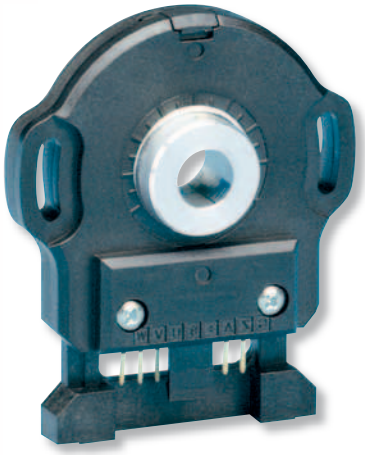
RENCO

RCML15 Series Encoders



The RCML15 Series is a low profile optical encoder. The RCML15 combines brushless motor commutation pulses and incremental position feedback. This RENCO feature reduces the cost while improving the performance and reliability of the brushless motor/encoder package. The patented slide lock mechanism makes installation and commutation track alignment simple. The low profile makes the RCML15 perfect for designs where space is critical.

Features:

- Low profile (8.89mm [.350 inch] height)
- Patented slide lock for easy installation
- Line count up to 5000
- 2 data channels in quadrature
- Once around index pulse
- 3 commutation channels (optional)
- Opto-Asic technology
- 500 KHz frequency response

Environmental:

Operating Temp	-30° to 100°C
Excursion Limits:	
Storage Temp	-40° to 115°C
Shock	100 G's for 6mS duration
Vibration	25 to 2000 Hz @ 20 G's
Humidity	85%/85°C non-condensing
IP Rating	IP40

Mechanical:

Moment of Inertia	0.89g-cm^2 [1.26 x 10^{-5} oz in sec^2]
Weight	15 encoders with tray = 11 oz.
Base Material	Glass filled PPS
Cover Material	Glass filled polycarbonate
Disc Material	Metal 0.05 THK TYP
Hub Material	Aluminum
Shaft Max End Play	±0.254mm [± 0.010]
Shaft Run Out	0.025mm [.001"] TIR
Mounting Hardware	2 each #2-56 x 3/8" screws.

Electrical:

Signals	Incremental plus optional commutation
Input Voltage	3.3 VDC ±10% or **5.0 VDC ± 10% Single Supply**
Current	55 mA Max with 2000 Ohm Termination @ nominal voltage ±10%
Output Format	A/B in phase quadrature. INDEX width & location gated with respect to data
Output Type	PP = Source or Sink 4 mA Max.
Output Logic Levels	Logic 0 = 0.5 V Max, Logic 1 = 2.5 V Min.(2.2 V Min for 3.3 V supply)
Operating Frequency	To 500 KHz

Resolution:

Line Count	100, 200, 250, 256, 400, **500, 512**, 625, 800, **1000, 1024**, 1250, **2000, 2048**, 2500, **4000**, **4096**, 5000
Commutation	**0**, 2, 3, 4
Index Gating	**1 = Index Gated with A & B, Index width 90° ± 45°**
	6 = Index Gated with A- & B-, Index width 90° ± 45°
	7 = Centered on A & B, Index width 270° ± 45°
	8 = Centered on A- & B-, Index width 270° ± 45°

*Standard variants are listed in **BOLD** (other versions upon request)*

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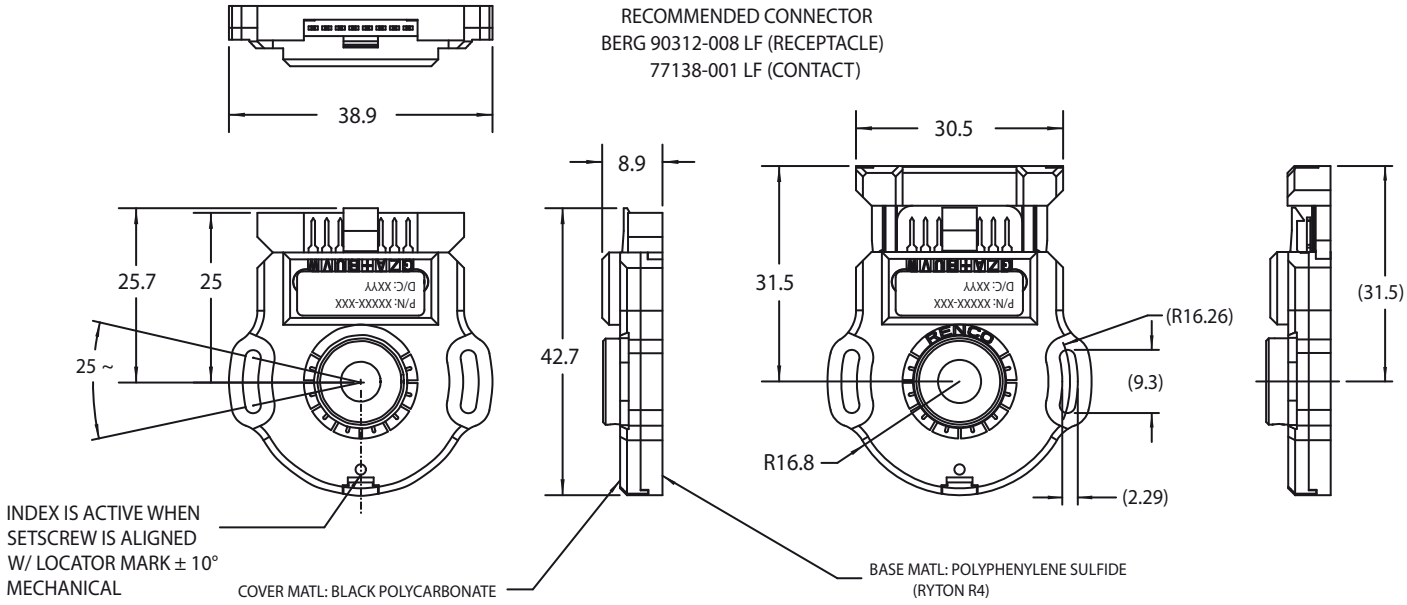
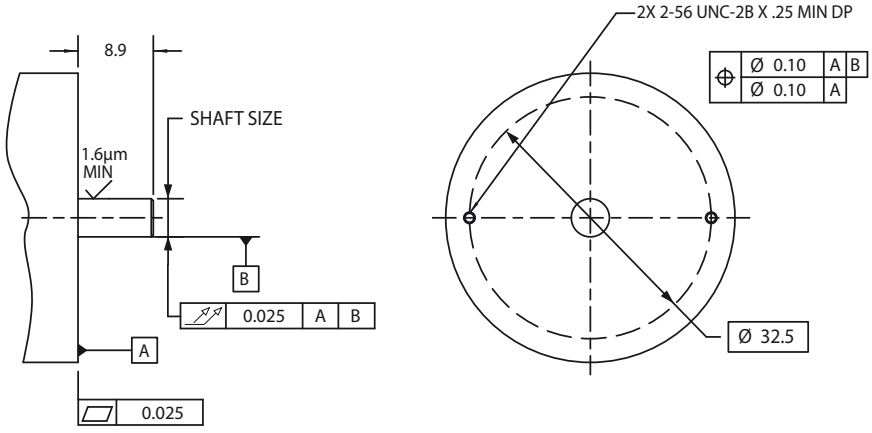
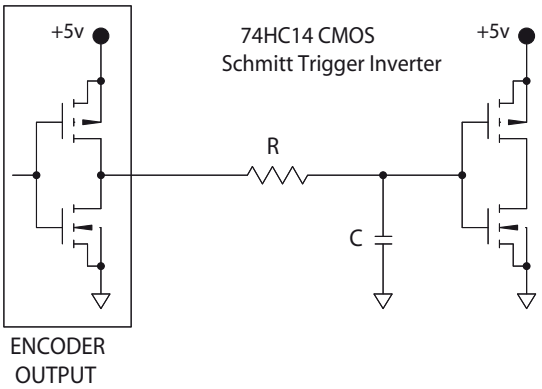
Mechanical Dimensions



Mounting Requirements



Recommended Termination



$$RC = \frac{1}{4(\text{ENCODER MAX PULSE RATE})}$$

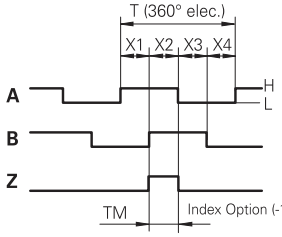
Hub Size

SPECIFY	HUB SIZE +0.01 -0	SHAFT SIZE +0 -0.013
1/8+	3.178	3.175
3/16	4.757	4.754
3/16+	4.765	4.762
1/4	6.345	6.342
1/4+	**6.353**	**6.350**
5/16	7.932	7.929
3/8	9.52	9.517
3/8+	9.528	9.525
5MM	**5**	**4.997**
6MM	6	5.997
8MM	8	7.997

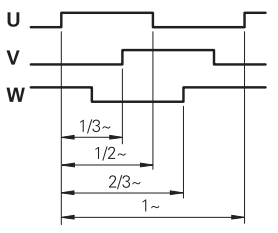
Pin Functions

PIN NO.	FUNCTION
1	GND
2	Z
3	A
4	+5V
5	B
6	U
7	V
8	W

Phase Quadrature



X1 + X2 = 0,5±0.2 T
X2 + X3 = 0,5±0.2 T
0,375 T ≥ Xn ≥ 0,125 T
(n = 1, 2, 3, 4)
TM = 0.25±0,125 T (= X2)



Tr = < 25 ns (10 to 90%)
Tf = < 25 ns (10 to 90%)
Load Conditions:
Cload: 25 pF
Load: Pull-U_p Resistor 2,7 kOhm to VDD
@ VDD = 5 V
@ Temp = 25 °C
No Cable Load

Ordering Information

RCML15 - _____ / _____ - _____ - _____ - _____

RESOLUTION See Front Page | COMMUTATION See Front Page | HUB SIZE | VOLTAGE See Front Page | GATING OPTION See Front Page

All Dimensions in Metric Units • Third Angle Projection • Specifcations May Change without Notice

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