

## R35i B4-B6 Modular



The **R35i B4-B6 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 provides 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
- Standard industry outputs available
- CMOS ASIC technology
- Up to 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 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>	
C, H, SC, SH:	2 x M2.5 (#2-56 UNC screws w/captive washer optional)
C4, H4, SC4, SH4:	#4-40 UNC screws

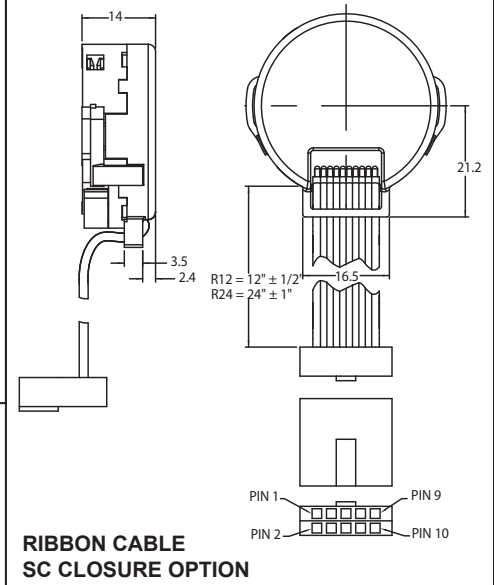
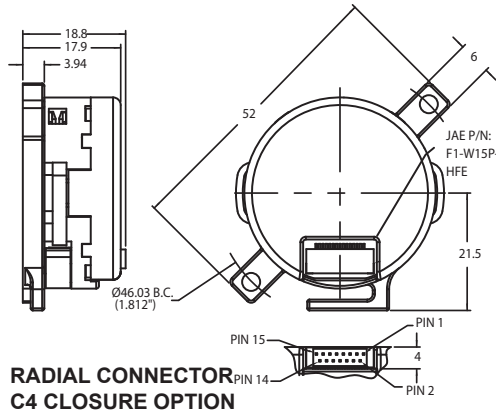
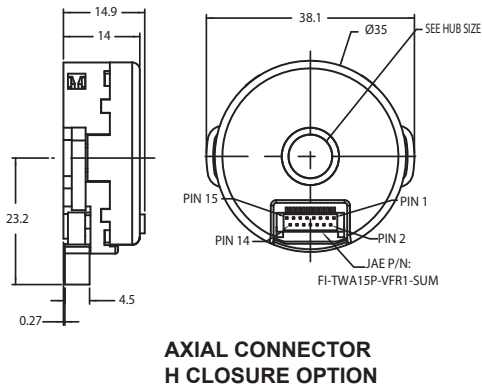
### Electrical:

<b>Signals</b>	Incremental
<b>Input Voltage</b>	5 VDC ± 10%
<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>	PP = Push/Pull 4mA Min. Source or Sink HP = 7404 buffer output, Sinks 16mA, Sources -0.4mA, with negative index B4 = 7404 buffer output, Sinks 16mA, Sources -0.4mA B6 = 7406 with 470 Ohm internal pullup, Sinks 30mA OC = 7406 Open Collector sinks 40mA
<b>Output Logic Levels</b>	Logic 0 = 0.5 V Max, Logic 1 = 2.5V Min.
<b>Operating Frequency</b>	To 500 KHz

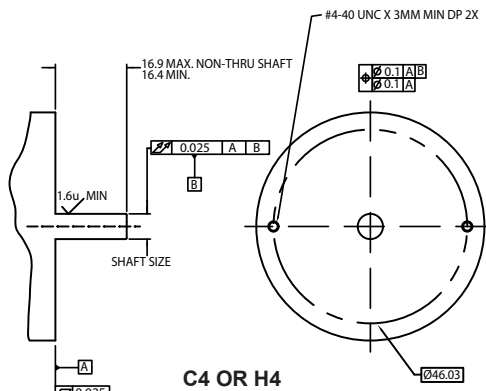
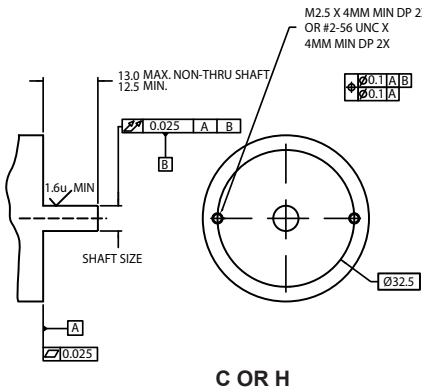
### Resolution:

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

## Mechanical Dimensions



## Mounting Requirements



## Connector or Cable Option

### CONNECTOR OPTION

A	Axial Connector
R	Radial Connector

### CABLE OPTION

R12	12 in. Ribbon Cable
R24	24 in. Ribbon Cable

## Pin Functions

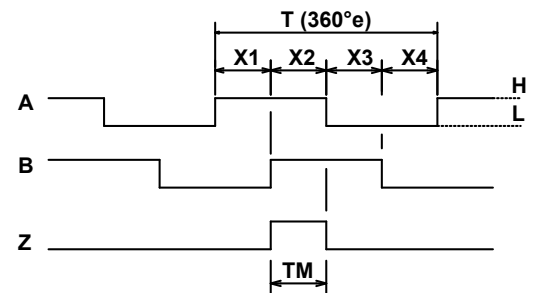
PIN NO	FUNCTION		
	CONNECTOR	CABLE	HP CABLE
1	A	A	A
2	A-	+5V	+5V
3	B	GND	GND
4	B-	N/C	N/C
5	Z	N/C	N/C
6	Z-	N/C	GND
7	N/C	N/C	+5V
8	N/C	B	B
9	N/C	N/C	+5V
10	N/C	Z	Z
11	N/C		
12	N/C		
13	+5V		
14	GND		
15	N/C		
CURRENT (mA)	170	50	170

## 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
1/4+	6.353	6.350
5/16	7.932	7.929
5/16+	7.94	7.937
3/8	9.52	9.517
3/8+	9.528	9.525
4mm	4	3.997
5mm	5	4.997
6mm	6	5.997
8mm	8	7.997

## Phase Quadrature

CCW VIEWING ENCODER TOP  
-1 GATING OPTION SHOWN



$$X1+X2=0.5T\pm 0.2T$$

$$X2+X3=0.5T\pm 0.2T$$

$$0.375T \geq Xn \geq 0.125T \quad (n=1, 2, 3, 4)$$

$$TM=0.25T\pm 0.125T \quad (=X2)$$

## Output Format

SPECIFY	OUTPUT
PP	Push/Pull
HP**	7404 w/Neg Index
B4*	7404
B6*	7406 w/pullup
OC*	Open Collector

\* Connector option only  
\*\* Ribbon cable only

## Closure Option

SPECIFY	with STRAIN RELIEF	CLOSURE OPTION
C	SC	Closed Cover
H	SH	Cover w/Hole
C4	SC4	46.02 Mtg. Closed Cover
H4	SH4	46.02 Mtg. Cover w/Hole

Note: Covers for units with axial connector do not have strain relief

## Ordering Information

**R35iB** -          / 0 -          -          - 5 -          -          -         

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