## MAIN EXPORT COUNTRIES:



The company under the name **JSC "Precizika Metrology"** began work after the change of name of the Lithuanian - American Joint Venture "Brown & Sharpe - Precizika". The company has a proud history of old traditions in the leadership of design and production of metrological equipment. Its workforce has been involved for over fifty years in the supply of measuring technology and systems to automate factories as well as in the development of optical scale manufacturing technology.

In 2000, the production process was certified to fully meeting the requirements of EN ISO 9002:1994, in 2003 – EN ISO 9001:2000.

The company's goal is to consistently supply high quality products and services to meet customer demands on a timely basis. The company's main products are linear and angular glass scale gratings, and the linear and rotary displacement measuring systems.

*JSC "Precizika Metrology"* represents worldwide known companies and suppliers of measuring equipment, CNC centers, executes installation and services of them, trains the users, and executes upgrading of used CMM and manual cutting machine-tools.

# L18B

PHOTOELECTRIC LINEAR ENCODER

The sealed linear encoder L18B is used to convert linear displacements of key machine components into electrical signals containing information about the value and direction of the displacement. 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 (lubricants and chips), the encoder has sealing lips. The photoelectric unit of the reading head generates sinusoidal micro-current or TTL square-wave (standard RS422) output signals. Three versions of output signals are available:

- L18B-A Sinusoidal signals, with amplitude approx. 11 µApp, require an external subdividing electronics.
- L18B-AV Sinusoidal signals, with amplitude approx. 1 Vpp, require external subdividing electronics.
- L18B-F Square-wave signals, with integrated subdividing electronics for interpolation x1, x2, x5, x10, x25, x50





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PRECIZIKA METROLOGY





## **L18B**

#### **RECOMMENDED APPLICATIONS**











Max. traversing speed: -when interpolation factor is





CNC CUTTING MACHINES ELECTRONIC INDUSTRY



MEDICAL EQUIPMENT

MAINTENANCE

## **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)
(outor interneticate longulo on requeer,

Accuracy grades to any metre
within the ML (at 20°C):
- for ML 70 to 2040
- for ML 2040 to 3240

#### Grating period

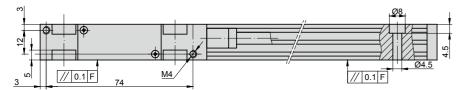
Reference marks (RI): -standard for ML  $\leq$  1020 mm -standard for ML > 1140 mm -optional

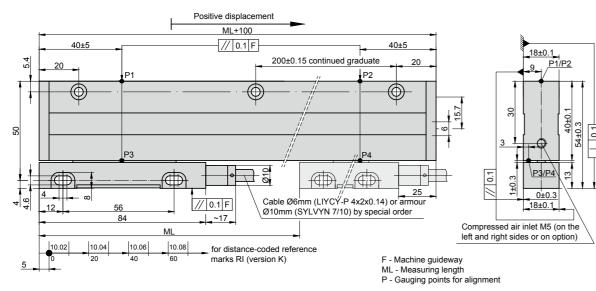
(other intermediate lengths on request)
±10; ±5 μm ±10 μm
20 µm; 40 µm (optional)

#### 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 $n \times 50$ mm or distance-coded

1,2,5,10 -when interpolation factor is 25 -when interpolation factor is 50	0.5 m/s 0.4 m/s
Required moving force with sealing lips	< 3 N
Protection (IEC 529) -without compressed air -with compressed air (optional)	IP53 IP64
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 m/s <sup>2</sup>
Permissible shock (11 ms)	$\leq 100 \text{ m/s}^2$

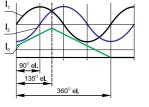
1 m/s





#### ELECTRICAL DATA

VERSION	L18B-A $\sim$ 11 µА	pp	L18B-AV $\sim$ 1	Vpp	L18	B-F TLI TTL	
Power supply	+5 V ± 5% / < 90 m/	А.	$+5 V \pm 5\% < 120$	mA	+5 V	± 5% / < 120 mA	
Light source	LED		LED		LED		
Resolution	Depends on external electronics	subdividing	Depends on exten electronics	nal subdividing		2.5; 0.5; 0.2; 0.1 µm (a equent electronics)	fter 4-fold dividing in
ncremental signals	Two sinusoidal I, and 1 k $\Omega$ load: - I1 = 7-16 $\mu$ A - I2 = 7-16 $\mu$ A	I I <sub>2</sub> Amplitude at	Differential sine +A Amplitude at 120 V - A = 0.6-1.2 V - B = 0.6-1.2 V		Signa - Iov	ential square-wave U <sup>:</sup> al levels at 20 mA loac / (logic "0") ≤ 0.5 V h (logic "1") ≥ 2.4 V	
Reference signal	Quasi-triangular I <sub>0</sub> . Si at 1 k $\Omega$ load: - I <sub>0</sub> = 2-8 $\mu$ A	gnal magnitude	-	R and its compleme agnitude at 120Ω lo	ad tion. - Iov	differential square-wa Signal levels at 20 mA / (logic "0") < 0.5 V h (logic "1") > 2.4 V	
Maximum operating frequency	50 kHz		50 kHz			kHz, when interpolation kHz when interpolation	
Direction of signals	$I_2$ lags $I_1$ at reading he from left to right	ead displacement	B+ lags A+at read ment from left to ri	ing head displace- ght		gs U1 at reading hear right	d displacement from
Standard cable length	3 m, without connec	tor	3 m, without conn	ector	3 m,	without connector	
Vaximum cable length	5 m		25 m		25 m		
lote: If cable extension is used	the power supply con		⋳	360° el.			
CONNECTORS FOR CABLE	B12 12-pin round connector	C9 12-pin round connector	C12 12-pin round connector	D9 9-pin flat connector	D15 15-pin fla connecto		ONC d 10-pin round connector
DIGITAL READOUT DEVICE	ES	CS3000				CS5500	
EXTERNAL INTERPOLATO	R			NK			
ORDER FORM							
L18B - X - XXX	- x / xxx - xx - x	- XX/X		]			
OUTPUT SIGNALS MEAS		REFERENCE MARKS:	ACCURAC	Y: COMPRES	SED AIR:	CABLE LENGTH:	CONNECTOR TYPE:
A - Sinusoidal 0070 - AV - Sinusoidal 0520 - 10 - TTL 0.1µm	70mm N 520mm S 3240mm k L	I - none RI - standard / every 50 mm - distance coded n/XXX - nRI with 50-fc steps / XXX distance of the first RI from the pecinoring of MI mm	05 - ±5µm 10 - ±10µm	0 - without cor 1 - with compr		01 - 1m 02 - 2m 03 - 3m  CP01 - 1m armoured CP02 - 2m armoured CP03 - 3m armoured	W - without connecto B12 - round, 12 pins C9 -round, 9 pins C12 - round, 12 pins D9 - flat, 9 pins D15 - flat, 15 pins R\$10 - round, 10 pins



	L18B-A ~ 11 μA	pp	L18B-AV $\sim$ 1	Vpp	L18B-F	UTTL	
Power supply	+5 V ± 5% / < 90 mA	Ą	+5 V ± 5% < 120	mA	+5 V ± 59	6 / < 120 mA	
light source	LED		LED		LED		
Resolution	Depends on external electronics	subdividing	Depends on externel	nal subdividing		0.5; 0.2; 0.1 µm (aft nt electronics)	er 4-fold dividing ir
ncremental signals	Two sinusoidal I, and 1 kΩ load: - I1 = 7-16 μA - I2 = 7-16 μA	I <sub>2</sub> Amplitude at	Differential sine +A Amplitude at 120 - A = 0.6-1.2 V - B = 0.6-1.2 V		Signal lev - low (log	l square-wave U1, els at 20 mA load ic "0") ≤ 0.5 V gic "1") ≥ 2.4 V	
Reference signal	Quasi-triangular I <sub>0</sub> . Sig at 1 k $\Omega$ load: - I <sub>0</sub> = 2-8 $\mu$ A	gnal magnitude	•	R and its compleme agnitude at 120Ω lo	ad tion. Sign - Iow (log	ential square-wave al levels at 20 mA ic "0") < 0.5 V gic "1") > 2.4 V	
Maximum operating frequency	50 kHz		50 kHz			when interpolation when interpolation	
Direction of signals	$I_2$ lags $I_1$ at reading he from left to right	ad displacement	B+ lags A+at read ment from left to ri	ing head displace- ght	U2 lags U left to righ	1 at reading head t	displacement fro
Standard cable length	3 m, without connect	or	3 m, without conn	ector	3 m, with	out connector	
Maximum cable length	5 m		25 m		25 m		
ote: If cable extension is used	the power supply con			360° el.		a a	
	B12 E 12-pin round	C9 12-pin round	C12 12-pin round	D9 9-pin flat	D15 15-pin flat	RS10	ONC 10-pin rour
		C9 12-pin round connector	C12 12-pin round connector	D9 9-pin flat connector	D15 15-pin flat connector	RS10 10-pin round connector	
CONNECTORS FOR CABL	E 12-pin round connector	12-pin round	12-pin round	9-pin flat	15-pin flat connector	10-pin round	10-pin rour
CONNECTORS FOR CABL	E 12-pin round connector ES	12-pin round connector	12-pin round	9-pin flat connector	15-pin flat connector	10-pin round connector	10-pin rour
CONNECTORS FOR CABL	E 12-pin round connector ES	12-pin round connector	12-pin round	9-pin flat	15-pin flat connector	10-pin round connector	10-pin rour
CCESSORIES CONNECTORS FOR CABLE DIGITAL READOUT DEVICE EXTERNAL INTERPOLATO	E 12-pin round connector ES	12-pin round connector	12-pin round	9-pin flat connector	15-pin flat connector	10-pin round connector	10-pin rour
CONNECTORS FOR CABLI DIGITAL READOUT DEVIC EXTERNAL INTERPOLATO DRDER FORM	E 12-pin round connector ES - X / XXX - XX - X SURING R	12-pin round connector	12-pin round	9-pin flat connector NK	15-pin flat connector	10-pin round connector	10-pin rour

/ERSION	L18B-A ~ 11 µАрр	2	L18B-AV $\sim$ 1	Vpp	L18	B-F TLI TTL	
Power supply	+5 V $\pm$ 5% / < 90 mA		+5 V ± 5% < 120	mA	+5 V	± 5% / < 120 mA	
light source	LED		LED		LED		
Resolution	Depends on external su electronics	ubdividing	Depends on exter electronics	nal subdividing		2.5; 0.5; 0.2; 0.1 µm (a equent electronics)	after 4-fold dividing in
ncremental signals	Two sinusoidal I <sub>1</sub> and I <sub>2</sub> , 1 kΩ load: - I1 = 7-16 μA - I2 = 7-16 μA	Amplitude at	Differential sine +A Amplitude at 120 - A = 0.6-1.2 V - B = 0.6-1.2 V		Signa - Iow	ential square-wave U al levels at 20 mA load / (logic "0") ≤ 0.5 V h (logic "1") ≥ 2.4 V	
Reference signal	Quasi-triangular I <sub>0</sub> . Sign at 1 k $\Omega$ load: - I <sub>0</sub> = 2-8 $\mu$ A	nal magnitude	Quasi-triangular +I tary -R. Signals ma - R = 0.2-0.8 V	R and its complem agnitude at 120Ω k	oad tion. - Iow	differential square-wa Signal levels at 20 mA / (logic "0") < 0.5 V h (logic "1") > 2.4 V	
Maximum operating frequency	50 kHz		50 kHz			kHz, when interpolati kHz when interpolati	
Direction of signals	$I_2$ lags $I_1$ at reading head from left to right	d displacement	B+ lags A+at read ment from left to ri	ing head displace ght	- U2 la left to	gs U1 at reading hea right	d displacement from
Standard cable length	3 m, without connector	r	3 m, without conn	ector	3 m,	without connector	
Maximum cable length	5 m		25 m		25 m		
	90° el.		+R 90° el.		4	╡ ╞╪┦ ╞╪┨	
	the power supply condu	uctor section sho	90° el. 135° el.	360° el than 0.5 mm². D9 9-pin flat	D15 15-pin fla	t RS10 10-pin roun	
	the power supply condu	С9	uld not be smaller	D9		RS10 t 10-pin roun	
CCESSORIES	the power supply condu	C9 12-pin round	Uld not be smaller	D9 9-pin flat	15-pin fla	RS10 t 10-pin roun	ONC 10-pin rour
CCESSORIES	the power supply conduction B12 12-pin round connector ES	C9 12-pin round connector	Uld not be smaller	D9 9-pin flat	15-pin fla	RS10 t 10-pin roun r connector	ONC 10-pin roun
DIGITAL READOUT DEVICE EXTERNAL INTERPOLATOR	the power supply conduction B12 12-pin round connector ES	C9 12-pin round connector CS3000	Uld not be smaller	D9 9-pin flat connector	15-pin fla	RS10 t 10-pin roun r connector	ONC 10-pin roun
CCESSORIES	the power supply condu	C9 12-pin round connector CS3000	Uld not be smaller	D9 9-pin flat connector	15-pin fla	RS10 t 10-pin roun r connector	ONC 10-pin rour
CCESSORIES	the power supply condu	C9 12-pin round connector CS3000	Uld not be smaller	D9 9-pin flat connector	15-pin fla connecto	RS10 t 10-pin roun r connector	ONC 10-pin roun
CCESSORIES CONNECTORS FOR CABLE DIGITAL READOUT DEVICE EXTERNAL INTERPOLATOR RDER FORM L18B - X - XX DUTPUT SIGNALS ND RESOLUTION: MEAS	E B12 12-pin round connector ES R - X / XXX - XX - X - SURING TI: 220mm Survey SURING R R N-1 520mm S- Survey	C9 12-pin round connector CS3000	C12 135° eL 135° eL 13	D9 9-pin flat connector	15-pin fla connecto SED AIR: mpressed air	RS10 t 10-pin roun connector CS5500	d ONC 10-pin roun connector