supplied with a M12 round connector und without a signal cable. Depending on the interface selected, the circular connector is designed as a 5- or 8-pin connector. Various cables with the appropriate round connector (on the sensor side) and on the customer side with open cable ends or a 9-pin D-SUB connector can be ordered separately as an accessory.

Sensor Installation:

In order to mount the sensor to the lift cabin, the mounting angle kit LIMAX2M MW SET must be used, which is available as an ELGO accessory. This mounting kit includes two screws with sliding nuts which can be inserted into the mounting groove of the sensor housing in order to fix the angle to the sensor housing. With the remaining long holes, the unit can be fastened on the cabin roof. The tape guidance at the sensor permanently ensures the correct distance between magnetic tape and sensor.



Magnetic Tape Installation:

For elevator applications, the magnetic tape is attached free hanging to the upper end of the shaft and is tensioned at the lower end of the shaft by using a tension spring. Several mounting sets are available for the tape installation, which contain different components depending on the respective requirements. All variants and their order designations are summarized in the table “Accessories” on the last page. Available are various mounting sets as well for central guided cabins as for rucksack-guided systems.

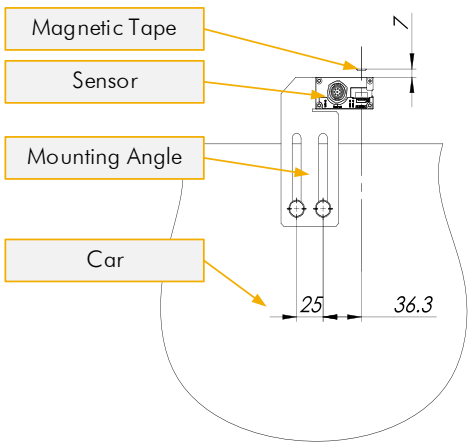
LIMAX2M - Magnetic Absolute Shaft Information System

Technical Data:

Mechanical Data	
Measuring principle	absolut
Repeat accuracy	± 1 increment
System accuracy in µm at 20 °C	± (1000 + 50 x L) L = Messlänge in Meter
Distance sensor / tape	the correct distance is guaranteed by guidance
Housing material	aluminium
Housing dimensions	L x W x H = 247 x 54 x 27 mm
Required magnetic tape	AB20-80-10-1-R-D-15-BK80
Basic pole pitch (tape)	8 mm
Max. measuring length	130 m
Connections	standard: M12 round connector (5- or 8-pin depends on interface type)
Sensor cable	accessorial part
Weight	approx. 320 g without cable cable: approx. 60 g per meter
Electrical Data	
Power supply voltage	10 ... 30 VDC
Residual ripple	<200 mVpp
Current consumption	max. 200 mA
Interface (order-specific)	CAN, CANopen (DS406 or DS417), RS422, RS485, SSI (Gray or binary)
Resolution (order-specific)	1.0 / 0.5 / 0.25 / 0.125 / 0.0625 mm
Operating speed	max. 4 m/s
Cycle time	10 ms
Environmental conditions	
Storage temperature	-25 ... +85 °C
Operating temperature	-10 ... +70 °C (-25 ... +85 °C on request)
Operating altitude	max. 200 m above sea level
Humidity	95 %, non-condensing
Protection class	IP54 (standard) IP67 (on request)

Sensor with LIMAX2 MW mounting angle:

(seen from above)



Type Designation:

LIMAX2M - _ _ - _ _ _ - _ _ _ _ - _ _ _ _ - _ _ _ _
A A - B B B - CCCC - DDDD - E E E E

A Version
- 00 = *ELGO* standard version
- 01 = first special version (etc.)

B Signal cable length
- CON = no cable, M12 connector on device (standard)

C Resolution
- 62N5 = 62,5 µm (0.0625 mm)
- 0125 = 125 µm (0.125 mm)
- 0250 = 250 µm (0.25 mm)
- 0500 = 500 µm (0.5 mm)
- 1000 = 1000 µm (1 mm)

D Interface
- 422X = RS422 [special protocol separately defined by version no.]
- 4220 = RS422 [standard protocol / position]
- 4221 = RS422 [extended protocol / position & speed]
- 485X = RS485 [special protocol, separately defined by version no.]
- 4850 = RS485 [standard protocol RS485]
- CNX = CAN [special protocol, separately defined by version no.]
- CN0 = CAN [standard protocol Basic-CAN]
- COX = CANopen [special profile, separately defined by version no.]
- CO0 = CANopen [encoder Profile DS406]
- CO1 = CANopen [elevator Profile DS417]
- SSBX = SSI [special protocol, separately defined by version no.]
- SSB0 = SSI [25-bit binary code / position]
- SSGX = SSI [special protocol, separately defined by version no.]
- SSG0 = SSI [25-bit gray code / Position]

CAUTION:

1. Assembly of CAN-load resistor is selectable

CAN- Interface	
With termination 120R (T)	CNXT
Without termination	CNX
With termination 120R (T)	CN0T (Standard)
Without termination	CN0
With termination 120R (T)	CNOXT
Without termination	CN0X
With termination 120R (T)	CO0T (Standard)
Without termination	CO0
With termination 120R (T)	CO1T
Without termination	CO1 (Standard)

2. RS422 / RS485 / SSI interfaces are basically terminated by 120R!

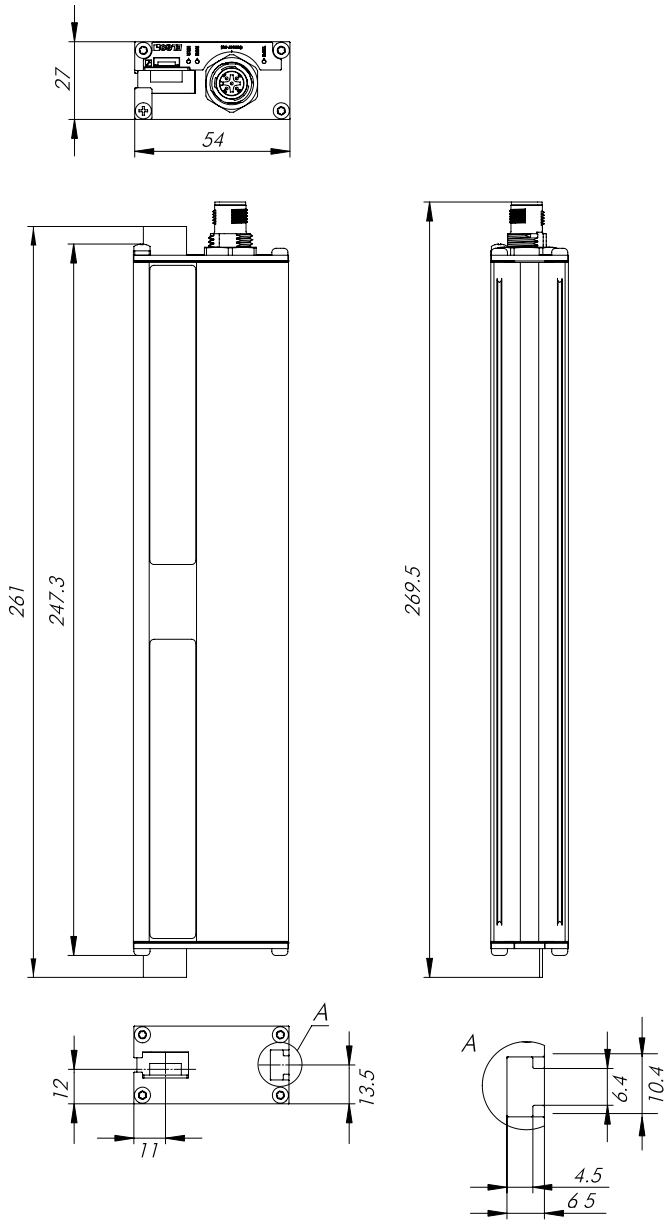
E Options (multiple indications possible)
- U = unguided housing version
- M12M = 5- resp. 8-pin M12 round connector [5 or 8 pins resp. assignment depends on the type of selected interface]

Order example:

LIMAX2M - 0 0 - CON - 10 0 0 - 4850 - M12M
A A - B B B - CCCC - DDDD - E E E E

ELGO standard LIMAX2M without cable, with 1 mm resolution, RS485 interface (standard protocol) and M12 round connector

Dimensions of LIMAX2M:



Accessories for LIMAX2M:

Order designation	Description
LIMAX2M MW SET	LIMAX2M mounting angle for attachment to the lift cabin
AB20-80-10-1-R-D-15-BK80	Magnetic tape for LIMAX2M, absolute coding, single track system
LIMAX MKF	Mounting set for suspended installation with dowel
LIMAX MKB	Mounting set for suspended installation with guiding rails and rail holder
LIMAX RMS	Mounting set for suspended installation with crossbeam for standard layout
LIMAX RMS 90	Mounting set for suspended installation with crossbeam for Rucksack-layout
CABLE-LIMAX2M-M12F5-03.0	LIMAX2M signal cable, 3 m (standard length) sensor side CAN & RS485 assignment | customer side open cable ends
CABLE-LIMAX2M-M12F5-03.0-D9M	LIMAX2M signal cable, 3 m (standard length) sensor side CAN & CANopen assignment | customer side 9-pin D-SUB
CABLE-LIMAX2M-M12F8-03.0	LIMAX2M signal cable, 3 m (standard length) sensor side CAN & RS422 assignment |customer side with open cable ends
CABLE-LIMAX2M-M12F8-03.0-D9M1	LIMAX2M signal cable, 3 m (standard length) sensor side CAN & CANopen assignment | customer side 9-pin D-SUB

*) other lengths on request

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