

# LK24

## PHOTOELECTRIC ABSOLUTE LINEAR ENCODER



The sealed absolute photoelectric encoder LK24 is used to convert linear displacements of key machine components into electrical signals containing information about components absolute position.

The encoder consists of a glass scale installed into a rigid hollow housing and a ball-bearing guided reading head. To be able to work in harsh environments (lubri-

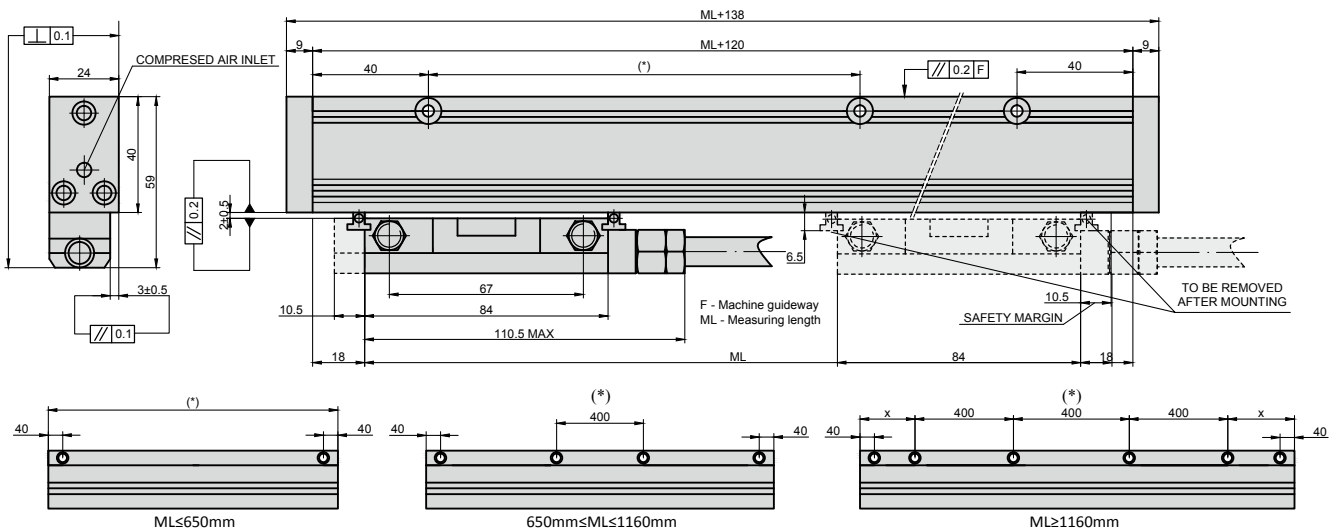
cants and chips), the encoder has double level sealing lips. Filtered air can be supplied into the housing of the encoder for extra protection.

The encoder has two versions of serial interface SSI or BiSS C. On option third encoder version is available: with 2 analog sinusoidal signals with phase shift  $90^\circ$  and amplitude approx.  $1V_{pp}$ .

### MECHANICAL DATA

Measuring lengths (ML), mm	70, 120, 170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 720, 770, 820, 920, 1024, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 2040, 2240, 2440, 2640, 2840, 3040, 3240
Incremental signal	sine wave 1 Vpp (optional)
Resolution 1Vpp	up to $0.1\mu\text{m}$ (depending on CNC division factor)
Serial interface	SSI or BiSS
Resolution absolute measure	$1\mu\text{m}$ , $0.1\mu\text{m}$
Accuracy grades to any metre within the ML (at $20^\circ\text{C}$ )	
- standard version	$\pm 3\mu\text{m}$
- high accuracy version	$\pm 1\mu\text{m}$
Grating period (T)	$20\mu\text{m}$
Max. traversing speed:	120 m/min
Max. acceleration	30 m/s
Required moving force	$<4\text{N}$ ; $\leq 2.5\text{N}$ on request

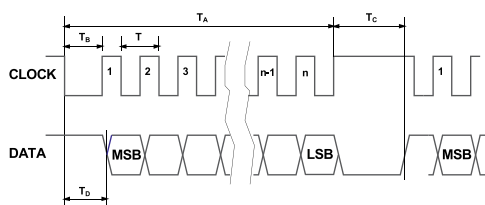
Power supply	$+5\text{V} \pm 5\%$
Current consumption with load	max 340 mA (with $R=120\Omega$ )
Protection (EN 60529)	
-without compressed air	IP54
-with compressed air	IP64
Weight	0.4 kg + 2.8 kg/m
Operating temperature	$0\dots+50^\circ\text{C}$
Storage temperature	$-20\dots+70^\circ\text{C}$
Permissible humidity (non condensed)	20...80 %
Permissible vibration (55...2000 Hz)	$\leq 100\text{ m/s}^2$
Permissible shock (11 ms)	$\leq 150\text{ m/s}^2$
Weight	0.42 kg + 1,32kg/m
Standard cable length/max. cable length	2.0/25.0 (100 m if power supply is min. 5V)
Electrical protections	from inversion of power supply polarity; from short circuit on output port



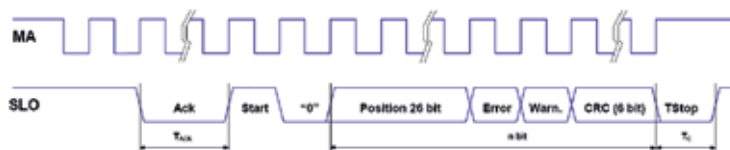
(\*) Add holes at 40mm from cut ends, when the first hole at constant step is at a distance  $X > 175\text{mm}$ .

## OUTPUT SIGNALS

### SSI Version



### BiSS C Version

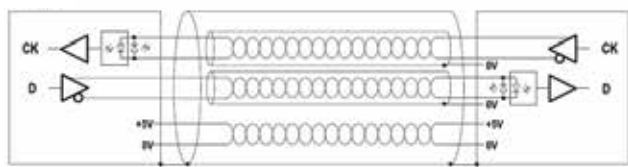


Interface	SSI Binary – Gray
Signals level	EIA RS 485
Clock frequency	0.1 ÷ 1.2 MHz
n	Position bit
T <sub>c</sub>	10 ÷ 20 µs

Interface	BiSS C unidirectional
Signals level	EIA RS 485
Clock frequency	0.1 ÷ 4 MHz
n	26 + 2 + 6 bit
T <sub>c</sub>	12 ÷ 20 µs

## CABLE

### Serial output



Encoder is supplied with flexible cable, which is consisted of shielded twisted pairs of wires (for informational signals SSI-BiSS).

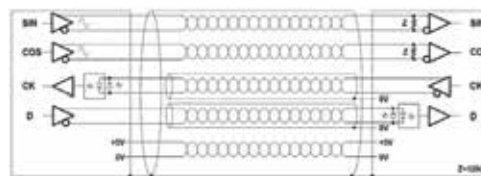
#### Cable for serial output:

- 6-wire shielded cable, Ø=7 mm, PVC external sheath, with low friction coefficient, oil-resistant, suitable for continuous movements
- conductors section: power supply 0.25 mm<sup>2</sup>, signals 0.25 mm<sup>2</sup>
- cable's bending radius should not be lower than 35 mm.

#### In case of cable extension, it is necessary to guarantee:

- electrical connection between the body of the connectors and the cables shield;
- minimum power supply voltage of 5 V to the head.

### Analog output + Serial output



#### Cable for analog output + serial output:

- 10-wire shielded cable, Ø=7.1 mm, PUR external sheath.
- conductors section: power supply 0.35 mm<sup>2</sup>, signals 0.10 mm<sup>2</sup>
- cable's bending radius should not be lower than 45 mm.

## ACCESSORIES

CONNECTORS FOR CABLE	B12 12-pin round connector	C9 9-pin round connector	C12 12-pin round connector	D9 9-pin flat connector	D15 15-pin flat connector
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## ORDER FORM

LK24 - XX - XXXX - X / XXX - XX - XX - XXX - X						
RESOLUTION:	MEASURING LENGTH:	OUTPUT SIGNALS:	INCREMENTAL SIGNALS:	CABLE LENGTH:	CONNECTOR TYPE:	COMPRESSED AIR:
F01 - 0.1 µm F10 - 1.0 µm	0070 - 70 mm 0520 - 520 mm ... 3240 - 3240 mm	S0 - SSI programmable S1 - SSI binary S2 - SSI binary+even parity S3 - SSI binary+odd parity S4 - SSI binary+error S5 - SSI binary+even+parity+error S6 - SSI binary+odd parity+error S7 - SSI Gray B1 - BiSS binary	W - without incremental signals V - 1Vpp	01 - 1m 02 - 2m 03 - 3m ...	W - without connector B12 - round, 12 pins C12 - round, 12 pins C9 - round, 9 pins D9 - flat, 9 pins D15 - flat, 15 pins	0 - without compressed air 1 - with compressed air
ORDER EXAMPLE:		1) LK24-F01-0070-S0-W-01-W-0				