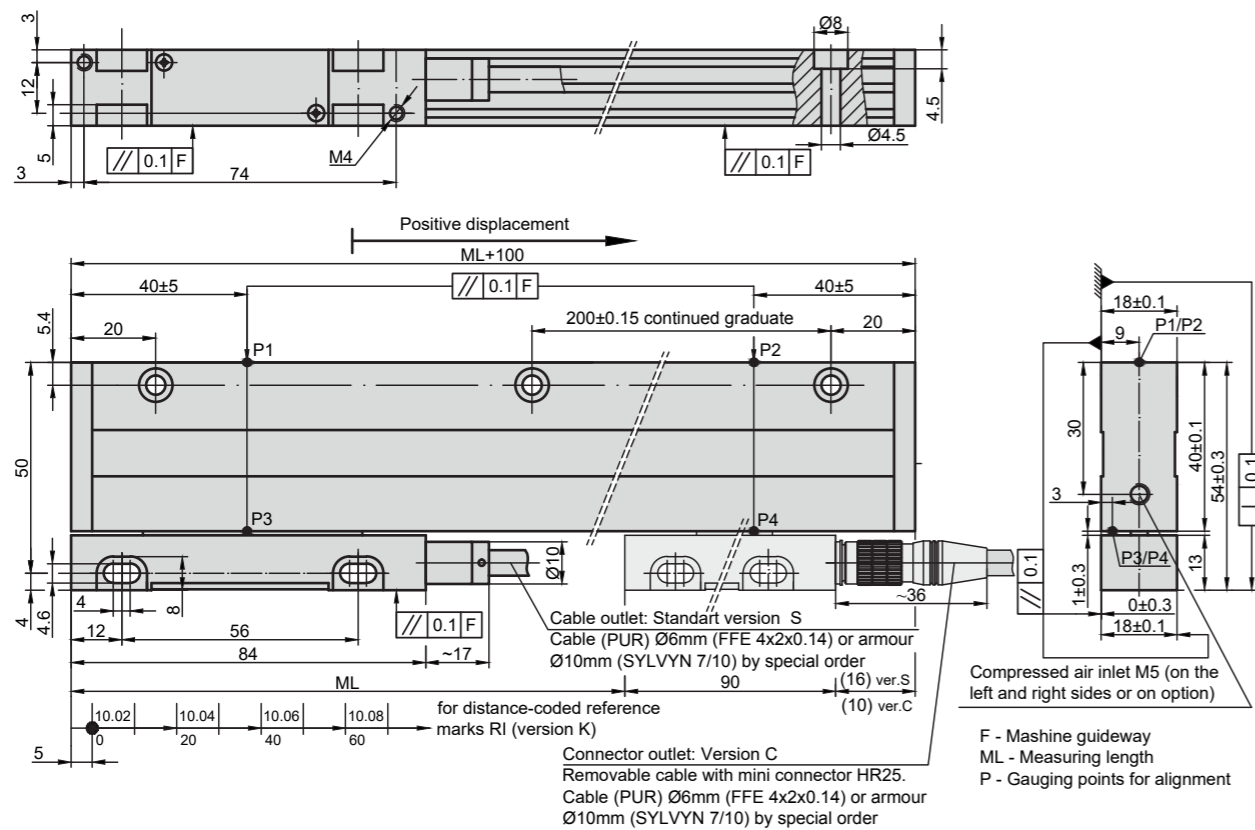


PHOTOELECTRIC LINEAR ENCODER

# L18B



Photoelectric linear encoder L18B is able to have the measuring length of up to 3.240 mm, maximum accuracy of  $\pm 3 \mu\text{m}$  to any meter within the ML and grating periods of  $\pm 20 \mu\text{m}$ ,  $\pm 40 \mu\text{m}$ .



## MECHANICAL DATA

Measuring lengths (ML), mm	70; 120; 170; 220; 270; 320; 370; 420; 470; 520; 620; 720; 820; 920; 1020; 1140; 1240; 1340; 1440; 1540; 1640; 1740; 1840; 1940; 2040; 2140; 2240; 2340; 2440; 2540; 2640; 2740; 2840; 2940; 3040; 3140; 3240 (other intermediate lengths on request)	Max. traversing speed: -when interpolation factor is 1,2,5,10 -when interpolation factor is 25 -when interpolation factor is 50	1 m/s 0.5 m/s 0.4 m/s
Accuracy grades to any metre within the ML (at 20°C): - for ML 70 to 1020 - for ML 1140 to 2040 - for ML 2140 to 3240	$\pm 10 \mu\text{m}$ ; $\pm 5 \mu\text{m}$ ; $\pm 3 \mu\text{m}$ (optional) $\pm 10$ ; $\pm 5 \mu\text{m}$ $\pm 10 \mu\text{m}$	Required moving force with sealing lips	< 3 N
Grating period	20 $\mu\text{m}$ ; 40 $\mu\text{m}$ (optional)	Protection (IEC 529) -without compressed air -with compressed air (optional)	IP53 IP64
Reference marks (RI): -standard for ML $\leq 1020$ mm -standard for ML > 1140 mm -optional	35mm from both ends of ML 45mm from both ends of ML one RI at any location, or two or more RI's separated by distances of n x 50 mm or distance-coded	Weight	0.4 kg + 1.0 kg/m
		Operating temperature	0...+50°C
		Storage temperature	-20...+70°C
		Permissible vibration (40 to 2000 Hz)	$\leq 30 \text{ m/s}^2$
		Permissible shock (11 ms)	$\leq 100 \text{ m/s}^2$

## ELECTRICAL DATA

Version	L18B-A $\sim 11 \mu\text{App}$	L18B-AV $\sim 1 \text{Vpp}$	L18B-F $\square$ TTL
Power supply	+5 V $\pm 5\%$ / < 90 mA	+5 V $\pm 5\%$ < 120 mA	+5 V $\pm 5\%$ / < 120 mA
Light source	LED	LED	LED
Resolution	Depends on external subdividing electronics	Depends on external subdividing electronics	5; 1; 2.5; 0.5; 0.2; 0.1 $\mu\text{m}$ (after 4-fold dividing in subsequent electronics)
Incremental signals	Two sinusoidal I <sub>1</sub> and I <sub>2</sub> Amplitude at 1 k $\Omega$ load: - I <sub>1</sub> = 7-16 $\mu\text{A}$ - I <sub>2</sub> = 7-16 $\mu\text{A}$	Differential sine +A/-A and +B/-B Amplitude at 120 $\Omega$ load: - A = 0.6-1.2 V - B = 0.6-1.2 V	Differential square-wave U1/ $\bar{U}1$ and U2/ $\bar{U}2$ . Signal levels at 20 mA load current: - low (logic "0") $\leq 0.5 \text{ V}$ - high (logic "1") $\geq 2.4 \text{ V}$
Reference signal	Quasi-triangular I <sub>0</sub> . Signal magnitude at 1 k $\Omega$ load: - I <sub>0</sub> = 2-8 $\mu\text{A}$	Quasi-triangular +R and its complementary -R. Signals magnitude at 120 $\Omega$ load - R = 0.2-0.8 V	One differential square-wave U0/ $\bar{U}0$ per revolution. Signal levels at 20 mA load current: - low (logic "0") $< 0.5 \text{ V}$ - high (logic "1") $> 2.4 \text{ V}$
Maximum operating frequency	50 kHz	50 kHz	50xk kHz, when interpolation factor is 1, 2, 5, 10 1000 kHz when interpolation factor is 25, 50
Direction of signals	I <sub>2</sub> lags I <sub>1</sub> at reading head displacement from left to right	B+ lags A+ at reading head displacement from left to right	U2 lags U1 at reading head displacement from left to right
Standard cable length	3 m, without connector	3 m, without connector	3 m, without connector
Maximum cable length	5 m	25 m	25 m
Output signals			

Note: If cable extension is used the power supply conductor section should not be smaller than 0.5 mm<sup>2</sup>.

## 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	RS10 10-pin round connector	ONC 10-pin round connector	HR25 8-pins round mini connector
DIGITAL READOUT DEVICES	CS3000					CS5500		
EXTERNAL INTERPOLATOR	NK							

## ORDER FORM

L18B	X1	X2	X3	X4	X5	X6/X7
Output signals And resolution (X1):	Measuring length (X2):	Reference marks (X3):	Accuracy (X4):	Cable or Connector Outlet (X5):	Cable length (X6):	Connector type (X7):
A - Sinusoidal AV - TTL 0.1 $\mu\text{m}$ F01 - TTL 0.2 $\mu\text{m}$ F02 - TTL 0.5 $\mu\text{m}$ F10 - TTL 1.0 $\mu\text{m}$ F25 - TTL 2.5 $\mu\text{m}$ F50 - TTL 5.0 $\mu\text{m}$	0070 - 70 mm 0520 - 520 mm ... 3240 - 3240 mm	N - none RI S - standard M - every 50 mm K - distance coded Ln/XXX - n RI with 50-fold steps /XXX distance of the first RI from the beginning of ML, mm	03 - $\pm 3 \mu\text{m}$ 05 - $\pm 5 \mu\text{m}$ 10 - $\pm 10 \mu\text{m}$	S - version S (cable outlet) C - version C (connector outlet)	01 - 1m 02 - 2m 03 - 3m ... CP01 - 1m armoured CP02 - 2m armoured CP03 - 3m armoured ...	W - without connector B12 - round, 12 pins C9 - round, 9 pins C12 - round, 12 pins D9 - flat, 9 pins D15 - flat, 15 pins RS10 - round, 10 pins ONC - round, 10 pins

ORDER EXAMPLE: 1) L18B-F10-2440-S-05-C-CP03/W