

MODEL LCE – LINEAR SOLUTION ENCODER



FEATURES

Low Cost Linear Solution

Resolutions from 2-500 Cycles per Inch

IP65 Sealing Available

Cable Measurement 0 - 50 inches

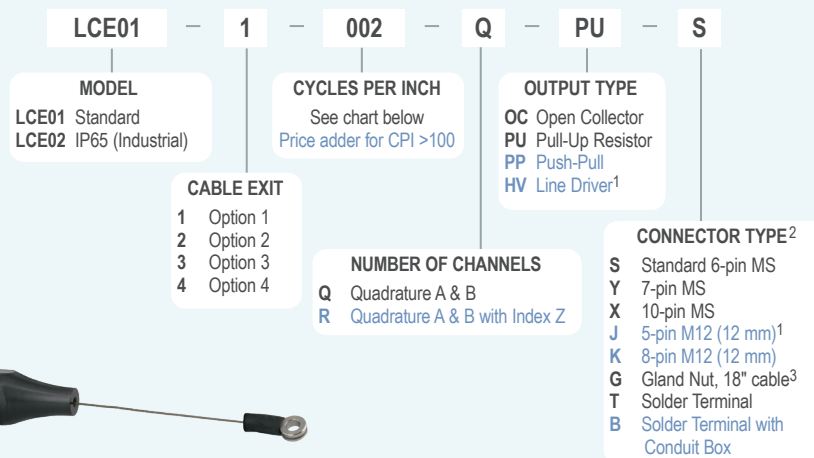
The Linear Cable Encoder (LCE) provides a low cost alternative for obtaining accurate linear measurements. As opposed to typical rotary shaft style encoders, the LCE has a retractable stainless steel cable, allowing for numerous measuring configurations. You can place the LCE away from harsh environmental conditions, while still providing precise measurements, giving the LCE an outstanding advantage over shaft-style encoders. Installation is easy with a variety of cable exit directions, and perfect parallel alignment is no longer necessary. The heart of the LCE is the popular Cube Accu-Coder™, the original cube style encoder. The LCE provides a reliable digital pulse train in either single channel or quadrature format, with resolutions down to 0.002" per cycle. The small overall size, a variety of resolutions, and many different connector types, makes the versatility of the LCE unbeatable.

COMMON APPLICATIONS

Robotics, Extrusion Presses, Valve Positioning, Textile Machinery, Control Gate Positioning

MODEL LCE ORDERING GUIDE

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.



Model LCE features a retractable stainless steel cable at a standard length of 50". Longer lengths may be available, please contact Customer Services.

MODEL LCE RESOLUTION TABLE

Cycles Per Inch	002	020	040	050	100	200	250	500
Resolution	0.500"	0.050"	0.025"	0.020"	0.010"	0.005"	0.004"	0.002"

Contact Customer Service for other resolutions.

NOTES:

- Line Driver not available with 5-pin M12 connector.
- For mating connectors, cables, and cordsets see [Accessories](#) at encoder.com. For Connector Pin Configuration Diagrams, see Technical Information or see [Connector Pin Configuration Diagrams](#) at encoder.com.
- For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: G/6=6 feet of cable.

MODEL LCE SPECIFICATIONS

Electrical

Input Voltage.....4.75 to 28 VDC max for temperatures up to 85° C
4.75 to 24 VDC for temperatures between 85° and 100° C

Input Current80 mA maximum with no output load

Input Ripple.....100 mV peak-to-peak at 0 to 100 kHz

Output Format.....Incremental – Square wave with channel A leading B during linear extension

Output TypeOpen Collector- 250 mA max per channel
Pull-Up – Open Collector with 1.5K ohm internal resistor, 250 mA max per channel
Push-Pull – 20 mA max per channel

Line Driver – 20 mA max per channel

(Meets RS 422 at 5 VDC supply)

IndexOnce per 5" cable extension or retraction

Max Frequency0 to 125 kHz

Electrical Protection ..Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.

Quadrature.....67.5° electrical or better is typical,

Edge Separation 54° electrical minimum at temperatures > 99° C

Rise Time.....Less than 1 microsecond

Mechanical

Full Stroke50" standard. Longer measuring ranges may be available, please contact Customer Service.

Length (FSL)

FinishBlack powder coated aluminum

Accuracy.....±0.10% of FSL

Repeatability±0.015% of FSL

Linear Resolution.....Up to 500 cycles per inch (0.002" per cycle)

Cable Material.....0.034" nylon coated stainless steel rope

Cable Tension.....20 oz maximum typical

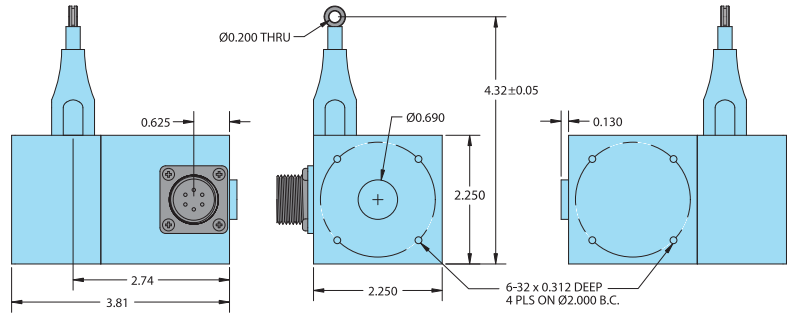
Life (cycles).....1,000,000 predicted at zero angle cable exit

Weight.....19 oz typical

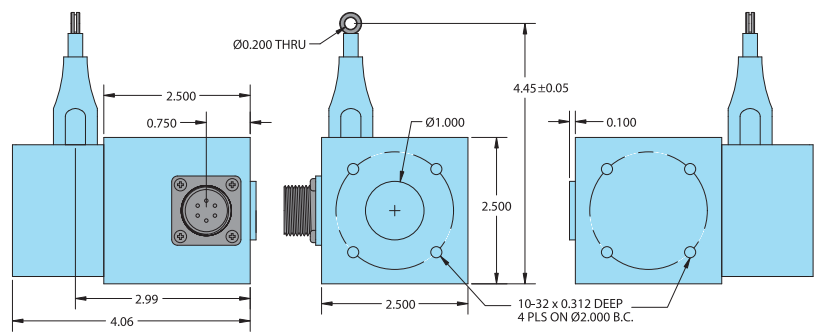
Environmental

Sealing.....IP65 for Industrial LCE

MODEL LCE STANDARD HOUSING (LCE01)

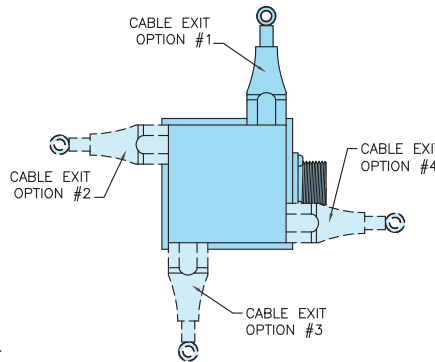


MODEL LCE IP65 INDUSTRIAL HOUSING (LCE02)



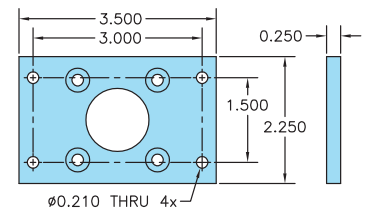
All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.

CABLE EXIT OPTIONS



Optional Mounting Plate

Attaches to Standard or Industrial LCE in three different orientations. Order Accessory Item #176064-01.



WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.

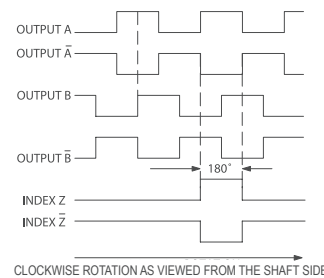
Function	Gland Cable† Wire Color	5-pin M12	8-pin M12	10-pin MS	7-pin MS HV	7-pin MS O, S, PP	6-pin MS HV, No Index	6-pin MS O, S, PP	Term. Block HV, No Index	Term. Block O, S, PP
Com	Black	3	7	F	F	F	A	A, F	1	1, 6
+VDC	Red	1	2	D	D	D	B	B	2	2
A	White	4	1	A	A	A	C	D	3	4
A'	Brown	--	3	H	C	--	D	--	4	--
B	Blue	2	4	B	B	B	E	E	5	5
B'	Violet	--	5	I	E	--	F	--	6	--
Z	Orange	5	6	C	--	C	--	C	--	3
Z'	Yellow	--	8	J	--	--	--	--	--	--
Case	Green	--	--	G	G	G	--	--	--	--
Shield	Bare	--	--	--	--	--	--	--	--	--

*E-Cube only.

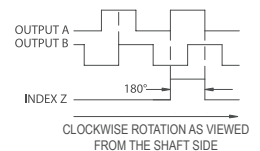
†Standard cable is 24 AWG conductors with foil and braid shield.

WAVEFORM DIAGRAMS

Line Driver and Push-Pull



Open Collector and Pull-Up



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS A-bar, B-bar, Z-bar FOR HV OUTPUT ONLY.