

# R35i Modular



The **R35i Modular** uses OPTO-ASIC technology to provide our highest level of performance in a modular encoder. This innovative technology minimizes components to increase product reliability in the smallest possible package. The R35i also provides optional brushless commutation outputs and the highest resolution data channels available in the industry. The enhanced slide lock mechanism automatically centers and gaps the encoder thus making installation simpler than ever before.

### Features:

- Small size 35mm [1.38 inch]
- Patented slide lock for easy installation
- Line count up to 10,000
- 2 data channels in quadrature
- Once around index pulse
- 3 commutation channels (optional)
- CMOS ASIC technology
- 500 KHz frequency response

### Environmental:

<b>Operating Temp</b>	-30° to 115°C
<b>Excursion Limits:</b>	
<b>Storage Temp</b>	-40° to 125°C
<b>Shock</b>	100 G's for 6mS duration
<b>Vibration</b>	25 to 2000 Hz @ 20 G's
<b>Humidity</b>	85%/85°C non-condensing
<b>IP Rating</b>	IP40 with closed cover

### Mechanical:

<b>Moment of Inertia</b>	2.0g-cm <sup>2</sup> [2.9 x 10 <sup>-5</sup> oz in sec <sup>2</sup> ] for 8mm hub with metal disk 2.625g-cm <sup>2</sup> [3.7 x 10 <sup>-5</sup> oz in sec <sup>2</sup> ] for 8mm hub with glass disk
<b>Weight</b>	10 encoders with tray = 10 oz.
<b>Base Material</b>	PET 530
<b>Cover Material</b>	PET 530
<b>Disc Material</b>	Metal 0.05mm THK TYP for 100-5000 resolutions Glass .7mm THK TYP for resolutions of 8000 & above
<b>Hub Material</b>	Stainless Steel
<b>Shaft Max End Play</b>	±0.254mm [± 0.010]
<b>Shaft Run Out</b>	0.025mm [.001"] TIR
<b>Mounting Hardware</b>	
<b>C or H:</b>	<b>2 x M2.5 or #2-56 UNC screws with captive washer</b>
<b>C4 or H4:</b>	2 x M2.5 or #4-40 UNC screws
<b>CR or HR:</b>	No hardware provided

### Electrical:

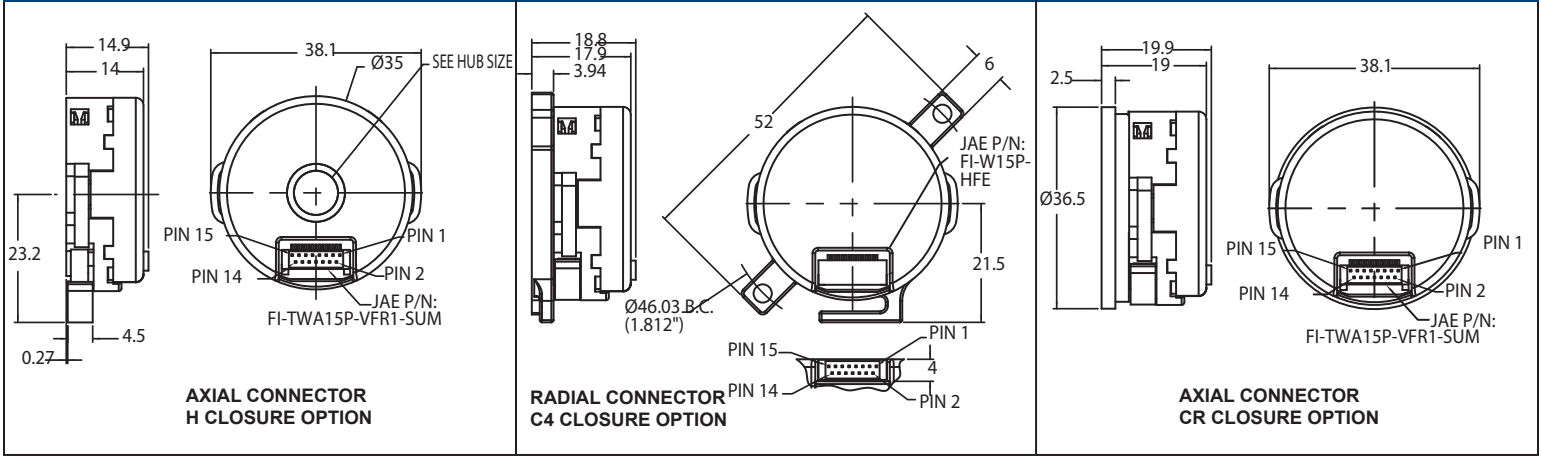
<b>Signals</b>	Incremental plus optional commutation
<b>Input Voltage</b>	<b>5.0 VDC ± 10% Single</b> or Dual Supply
<b>Current</b>	See Pin Functions Table on Page 2
<b>Output Format</b>	A/B in phase quadrature. INDEX width & location gated with respect to data
<b>Output Type</b>	<b>LD = AM26C31 20 mA Source or Sink Max.</b> PP = 4mA Max. Source or Sink VO = Open Collector 4 mA Sink Max.(Comm only) VC = Open Collector w/ 2K Ohm pullup (Comm only)
<b>Output Logic Levels</b>	Logic 0 = 0.5 V Max, Logic 1 = 2.5 V Min.
<b>Operating Frequency</b>	To 500 KHz

### Resolution:

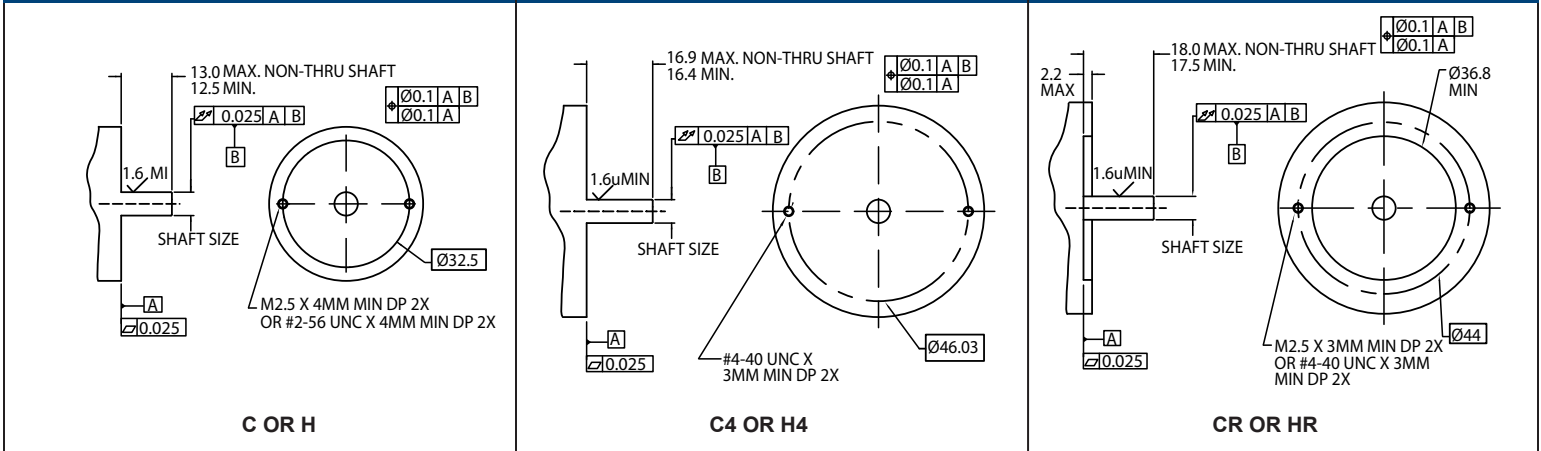
<b>Line Count</b>	100, 200, 250, 256, 400, <b>500, 512</b> , 625, 800, <b>1000, 1024</b> , 1250, <b>2000, 2048, 2500, 4000</b> , 4096, <b>5000, 8000, 8192</b> , 10000
<b>Commutation</b>	<b>0, 2, 3, 4</b>
<b>Index Gating</b>	<b>1 = Index Gated with A &amp; B, Index width 90°e ± 45°e</b> <b>6 = Index Gated with A- &amp; B-, Index width 90°e ± 45°e</b> 7 = Centered on A & B, Index width 270°e ± 45°e 8 = Centered on A- & B-, Index width 270°e ± 45°e

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

## Mechanical Dimensions



## Mounting Requirements



## Pin Functions

PIN NO.	5/0 LD/0	5/0 LD/LD	5/0 LD/PP	5/0 PP/0	5/0 PP/PP	5/0 0/LD	5/0 0/PP	5/5 LD/VO OR LD/VC	5/5 PP/VO OR PP/VC
1	A	A	A	A	A			A	A
2	A-	A-	A-	A-	A			A-	A
3	B	B	B	B	B			B	B
4	B-	B-	B-	B-	B			B-	B
5	Z	Z	Z	Z	Z			Z	Z
6	Z-	Z-	Z-	Z-	Z			Z-	Z
7			U	U	U	U	U	U	U
8			U-	U-	U	U-	U-	GND2	GND2
9			V	V	V	V	V	V	V
10			V-	V-	V	V-	V-	+5V2	+5V2
11			W	W	W	W	W	W	W
12			W-	W-	W	W-	W-	W	W
13	+5V	+5V	+5V	+5V	+5V	+5V	+5V	+5V	+5V
14	GND	GND	GND	GND	GND	GND	GND	GND1	GND1
15									
CURRENT (mA)	100	160	108	48	56	100	48	108	56

## Hub Size

SPECIFY	HUB SIZE +0.01 -0	SHAFT SIZE +0 -0.013
1/8	3.17	3.167
1/8+	3.178	3.175
3/16	4.757	4.754
3/16+	4.765	4.762
1/4	6.345	6.342
<b>1/4+</b>	<b>6.353</b>	<b>6.350</b>
5/16	7.932	7.929
5/16+	7.94	7.937
3/8	9.52	9.517
<b>3/8+</b>	<b>9.528</b>	<b>9.525</b>
4mm	4	3.997
5mm	5	4.997
<b>6mm</b>	<b>6</b>	<b>5.997</b>
<b>8mm</b>	<b>8</b>	<b>7.997</b>

## Output Format

VOLTAGE	DATA/COMM
5/0	LD/0 LD/LD
	LD/PP
	PP/0 PP/PP
	0/LD 0/PP
5/5	LD/VO LD/VC
	PP/VO PP/VC

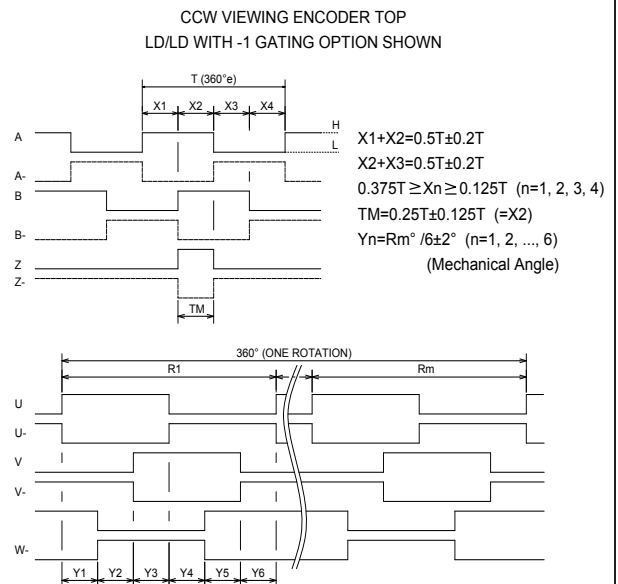
## Closure Option

SPECIFY	W/STRAIN RELIEF	CLOSURE OPTION
<b>C</b>	SC	<b>Closed Cover</b>
<b>H</b>	SH	<b>Cover w/Hole</b>
C4	SC4	46.02 Mtg. Closed Cover
H4	SH4	46.02 Mtg. Cover w/Hole
CR	SCR	Resolver Mtg. Closed Cover
HR	SHR	Resolver Mtg. Cover w/Hole

## Connector

A = Axial  
R = Radial

## Phase Quadrature



## Ordering Information

**R35i** - \_\_\_\_\_ / \_\_\_\_\_ - \_\_\_\_\_ / \_\_\_\_\_ - **5/** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

RESOLUTION See Front Page    COMMUTATION See Front Page    HUB SIZE    OUTPUT FORMAT    VOLTAGE See Front Page    GATING OPTION See Front Page    CONNECTOR    CLOSURE OPTION