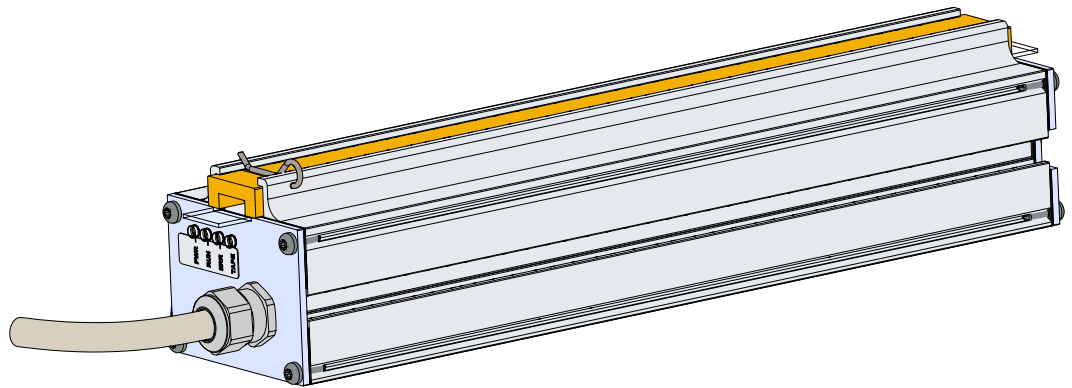


# LIMAX2

Magnetic Absolute Shaft Information System



- Absolute measurement for hoisting heights up to 260 m
- Wear-free, contactless and noiseless measuring principle
- High accuracy and repeatability
- Resolutions: 62,5 / 125 / 250 / 500 or 1000  $\mu\text{m}$
- Very robust against dust, dirt and smoke
- Travel speed up to 10 m/s
- Absolute position is always directly available  
no referencing even after long power failure
- Compatible with many established controls  
with absolute encoder interface
- Several interfaces available e. g. CAN,  
CANopen, RS422, RS232, SSI or PROFIBUS
- Easy and flexible to install
- Vertical installation of the magnetic tape

# LIMAX2 - Magnetic Absolute Shaft Information System

## General:

The magnetic absolute shaft information system **LIMAX2** is able to cover lifting heights up to 260 meters and speeds up to 10 m/s. Thanks to the contactless and very robust magnetic tape technology, the measurement is not affected by dust, dirt or smoke. On request, the system can be equipped so that moisture and increased temperatures do not affect the measurement quality, which makes the **LIMAX2** system ideally suited for use in firefighter lifts. The magnetic tape itself is also resistant to the sometimes harsh conditions during assembly and operation of elevators.

Various available interfaces allow that the system can be directly connected to most common lift controls. Another advantage of the system is the easy and flexible installation. The installation itself can be done by experts in less than one hour. The installation can take place at any position in the elevator shaft according to the given space.

## Magnetic Tape:

For measurement of the lift position, the dual-sensor which is integrated in aluminum profile housing requires an absolute coded magnetic tape (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.



LIMAX02

## 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  $\mu\text{m}$ .

## Interface:

For communication with the lift control, different interfaces e. g. CAN, CANopen (DS406, DS417), RS485, RS422, SSI (Gray, binary) or PROFIBUS are available depending on the order. On request, other interfaces as well as customer-specific solutions can be realized.

## Status LEDs:

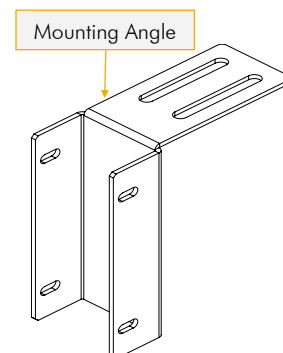
The **LIMAX02** housing front has four status LEDs which serve for various messages, e. g. operational readiness or error states of the system, magnetic tape and interface. Versions equipped with PROFIBUS interface also have two additional status LEDs on the housing top.

## Connections:

By default the **LIMAX2** encoder is supplied with a 3 meter long signal cable with open cable ends. Optionally the signal cable can be delivered with diverse connectors (see Type Designation).

## Sensor Installation:

In order to mount the sensor to the lift cabin, the mounting angle kit **LIMAX2 MW SET** can be used, which is available as an ELGO accessory. This mounting kit includes also the required 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.

# LIMAX2 - Magnetic Absolute Shaft Information System

## Technical Data:

Mechanical Data	
Measuring principle	absolute, redundant
Repeat accuracy	± 1 increment
System accuracy in $\mu\text{m}$ at 20 °C	± (1000 + 100 x L) L = measuring length in meters
Distance sensor / tape	the correct distance is guaranteed by guidance
Housing material	aluminium
Housing dimensions	L x W x H = 246 x 55 x 55 mm
Required magnetic tape	AB20-80-10-1-R-D-15-BK80
Basic pole pitch (tape)	8 mm
Max. measuring length	260 m
Connections	standard: open cable ends optional: plug connector
Sensor cable	standard length: 3.0 m optional: 5.0 m, others on request
Weight	approx. 460 g without cable cable: approx. 60 g per meter

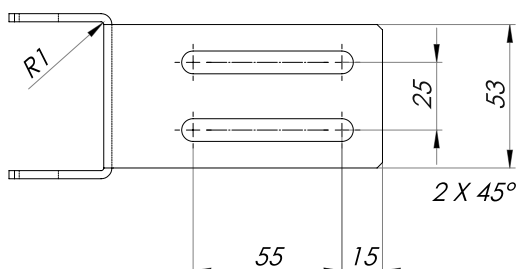
Electrical Data	
Power supply voltage	10 ... 30 VDC
Residual ripple	<10 %
Current consumption	max. 200 mA
Interface	CAN, CANopen (DS406, DS417), RS422, RS232 or SSI (Gray, binary), PROFIBUS, others on request
Resolution	1.0 (standard) or 0.5 / 0.25 / 0.125 / 0.0625 mm (optionally)
Operating speed	max. 10 m/s

Environmental conditions	
Storage temperature	-25 ... +85 °C
Operating temperature	-10 ... +70 °C (-25 ... +85 °C on request)
Operating altitude	max. 3000 m above sea level
Humidity	95 %, non-condensing
Protection class	IP50 (higher on request)

## Top view LIMAX2 MW mounting angle set:

(Dimensions of the long holes for mounting on the cabin roof)

8.40 X 63.40



## Type Designation:

LIMAX2 -  $\underline{\quad}$   $\underline{\quad}$  -  $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$  -  $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$  -  $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$

A A - B B B - CCCC - DDDD - E E E E

### A Version

00 = ELGO standard  
01 = First special version (etc.)

### B Signal Cable Length

030 = 3.0 m (standard)  
050 = 5.0 m (other lengths on request)

### C Resolution

62N5 = 62.5  $\mu\text{m}$  (0.0625 mm)  
0125 = 125  $\mu\text{m}$  (0.125 mm)  
0250 = 250  $\mu\text{m}$  (0.25 mm)  
0500 = 500  $\mu\text{m}$  (0.5 mm)  
1000 = 1000  $\mu\text{m}$  (1 mm)

### D Interface

2320 = RS232 [standard protocol / position]  
2321 = RS232 [extended protocol / position & speed]  
4220 = RS422 [standard protocol / position]  
4221 = RS422 [extended protocol / position & speed]  
4850 = RS485 on request  
CN0 = CAN [standard protocol CAN-basic]  
CO0 = CANopen [encoder profile DS406]  
CO1 = CANopen [elevator profile DS417]  
PNO = PROFIBUS [according to IEC61158/IEC61784,  
standard ID 5, others on request]  
SSB0 = SSI [25 Bit binary code / position]  
SSG0 = SSI [25 Bit Gray code / position]

### CAUTION:

- CAN Interface is optionally available with galvanic isolation / assembly 120R CAN-load resistor selectable (T, see below)
- RS232 interface is never terminated
- RS422, RS485 and SSI interfaces are basically terminated

CAN- Schnittstelle	ohne galvanische Trennung	mit galvanischer Trennung (G)
mit Terminierung 120R (T)	CN0T (Standard)	CN0TG
ohne Terminierung	CN0	CN0G
mit Terminierung 120R (T)	CO0T (Standard)	CO0TG
ohne Terminierung	CO0	CO0G
mit Terminierung 120R (T)	CO1T	CO1TG
ohne Terminierung	CO1 (Standard)	CO1G

SSI- Schnittstelle	
ohne Optokoppler im Takt- Eingang (terminiert mit 120R)	mit Optokoppler im Takt- Eingang (G) (terminiert mit 300R)
SSB0 (Standard)	SSB0G
SSG0 (Standard)	SSG0G

### E Options (multiple indications possible, more options on request)

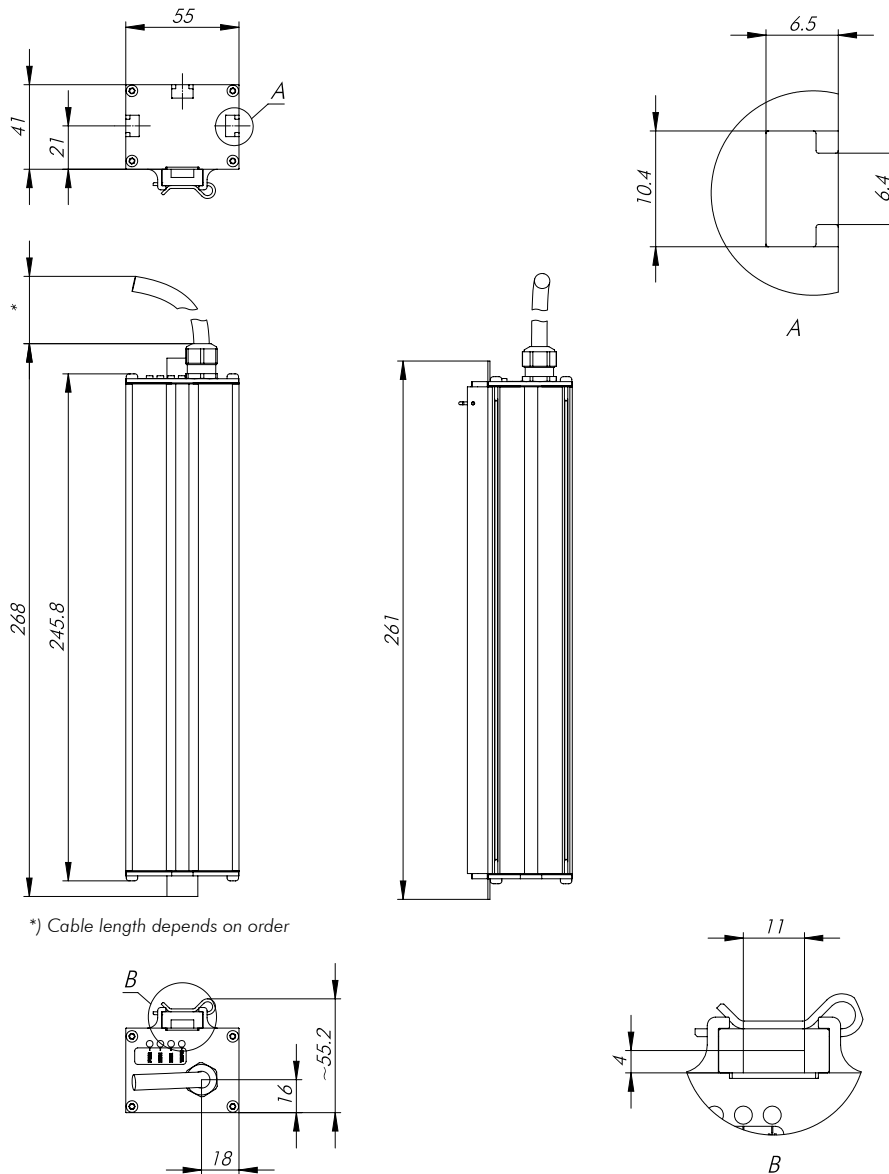
U = unguided version  
PNO = 1 pc. flange plug M8, 1 pc. flange plug M12 and 1 pc. flange socket M12  
D9M = 9-pin D-SUB (male) [CAN & CANopen]  
D9M1 = 9-pin D-SUB (male) [SSI / option NEWLIFT FST2]  
D9M3 = 9-pin D-SUB (male) [SSI / option LödigeSEW]  
D9F0 = 9-pin D-SUB (female) [RS232 / for DEE/DTE connection]

### Order example:

LIMAX2 - 00 - 030 - 10 0 0 - CN0T - D9M  
AA - BBB - CCCC - DDDD - E E E

ELGO standard LIMAX02 with 3 m cable, 1 mm resolution, CAN basic interface (terminated, 120R) and 9-pin (male) D-SUB connector

## Dimensions of LIMAX2:



\*) Cable length depends on order

## Accessories for LIMAX2:

Order designation	Description
LIMAX2 MW SET	LIMAX2 mounting angle set for attachment on the lift cabin
AB20-80-10-1-R-D-15-BK80	Magnetic tape for LIMAX2, 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
LIMAX S-RMS	Mounting set for suspended installation with crossbeam and tape detection
CD-ROM with GSD File	Supplied with option PROFIBUS
Connection cable power supply PNO	M8 coupling, 4-pin 5 m length
PROFIBUS - signal line	M12 connector, 5-pin, b-coded (assembled at one end), 5 m length
PROFIBUS - signal line	M12 coupling, 5-pin, b-coded (assembled at one end), 5 m length
PROFIBUS - signal line	M12 plug / socket (assembled at both ends), 5 m length
PROFIBUS - terminator	M12 4-pin, b-coded

