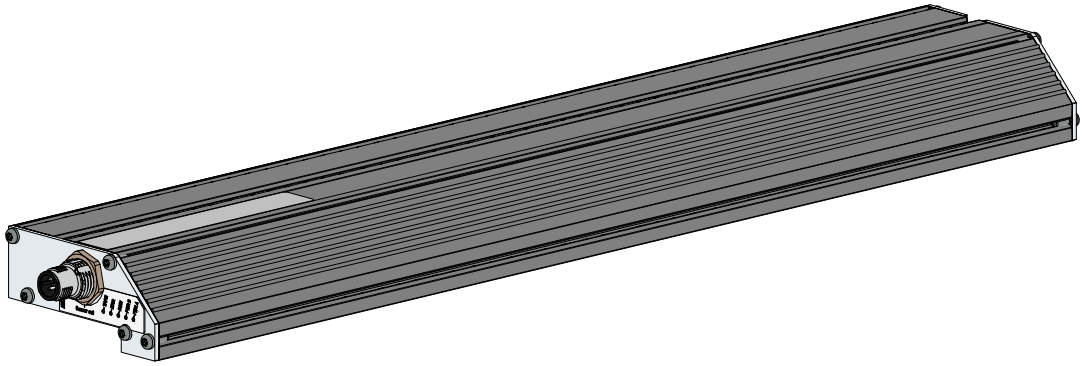
ELGO ELECTRONIC

LIMAX44 RED

Safe Magnetic Absolute Shaft Information System
for Elevator Applications in High-Rise Buildings



- Safe, redundant detection of the absolute car position
- Designed for hoisting heights up to 786 m (1,500 m in preparation) and speeds up to 18 m/s
- Unguided, wear-free and completely noiseless technology
- Position measurement with 62.5 µm resolution (others on request)
- Very robust against dirt, dust, smoke and moisture
- In combination with a safe elevator control or processing unit, safety functions are fulfilled
- In combination with ELGO floor sensors, building compression can be counterbalanced
- With RS485 interface (others on request)
- Simplified assembly for high-rise buildings, no assembly clips required

LIMAX44 RED - Shaft Information System for High-Rise Elevator Systems

General:

LIMAX44 RED is designed specifically for the requirements of particularly high elevator systems and is used in the tallest buildings in the world. It detects the absolute car position in the shaft up to a hoisting height of 786 m (1,500 m in preparation) and is suitable for speeds up to 18 m/s.

The housing contains two channels, which are checked for their functionality by an integrated monitoring system. This ensures that the position values as well as any possible system errors are reliably detected. In the case of failure of one system channel, LIMAX44 RED reports the error to the master control.

The sensor is designed to be used as a safe sensor along with a safe evaluation unit (e. g. ELGO SAFEBOX) or directly with a safe elevator control. Used together, the system performs elevator safety functions.

Thanks to the unguided installation, LIMAX44 RED works without any noise even at high speeds. Because the system is completely non-contact, it is not subject to wear and tear and thus has a virtually infinite service life.

Magnetic Tape:

The magnetic tape carries the unique position information as a magnetic code. The measurement resp. scanning is basically contactless. To determine lift positions, the integrated measuring electronics of LIMAX44 RED require an absolute encoded, 10 mm wide magnetic tape for mounting distances up to max. 9 mm between sensor and tape or a 20 mm wide variant for mounting distances of max. 11 mm. The 20 mm wide band requires 3 magnetic tape segments to cover the maximum measuring length of 786 meters. The corresponding order designations can be found in the "Accessories" table on the last page.

Resolution:

The standard resolution of the LIMAX44 RED is 62.5 μm (others on request).

Interface:

A bidirectional RS485 interface is used to transmit the position data and to communicate with the elevator control resp. evaluation unit. On request, other interfaces and customer-specific protocols can also be implemented.

Status LEDs:

The LIMAX44 RED housing front has five status LEDs which serve for various messages, e. g. operational readiness or error states of the dual channel system as well as the functional state of the magnetic tape.

Building Compression Compensation:

In combination with ELGO floor sensors and magnets, building compression can be detected and counterbalanced via a master control or an evaluation unit.

Connections:

Standardly, the LIMAX44 RED measuring system is delivered with a 2.0 m long signal cable and a 5-pin M12 round connector. Either 3.2 or 5.0 m are available as optional cable lengths. Further cable lengths are available on request.

Sensor Installation:

To fasten the sensor at the cabin, a groove (see drawing on the last page) is installed on the side of the aluminum profile housing, which allows the sensor to be mounted at any position by means of sliding nuts with suitable dimensions. When installing, it must be ensured that the maximum permitted distance between sensor and magnetic tape is not exceeded along the entire measuring distance. The maximum allowed distance is 9 mm or 11 mm (depending on the selected type of magnetic tape).

Magnetic Tape Installation:

In contrast to the freely suspended and guided LIMAX systems, the self-adhesive magnetic tape is directly attached to the guide rail. This type of magnetic tape assembly has proven to be successful in very high elevator shafts.

LIMAX44 RED - Shaft Information System for High-Rise Elevator Systems

Technical Data:

Mechanical Data	
Measuring principle	absolute, redundant
Repeat accuracy	± 1 increment
System accuracy in µm at 20 °C	± (1000 + 100 x L) L = measuring length in meters
Distance sensor / tape	9 mm or 11 mm (depends on magnetic tape type)
Housing material	Aluminium
Housing dimensions)	L x W x H = 466 x 78 x 36 mm
Required magnetic tape	AB20-120-10-1-R1-C-16A-4943F or AB20-120-20-1-R1-C-16A-4943F
Basic pole pitch	12 mm
Max. measuring length	786 m resp. 1500 m (in preparation)
Connections	5 pin M12 round connector (others on request)
Sensor cable	no cable (fixed connector on housing)
Weight	approx. 900 g
Electrical Data	
Power supply voltage	10 ... 30 VDC
Residual ripple	<100 mV
Current consumption	max. 600 mA
Interface	RS485, others on request
Resolution	62.5 µm , others on request
Operating speed	max. 18 m/s
Conformance / Standards / Certifications	
Achieved SIL	in preparation: SIL3 (TÜV-certified)
Fulfilled standard	in preparation: EN81-20
Type examination	in preparation: EC according to EN81-20
Environmental Conditions	
Storage temperature	-25 ... +85 °C
Operating temperature	-10 ... +70 °C (-25 ... +85 °C on request)
Humidity	95 %, non-condensing
Operating height	max. 2000 m above sea level
Protection class	IP54 (according to EN60529), higher on request
Interference emission / immunity	in preparation: EN 12015 / EN 12016
Vibration / shock resistance	in preparation: EN 60068-2-6 / EN 60068-2-27 EN 60068-2-29

Type Designation:

LIMAX4R - _ _ - _ _ _ - _ _ _ _ - _ _ _ _ - _ _ _ _
A A - B B B - C C C C - D D D D - E E E E

A Version
00 = standard version 0

B Signal Cable
CON = no signal cable (fixed connector on housing)

C Resolution
62N5 = 62.5 µm

D Interface
485X = RS485 [special protocol, separately defined by version number]*

*) **CAUTION:**
The RS485 interface is basically terminated!

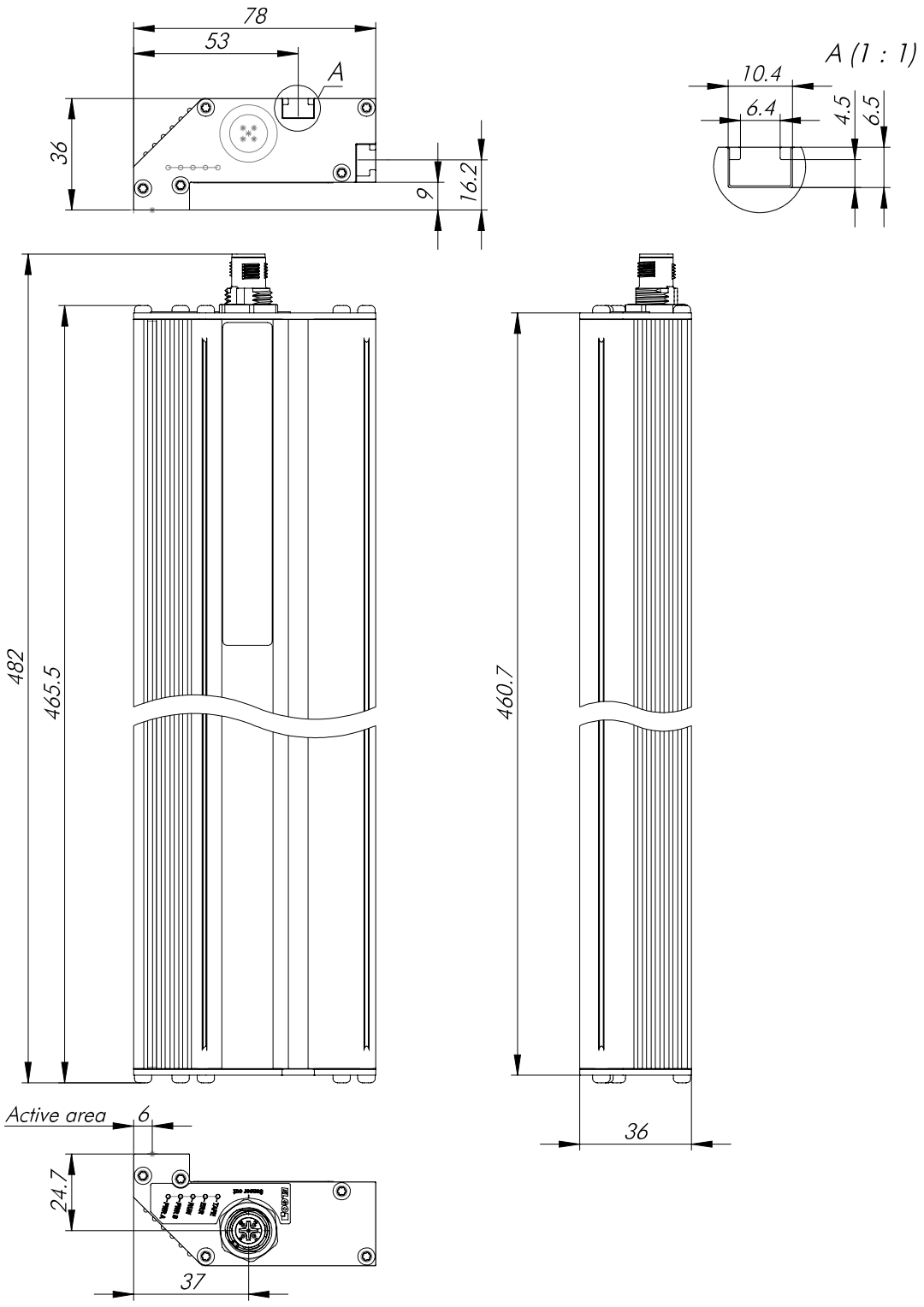
E Connections
M12M = 5-pin M12 round connector (A-coded)

Order example:

LIMAX4R - 00 - CON - 1000 - 485X - M12M
AA - BBB - CCCC - DDDD - EEEE

ELGO standard LIMAX44 RED with 1 mm resolution, terminated RS485 interface and 5-pin M12 round connector on housing

Dimensions of LIMAX44 RED:



Accessories for LIMAX44 RED:

Order Designation	Description
AB20-120-**10**-1-R1-C-16-4943F	LIMAX44 RED magnetic tape up to 786 m for mounting distances up to 9 mm
AB20-120-**20**-1-R1-C-16A-4943F	Magnetic tape segment 000 ... 285 m for mounting distances up to 11 mm
AB20-120-**20**-1-R1-C-16B-4943F	Magnetic tape segment 285 ... 570 m for mounting distances up to 11 mm
AB20-120-**20**-1-R1-C-16C-4943F	Magnetic tape segment 570 ... 786 m for mounting distances up to 11 mm

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