

# MODEL LCE – LINEAR SOLUTION ENCODER



## FEATURES

- Low Cost Linear Solution
- Resolutions from 2-500 Cycles per Inch
- IP65 Sealing Available
- Cable Measurement from 0-50"

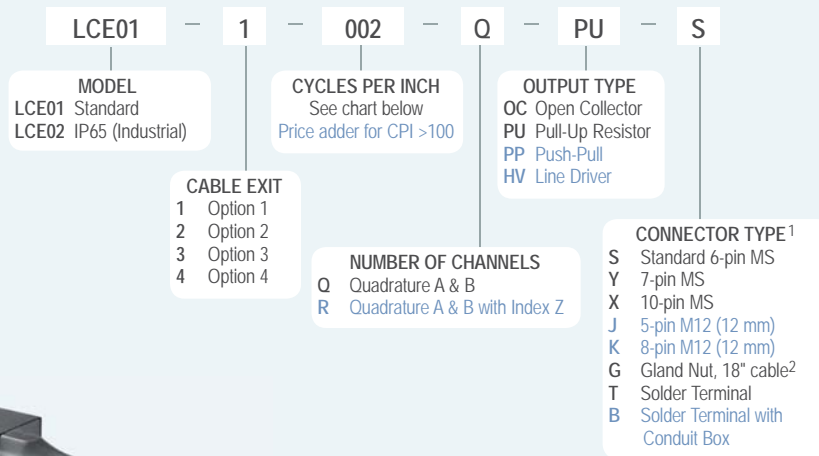
The Linear Cable Encoder (LCE) provides a low cost alternative for obtaining accurate linear measurements. As opposed to typical rotary shaft style encoders, the LCE has a retractable stainless steel cable, allowing for numerous measuring configurations. Placing the LCE away from harsh environmental conditions, while still providing precise measurements, gives the LCE an outstanding advantage over shaft style encoders. Installation is easy with a variety of cable exit directions, and perfect parallel alignment 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:

- For mating connectors, cables, and cordsets see Encoder Accessories on page 102 or visit [www.encoder.com](http://www.encoder.com). For Pin Configuration Diagrams, see page 107 or visit [www.encoder.com](http://www.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 Current .....80 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 Type.....Open Collector- 250 mA max per channel  
 Pull-Up- 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)  
 Index .....Once per 5" cable extension or retraction  
 Max Frequency .....0 to 125 kHz

Quadrature.....67.5° electrical or better is typical,  
 Edge Separation 54° electrical minimum at temperatures > 99° C

Rise Time.....Less than 1 microsecond

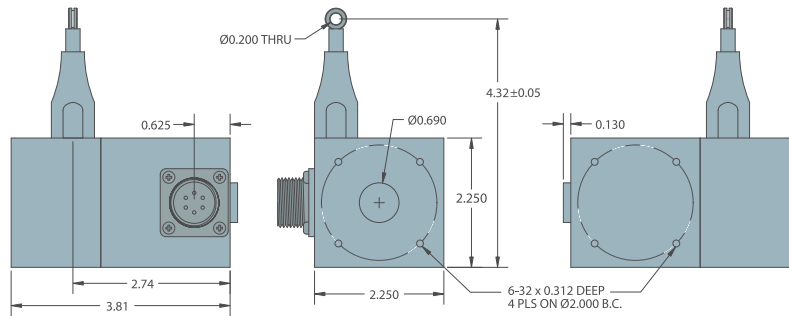
### Mechanical

Full Stroke .....50" standard. Longer measuring ranges Length (FSL) may be available, please contact Customer Service.  
 Finish .....Black 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

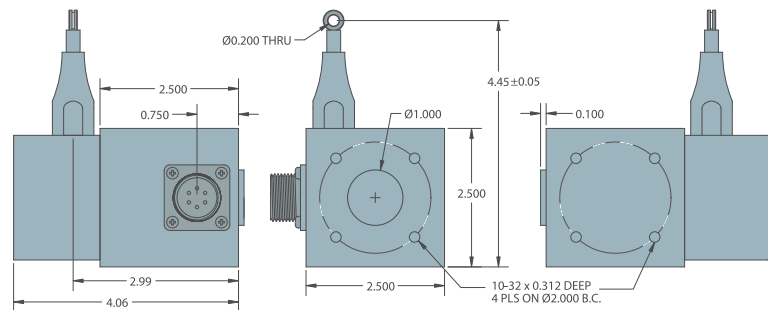
### Environmental

Sealing.....IP65 for Industrial LCE

## MODEL LCE STANDARD HOUSING (LCE01)

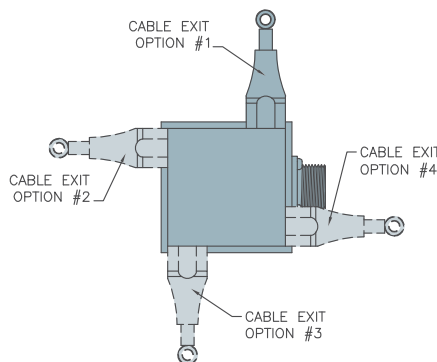


## MODEL LCE IP65 INDUSTRIAL HOUSING (LCE02)



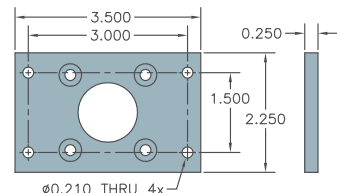
All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.

## CABLE EXIT OPTIONS



### Optional Mounting Plate

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



## WIRING TABLES

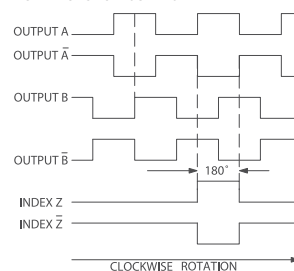
Function	Gland Cable <sup>1</sup> Wire Color	5-pin M12	8-pin M12	10-pin MS	7-pin MS HV	7-pin MS O, S, PP	6-pin MS HV, No Index	6-pin MS O, S, PP	Term. Block HV, No Index	Term Block O, S, PP
Com	Black	3	7	F	F	F	A	A, F	1	1, 6
+VDC	Red	1	2	D	D	D	B	B	2	2
A	White	4	1	A	A	A	D	D	3	4
A'	Brown	--	3	H	C	--	D	--	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	--	--	--	--	--	--	--	--	--

<sup>1</sup>E-Cube only.

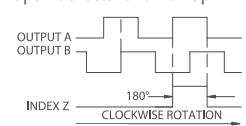
<sup>1</sup>Standard cable is 24 AWG conductors with foil and braid shield.

## 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, B, Z FOR HV OUTPUT ONLY.