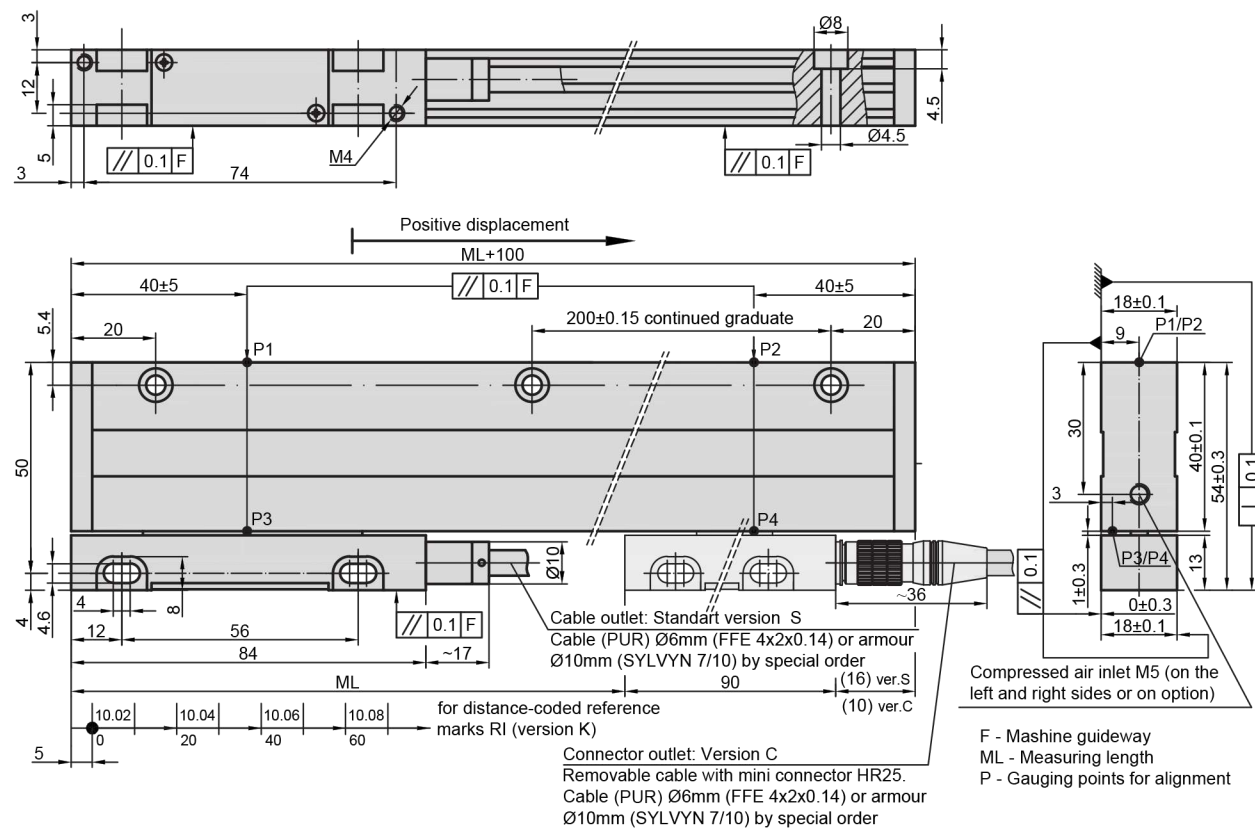


PHOTOELECTRIC LINEAR ENCODER

# L18B



Photoelectric linear encoder L18B is able to have the measuring length of up to 3.240 mm, maximum accuracy of  $\pm 5 \mu\text{m}$  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 2040 - for ML 2040 to 3240	$\pm 10$ ; $\pm 5 \mu\text{m}$ $\pm 10 \mu\text{m}$	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 RIs separated by distances of $n \times 50$ 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 $I_1$ and $I_2$ Amplitude at 1 k $\Omega$ load: - $I_1 = 7\text{-}16 \mu\text{A}$ - $I_2 = 7\text{-}16 \mu\text{A}$	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 $U1/\overline{U1}$ and $U2/\overline{U2}$ . 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 $I_0$ Signal magnitude at 1 k $\Omega$ load: - $I_0 = 2\text{-}8 \mu\text{A}$	Quasi-triangular +R and its complementary -R. Signals magnitude at 120 $\Omega$ load - R = 0.2-0.8 V	One differential square-wave $U0/\overline{U0}$ 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	$I_2$ lags $I_1$ 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	 $90^\circ \text{ el.}$ $135^\circ \text{ el.}$ $360^\circ \text{ el.}$	 $90^\circ \text{ el.}$ $135^\circ \text{ el.}$ $360^\circ \text{ el.}$	 $a = 0.25T \pm 0.125T$

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	C9	C12	D9	D15	RS10	ONC	HR25
	12-pin round connector	9-pin round connector	12-pin round connector	9-pin flat connector	15-pin flat connector	10-pin round connector	10-pin round connector	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):
<b>A</b> - Sinusoidal <b>AV</b> - Sinusoidal <b>F01</b> - TTL 0.1 $\mu\text{m}$ <b>F02</b> - TTL 0.2 $\mu\text{m}$ <b>F05</b> - TTL 0.5 $\mu\text{m}$ <b>F10</b> - TTL 1.0 $\mu\text{m}$ <b>F25</b> - TTL 2.5 $\mu\text{m}$ <b>F50</b> - TTL 5.0 $\mu\text{m}$	<b>0070</b> - 70 mm <b>0520</b> - 520 mm ... <b>3240</b> - 3240 mm	<b>N</b> - none RI <b>S</b> - standard <b>M</b> - every 50 mm <b>K</b> - distance coded <b>Ln/XXX</b> - n RI with 50-fold steps /XXX distance of the first RI from the beginning of ML, mm	<b>05</b> - $\pm 5 \mu\text{m}$ <b>10</b> - $\pm 10 \mu\text{m}$	<b>S</b> - version S (cable outlet) <b>C</b> - version C (connector outlet)	<b>01</b> - 1m <b>02</b> - 2m <b>03</b> - 3m ... <b>CP01</b> - 1m armoured <b>CP02</b> - 2m armoured <b>CP03</b> - 3m armoured ...	<b>W</b> - without connector <b>B12</b> - round, 12 pins <b>C9</b> - round, 9 pins <b>C12</b> - round, 12 pins <b>D9</b> - flat, 9 pins <b>D15</b> - flat, 15 pins <b>RS10</b> - round, 10 pins <b>ONC</b> - round, 10 pins
ORDER EXAMPLE: 1) L18B-F10-2440-S-05-C-CP03/W						