

# PHOTOELECTRIC LINEAR ENCODER

# LK24



SSI protocol



Absolute Encoder



BiSS protocol

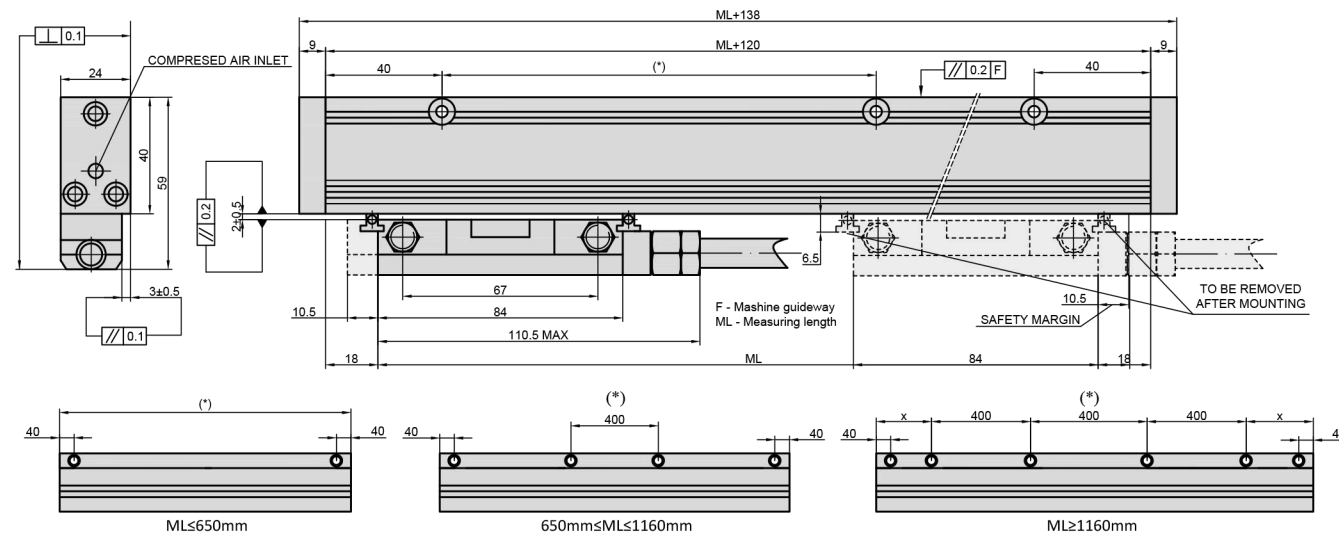


Analog output signals



Photoelectric absolute linear encoder LK24 has measuring length of up to 3.240 mm depending on customer demand, uses SSI or BiSS

serial interface and produces up to  $\pm 3 \mu\text{m}$  accuracy. The encoder can have an additional 1Vpp incremental track.



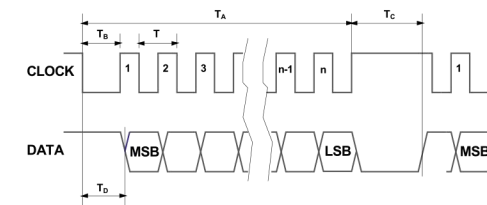
(\*) Add holes at 40mm from cut ends, when the first hole at constant step is at a distance X>175mm.

## MECHANICAL DATA

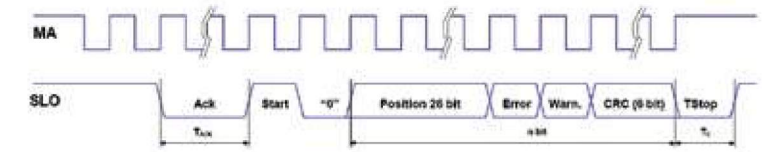
Measuring lengths (ML), mm	70, 120, 170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 720, 770, 820, 920, 1020, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 2040, 2240, 2440, 2640, 2840, 3040, 3240	Current consumption with load	max 340 mA (with R=120Ω)
Incremental signal	sine wave 1 Vpp (optional)	Protection (EN 60529)	-without compressed air: IP54 -with compressed air: IP64
Resolution 1Vpp	up to 0.1 μm (depending on CNC division factor)	Operating temperature	0...+50°C
Serial interface	SSI or BiSS	Storage temperature	-20...+70°C
Resolution absolute measure	1 μm, 0.1 μm	Permissible humidity (non condensed)	20...80 %
Accuracy grades to any metre within the ML (at 20°C)	± 3 μm	Permissible vibration (55...2000 Hz)	≤ 100 m/s <sup>2</sup>
Grating period (T)	20 μm	Permissible shock (11 ms)	≤ 150 m/s <sup>2</sup>
Max. traversing speed:	2 m/s	Weight	0.44 kg +1,3kg/m
Max. acceleration	30 m/s	Standard cable length/max. cable length	2.0/20.0 (50 m if power supply is min. 5V)
Required moving force	≤2.5N	Electrical protections	from inversion of power supply polarity; from short circuit on output port
Power supply	+5V ± 5%		

## OUTPUT SIGNALS

SSI VERSION



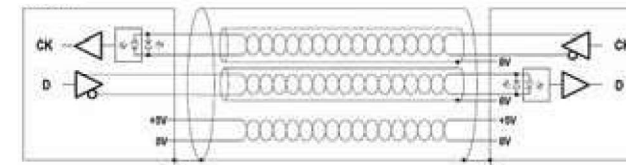
BISS C VERSION



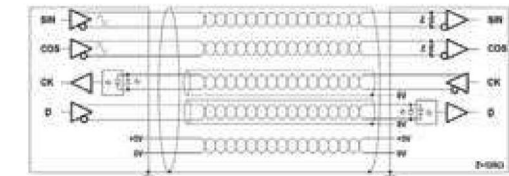
Interface	SSI Binary – Gray	Interface	BiSS C unidirectional
Signals level	EIA RS 485	Signals level	EIA RS 485
Clock frequency	0.1 - 1.2 MHz	Clock frequency	0.1 - 4 MHz
n	Position bit	n	26 + 2 + 6 bit
T <sub>c</sub>	10 - 20 μs	T <sub>c</sub>	12 - 20 μs

## CABLE

SERIAL OUTPUT



ANALOG OUTPUT + 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.

### 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	- X1 - X2 - X3 - X4 - X5/X6				
Resolution (X1):	Measuring length (X2):	Output signals (X3):	Incremental signals (X4):	Cable length (X5):	Connector type (X6):
F01 - 0.1 μm F10 - 1.0 μm	0070 - 70 mm 0520 - 520 mm 3240 - 3240 mm	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

ORDER EXAMPLE: 1) LK24-F01-0070-S1-W-01/W