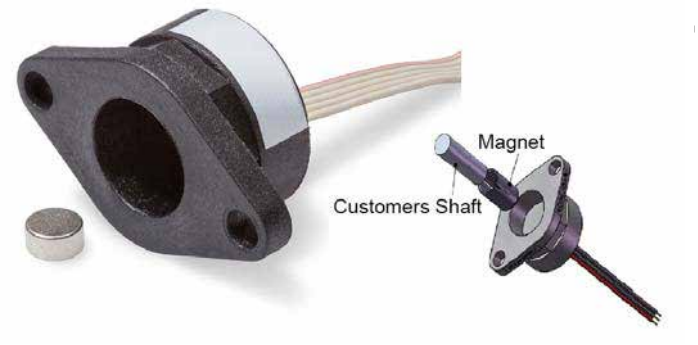
P3 America, Inc.

Motion Control and Automation Products

Hall Effect Frictionless Rotary Encoder with Incremental Output — Series ERCKI



- Supplied magnet attaches to your shaft end
- Recessed housing fits over shaft/magnet
- Resolution up to 1024 ppr
- TTL or Open Collector
- IP65

The series ERCKI is a 22mm (7/8") frictionless rotary incremental encoder. A supplied magnet attaches to your shaft end, the housing simply mounts over the shaft end/magnet. Any pulse from 2...128 or 256, 512, 1024.

Electrical Data		
Resolution	2...128 any increment, 256, 512, 1024	
Frequency limit	500 khz	
Output signal	**TTL**	**Open Collector**
Supply voltage	5 VDC ±10%	5 VDC ±10% or 9 - 30 VDC
Electrical Speed (Max)	1600 rpm	
Resolution	12 bit (4096 steps)	
Current consumption (no load)	< 30 mA	
Insulation voltage	1000 VAC @ 50 Hz, 1 min.	
Insulation reistance	2 MOhm @ 500 VDC, 1 min.	

Mechanical and Environmental Data	
Maximum rotational speed	3000 rpm
Life expectancy	> 100 mio. shaft revolutions
Protection class	IP65 (electronics and cable)
Operating temperature	-40ºC...+85ºC
Storage temperature	-40ºC...+105ºC
Vibration (IEC 68-2-6, Test Fc)	20 g (±1.5mm, 10 to 2000 Hz, 16 ycles , 3 axis, (3x4 h)
Shock (IEC 68-2-7, Test Ea)	50g, 11ms / half sine (18 x)
Housing material	Nylon 66 Glass Fiber Reinforced
Shaft material	Stainless steel
Cable	5 core flat cable. 0.15 m. AWG28
Weight	approx. 10 grams

Note: Customers should test and verify device performance in any given application. General specifications values are measured at +15°C ~ +35°C. Please consult us if application is in higher or lower temperatures. Shaft modifications are possible, please consult us. Specifications subject to change without notice.

P3 America, Inc.
3077B Clairemont Drive #363
San Diego, CA 92117
USA

Phone: 858-277-1420
Fax: 858-225-0439
E-mail: sales@p3america.com
Web: www.p3america.com

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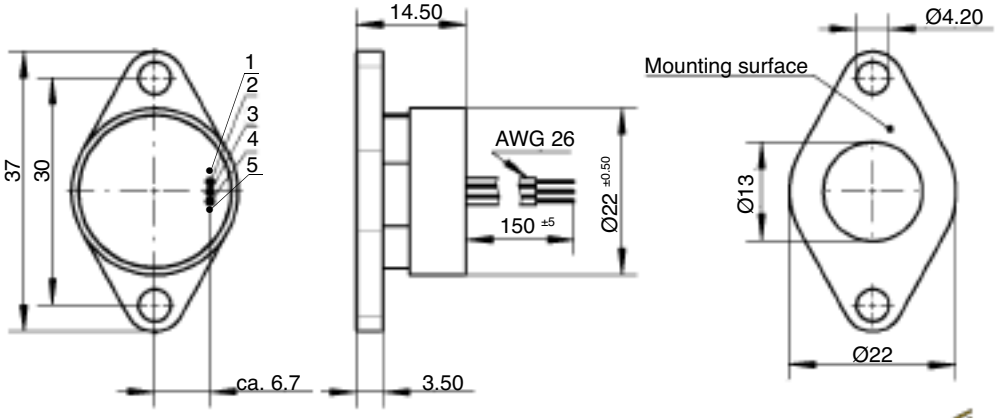
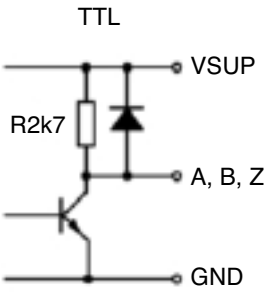
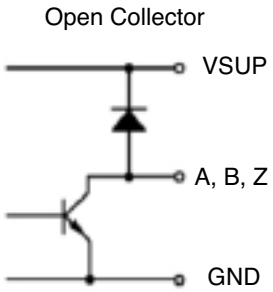
Dimensions (mm)

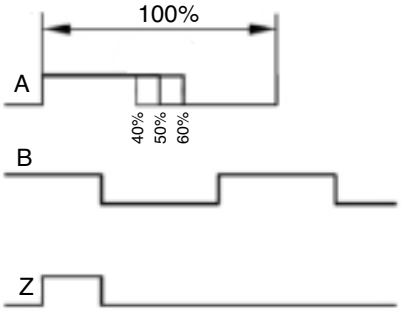


Cable Assignment	
VSUP 1 red	1
Z	2
B	3
A	4
GND	5

Output Characteristics







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Electrical Output Characteristic Options For Incremental Versions

Overview

Modern Hall IC's in combination with special magnets and RISC processors provide intelligent customizing of output signals and interfacing. This allows for rotary sensors capable of not only replacing precision potentiometers but also optoelectronic incremental and absolute encoders. The ERC series of rotary sensors are divided into three groups: analog types with absolute analog outputs (voltage, mA or PWM), incremental output and absolute SPI or SSI output. Because of a wide variety of mechanical and electrical options it is possible to use them in almost any automation and control application where rotary angular sensing is required. Regardless of the wide vairety of existing technical features, the price is relatively low.

Incremental Output:

The ERCI series are angular position sensors with an integrated signal conditiong unit which generates constant amplitude sine and cosine voltages used for angular calculation. The maximum resolution is 4096 angular measurements per revolution (0.1°). Like in standard optical incremental encoders, a rising and falling edge at channel A and channel B is available. Thus the rotational direction can be detected. The quadrature signal consists of 2 wave signals out of phase. The Z channel enables the counter to be reset to zero with the function of of a non true power on absolute encoder.

Number of Pulses & Direction (CW/CCW).

Unlike optical encoders, any pulse between 2 and 128 pulses can befactory set. Above 128 pulses the following pulses are available: 256, 512 and 1024. The default direction of rotation is CW, however, CCW can be specified during the order process.

Direction of Rotation (CW/CCW)

The default direction of rotation is CW. It is possible to program this to a CCW operation. This option must be specified during the ordering process.

Start Up Performance

In the default version, when the sensor is switched on, first the output A-B pulses are received only if the shaft rotates. After reaching the Z pulse, it is used for resetting the counter (identical to optical encoders). With this option specified (Start Up Performance), when the sensor is switched on, the A and B output pulses are received automatically until the Z pulse is reached, then the counter can be reset without rotating the shaft. From this point, the A, B and Z outputs are received corresponding to the shaft rotation.

Z Pulse

A counter which is connected to the sensor is reset once per revolution by the Z pulse. Withing one rotation a simulation of non true power on encoder is possible. In the basic type, the counter is reset manually.

Z ero Point Programming

It is possible to position the Z Pulse in line with the marking on the shaft and bushing. Also, any offset to this marking is possible.

Inverted Signal

Channels A and B can be inverted or not inverted independent of each other. The basic type is not inverted.

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