PRECIZIKA
M E T R O L O G Y

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.

L35

PHOTOELECTRIC LINEAR ENCODER

The precision sealed linear encoder L35 is used to convert linear displacements of key machine components into electrical signals containing information about the value and direction of the displacements. 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 (cooling liquid, lubricants and chips), the encoder has two rows of sealing lips. Filtered air can be supplied into the housing of the encoder for extra protection from dust. Characteristic feature of encoder is a rigid housing that provides better resistance to vibration and higher protection grade due two pairs of sealing lips. Reference mark can be selected by magnet, which moves in horizontal groove on the front side of encoder (optional). Three versions of output signals are available:

- L35-A - sinusoidal signals, with amplitude approx. 11 μApp.
- L35-AV- sinusoidal signals, with amplitude approx. 1 Vpp.
- L35-F - square-wave signals, type TTL or HTL (standard RS422) with integrated subdividing electronics for interpolation x1, x2, x5, x10, x25, x50.

Žirmūnų str. 139, LT-09120 Vilnius, Lithuania
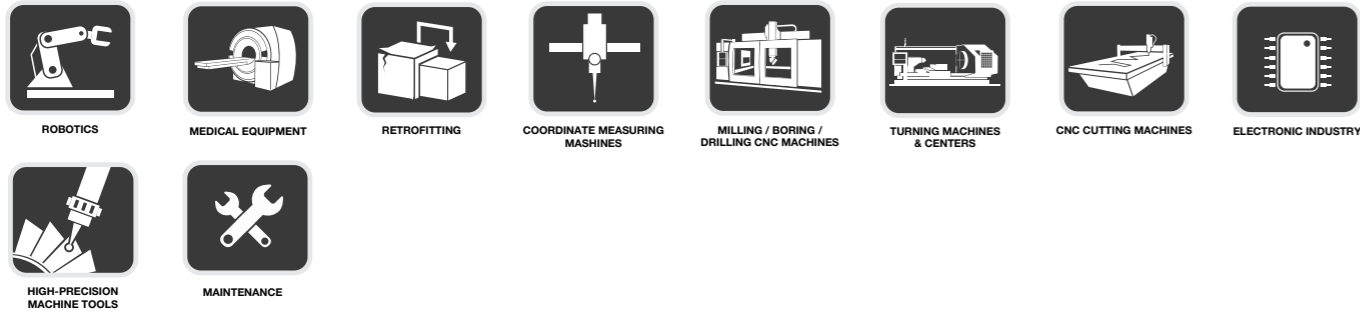sales@precizika.lt
Tel.: +370 (5) 236 3683
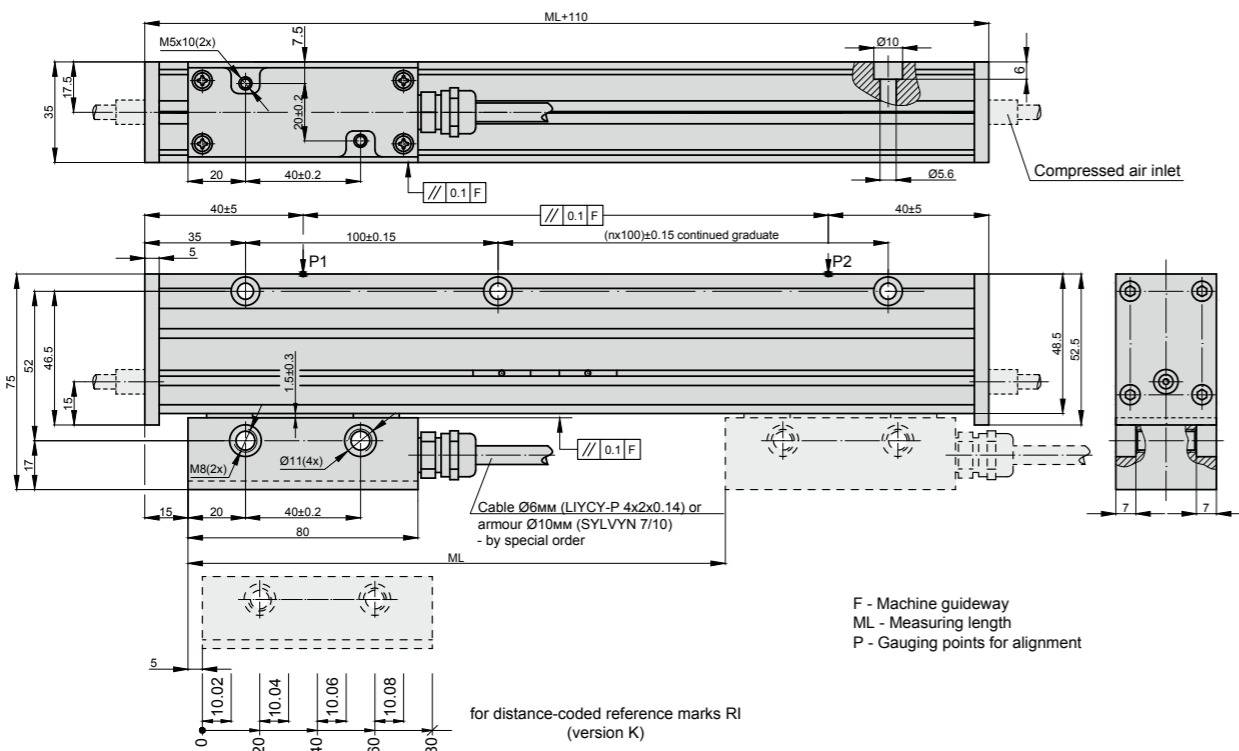Fax.: 370 (5) 236 3609
www. precizika.lt

50 YEARS OF EXPERIENCE

L35

RECOMMENDED APPLICATIONS

ROBOTICS

MEDICAL EQUIPMENT

RETROFITTING

COORDINATE MEASURING MASHINES

MILLING / BORING / DRILLING CNC MACHINES

TURNING MACHINES & CENTERS

CNC CUTTING MACHINES

ELECTRONIC INDUSTRY

HIGH-PRECISION MACHINE TOOLS

MAINTENANCE

MECHANICAL DATA

Measuring lengths (ML), mm	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)	- distance-coded - selection by magnets	see drawing standard - one magnet (RI) in ML middle
		Max. traversing speed: -when interpolation factor is 1,2,5,10 -when interpolation factor is 25 -when interpolation factor is 50	1 m/s (shortly 2 m/s) 0.5 m/s 0.4 m/s
Accuracy grades to any metre within the ML (at 20°C): - for ML from 170 up to 2040 mm - for ML from 2040 up to 3240 mm	±5; ±3; ±2 µm (optional) ±10 µm	Required moving force with sealing lips	< 5 N
		Protection (IEC 529): -without compressed air -with compressed air (optional)	IP54 IP64
Grating period	20 µm; 40 µm	Weight	0.4 kg + 2.8 kg/m
		Operating temperature	0...+50°C
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, two or more RI's separated by distances of (n x 50 mm)	Storage temperature	-20...+70°C
		Permissible vibration (40 to 2000 Hz)	≤ 150 m/s²
		Permissible shock (11 ms)	≤ 300 m/s²

M5x10(2x)
ML+110
Ø10
Ø5.6
Compressed air inlet

F - Machine guideway
ML - Measuring length
P - Gauging points for alignment

Cable Ø6мм (LIYCY-P 4x2x0.14) or armour Ø10мм (SYLVYN 7/10) - by special order

for distance-coded reference marks RI (version K)

ELECTRICAL DATA

VERSION	L35-A 〜 11 µApp	L35-AV 〜 1 Vpp	L35-F ⊓ TTL; ⊓ HTL
Power supply	+5 V ± 5% / < 90 mA	+5 V ± 5% < 90 mA	+5 V ± 5%/ < 120 mA;+12V±5%/ < 130mA
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 I1 and I2 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/U̅1̅ and U2/U̅2̅. Signal levels at 20 mA load current: - low (logic "0") ≤ 0,5 V at Up=+5V - high (logic "1") ≥ 2,4 V at Up=+5V - low (logic "0") ≤ 1,5 V at Up=+12V (HTL) - high (logic "1")≥(Up-2) V at Up=+12V (HTL)
Reference signal	One quasi-triangular I₀. Signal magnitude at 1 kΩ load: - I₀ = 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/U̅0̅ per revolution. Signal levels at 20 mA load current: - low (logic "0") ≤ 0.5 V at Up=+5V - high (logic "1") ≥ 2.4 V at Up=+5V - low (logic "0") ≤ 1,5 V at Up=+12V (HTL) - high (logic "1") ≥ (Up-2)V at Up=+12V(HTL)
Maximum operating frequency	50 kHz (v=1 m/s) 100 kHz (v=2 m/s shortly) where k- interpolation factor	50 kHz (v=1 m/s) 100 kHz (v=2 m/s shortly)	(50 x k) kHz for k =1, 2, 5, 10 1000 kHz for k = 25, 50,
Direction of signals	I₂ lags I₁	B+ lags A+	U₂ lags U₁ (displacement from left to right and head position down respective glass scale)
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			a=0.25T±0.125T

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

ACCESSORIES

	B12 12-pin round connector	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	ONC 10-pin round connector
CONNECTORS FOR CABLE							

DIGITAL READOUT DEVICES	CS3000	CS5500

EXTERNAL INTERPOLATOR	NK

ORDER FORM

L35 - XXX - XXXX - X / XXX - XX - XX - X - XX / X

OUTPUT SIGNALS AND RESOLUTION:	MEASURING LENGTH:	REFERENCE MARKS:	ACCURACY:	SUPPLY VOLTAGE:	COM-PRESSED AIR:	CABLE LENGTH:	CONNECTOR TYPE:
A - Sinusoidal AV - Sinusoidal F01 - TTL / HTL 0.1µm F02 - TTL / HTL 0.2µm F05 - TTL / HTL 0.5µm F10 - TTL / HTL 1.0µm F25 - TTL / HTL 2.5µm F50 - TTL / HTL 5.0µm	0070 - 70mm 0520 - 520mm ... 3240 - 3240mm	N - none RI S - standard M - every 50mm K - distance-coded Ln/XXX - nRI with 50-fold steps /XXX distance of the first RI from the beginning of ML, mm O - selection by magnets (standard - one magnet (RI) in ML middle)	10 - ±10µm 05 - ±5µm 03 - ±3µm	05V - +5V 12V - +12V* *only for HTL	0 - without compressed air 1 - with compressed air	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) L35T-A-0820-S-05-05V-0-03/C9					