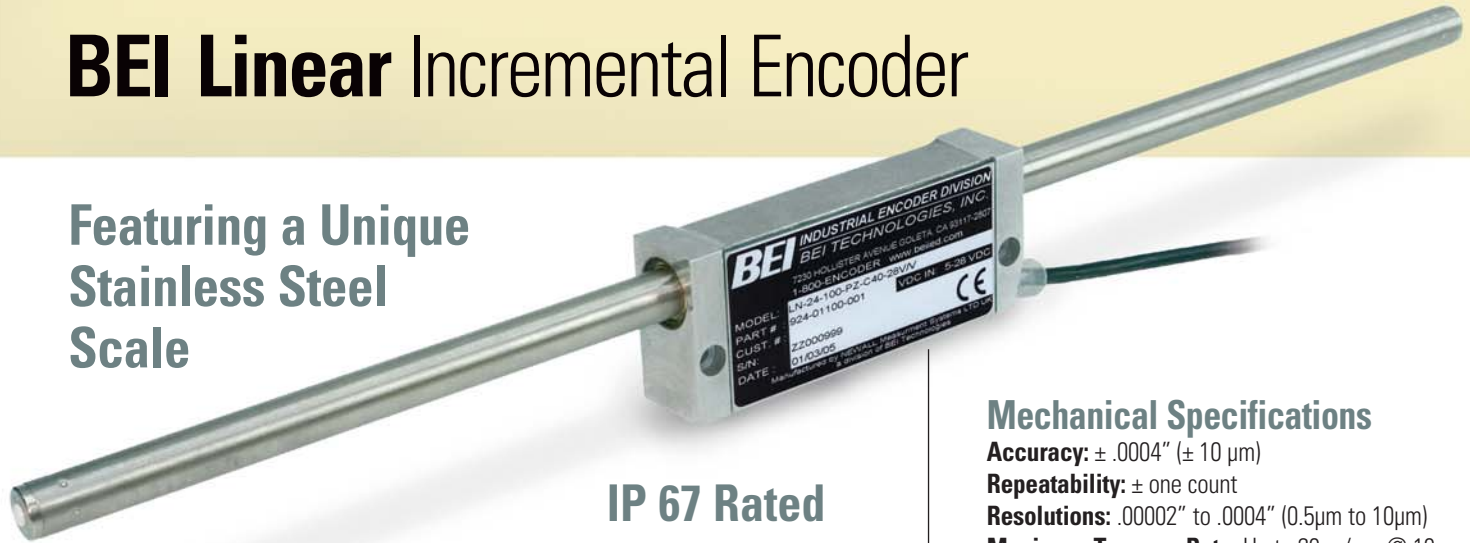


BEI Linear Incremental Encoder

Featuring a Unique
Stainless Steel
Scale



IP 67 Rated

The BEI linear encoder combines the advantages of inductive sensing with the versatility of differential quadrature outputs. Its design includes a sealed stainless steel scale and a potted read head for an IP67 environmental rating, allowing it to operate even while submerged. This rugged construction gives the LN encoder shock and vibration tolerances far surpassing those of glass scales. Harnessing the power of digital signal processing (DSP) technology, the LN provides industry standard differential quadrature outputs in 5 to 28 VDC line driver, 5 volt regulated or open collector style outputs at traverse rates nearly twice that of typical linear encoders. Repeatable to ± 1 count and available in resolutions as fine as $0.5\mu\text{m}$, the LN encoder is a tough, dependable and highly adaptable solution to a wide variety of positioning challenges. Applications include process control, robotics and pick-and-place operations.



Mechanical Specifications

- Accuracy:** $\pm .0004"$ ($\pm 10 \mu\text{m}$)
- Repeatability:** \pm one count
- Resolutions:** .00002" to .0004" ($0.5\mu\text{m}$ to $10\mu\text{m}$)
- Maximum Traverse Rate:** Up to 20m/sec @ 10 μm resolution (dependent on resolution)
- Index:** every 1/2 inch (12.7mm)
- Max Scale Length, Single End Mount:** 14" (35.6cm)
- Max Scale Length Between Supports:** 59" (150 cm)
- Maximum Scale Length:** 433" (11 M)

Electrical Specifications

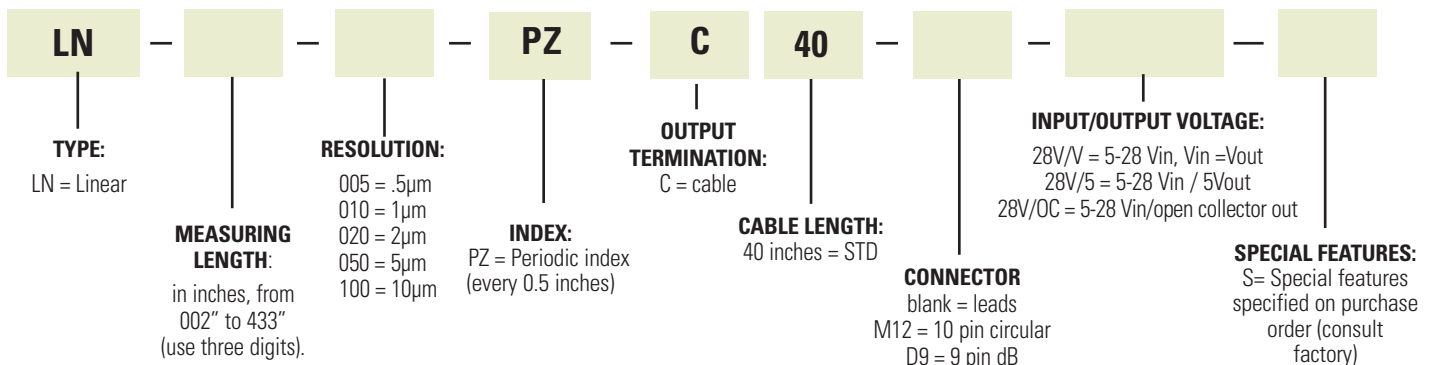
- Operating Voltage:** 5-28V +/-5%
- Output Format:** 2 channels in quadrature, reference marker every 1/2 inch
- Output Options:** Differential Line Driver: 5-28 VDC, $V_{\text{out}} = V_{\text{in}}$
Line Driver: 5-28 VDC, $V_{\text{out}} = 5 \text{ VDC}$
Open collector, accepts 5-28 VDC
- Cable Length:** 40"
- Electrical Connection:** flying leads, M12 or DB9

Environmental Specifications

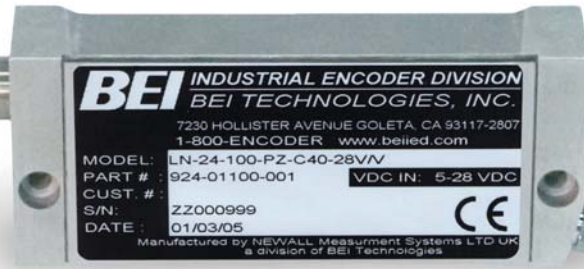
- Operating Temperature:** 0° to 70°C
- Storage Temperature:** -20° to 70°C
- Ingress Protection:** IP67 (> NEMA 6)
- Shock** (11 msec): 100g (IEC 68-2-6)
- Vibration** (55 to 2000 Hz): 30g (IEC 68-2-27)
- Magnetic Field Susceptibility:** 1000 gauss

Linear Encoder Ordering Options FOR ASSISTANCE CALL 800-350-2727

Use this diagram, working from left to right to construct your model number (example: LN-030-050-PZ-C40-28V/V).



BEI Linear Incremental Encoder



Features

IP67 ENVIRONMENTAL RATING:

The system resists contamination and can operate even when completely submerged. No costly air purging system is required.

UNIVERSAL MOUNTING ADAPTERS:

Installation is quick and simple. It is not necessary to machine a flat surface for mounting.

SHOCK TOLERANCE OF 100G'S:

The scale is 30 times more shock resistant than glass scales. The risk of breakage and lost productivity is greatly reduced.

NON-CONTACTING DESIGN:

No parts to wear out, eliminating costly maintenance.

INDUSTRY-LEADING TRAVERSE TIMES:

The mechanical advantages of a wrap-around read head combine with the processing power of an onboard DSP to allow traverse speeds of up to 20 meters per second.

ALL STEEL SCALE:

Offering a thermal expansion coefficient that matches the workpiece more closely than a glass scale, resulting in greater accuracy and repeatability shift-to-shift, day-to-day, year-to-year.

VARIETY OF STANDARD ELECTRICAL INTERFACES:

The encoder is compatible with standard counters, controllers, PLC's and computer interfaces, allowing it to be easily integrated into existing systems.

TEMPERATURE RANGE OF 0° TO 70° C:

Offering reduced thermal errors and dependable operation in a wide variety of industrial environments.

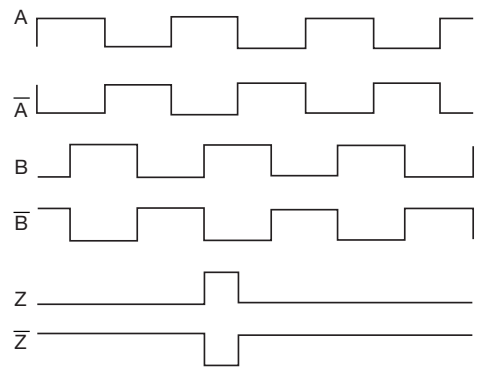
VIBRATION TOLERANCE OF 30G'S:

50% more vibration tolerant than glass, for a reduced risk of breakage, even in tough conditions.

Mounting brackets are included with the Linear Incremental Encoder.



Output Waveform



A leads B for → travel of scale through read head when viewing front face

LN Linear Encoder Connections

WIRE COLOR		D9	M12	FUNCTION
28V/5	28V/V OR 28V/OC			
Dk Green	Lt Green	2	A	A
Blue	Brown	4	B	B
Violet	Pink	8	C	Z
Black	Black	7	D	+V, 5-28VDC
-	-	1	E	N/C
White	White	6	F	0V
bare	bare	-	G	Case Ground
Yellow	Wht/Lt Green	3	H	\bar{A}
Red	Wht/Brown	5	J	\bar{B}
Gray	Wht/Pink	9	K	\bar{Z}



Compatible digital displays are available

Manufactured by Newall Measurement Systems LTD., U.K., a division of BEI Technologies