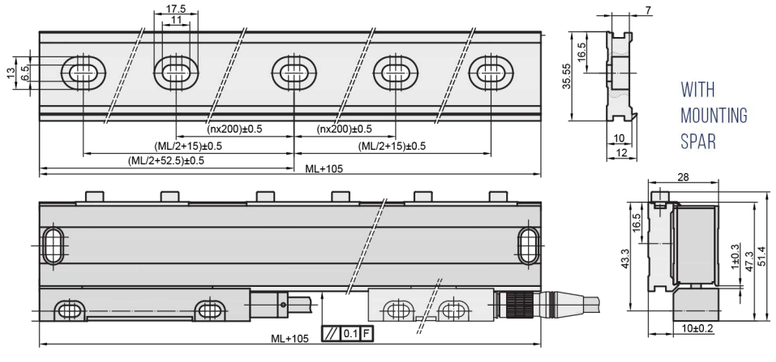
PHOTOELECTRIC LINEAR ENCODER

L18

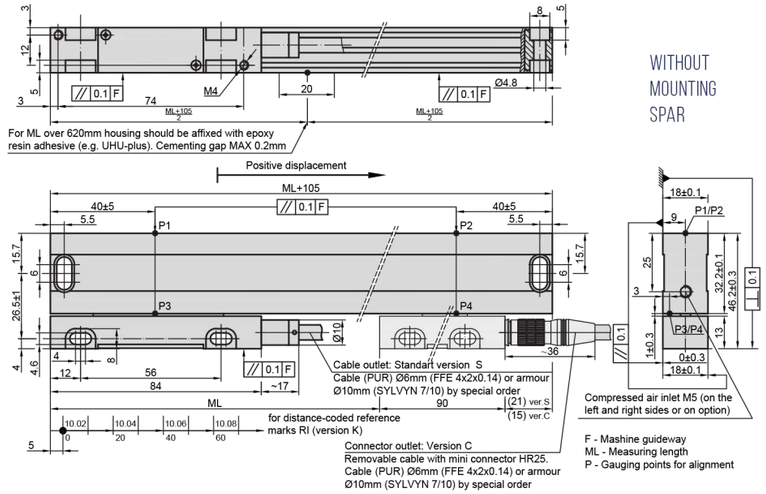
Distance Coded reference mark

Analog output signals

Photoelectric linear encoder L18 is an incremental linear displacement measuring device that can have up to 2.040 mm measuring length, grating period of ±20 µm or ±40 µm and accuracy that can reach up to 3 µm.



MOUNTING SPAR	
ML	n
70 ... 520	0
570 ... 920	1
1020 ... 1340	2
1440 ... 1740	3
1840 ... 2040	4



MECHANICAL DATA

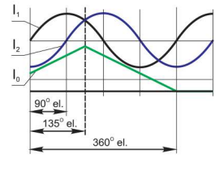
Measuring lengths (ML), mm	70, 120, 170, 220, 270, 320, 370, 420, 520, 620, 720, 820, 920, 1020, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 1940, 2040 (mounting spar optional up to ML 1240, mandatory from ML 1340 to 2040)
Accuracy grades to any metre within the ML (at 20°C)	±10; ±5; ±3 µm (optional)
Grating period	20 µm; 40 µm (optional)
Reference marks (RI): -standard for ML ≤ 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

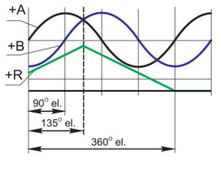
Max. traversing speed: -when interpolation factor is 1,2,5,10 -when interpolation factor is 25 -when interpolation factor is 50	 1 m/s 0.5 m/s 0.4 m/s
Required moving force with sealing lips	< 3 N
Protection (IEC 529) -without compressed air -with compressed air (optional)	 IP53 IP64
Weight	0.4 kg + 0.8 kg/m
Operating temperature	0...+50°C
Storage temperature	-20...+70°C
Permissible vibration (40 to 2000 Hz)	≤ 30 m/s²
Permissible shock (11 ms)	≤ 100 m/s²

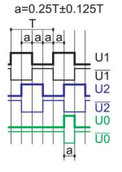
ELECTRICAL DATA

Version	L18-A ∿ 11 µApp	L18-AV ∿ 1 Vpp	L18-F ⊓⊔ TTL
Power supply	+5 V ± 5% / < 90 mA	+5 V ± 5% < 120 mA	+5 V ± 5% / < 120 mA
Light source	LED	LED	LED
Resolution	Depends on external subdividing electronics	Depends on external subdividing electronics	5; 2.5; 1; 0.5; 0.2; 0.1 µm (after 4-fold dividing in subsequent electronics)
Incremental signals	Two sinusoidal I_1 and I_2 Amplitude at 1 kΩ load: - I1 = 7-16 µA - I2 = 7-16 µA	Differential sine +A/-A and +B/-B Amplitude at 120 Ω 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") ≤ 0.5 V - high (logic "1") ≥ 2.4 V
Reference signal	One quasi-triangular I_0 peak per revolution. Signal magnitude at 1 kΩ load: - I_0 = 2-8 µA (usable component)	One quasi-triangular +R and its complementary -R per revolution. Signals magnitude at 120Ω load - R = 0.2-0.8 V (usable component)	One differential square-wave U0/U0 per revolution. Signal levels at 20 mA load current: - low (logic "0") < 0.5 V - high (logic "1") > 2.4 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







Note: If cable extension is used the power supply conductor section should not be smaller than 0.5 mm².

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
DIGITAL READOUT DEVICES	CS3000				CS5500		
EXTERNAL INTERPOLATOR	NK						

ORDER FORM

L18 - X1 - X2 - X3 - X4 - X5 - X6/X7 - X8

Output signals And resolution (X1):	Measuring length (X2):	Reference marks (X3):	Accuracy (X4):	Cable or connector outlet (X5):	Cable length (X6):	Connector type (X7):	Mounting Spar (X8):
A - Sinusoidal **AV** - Sinusoidal **F01** - TTL 0.1µm **F02** - TTL 0.2µm **F05** - TTL 0.5µm **F10** - TTL 1.0µm **F25** - TTL 2.5µm **F50** - TTL 5.0µm	**0070** - 70 mm **0520** - 520 mm ... **2040** - 2040 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** - ±3 µm **05** - ±5 µm **10** - ±10 µm	**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	**M** - with mounting spar **W** - without mounting spar

ORDER EXAMPLE: 1) L18-F10-0420-L1/100-05-S-03/W-W