

Installation Instructions for the 600 Series Optical Encoders

Honeywell

Issue A

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GENERAL INFORMATION

The 600 Series Optical Encoders use non-contact technology to convert mechanical rotary motion into a digital electrical output. This output, compatible with transistor-transistor logic (TTL), may eliminate the need for analog to digital converters.

These encoders are rotary devices which contain a rotor and stator pair that create a variable aperture to allow light from a light emitting diode (LED) to pass through to a photosensitive diode. The rotor represents the number of lines (pulses) of the encoder and the stator creates the positioning of the individual outputs, or phasing. The varying amount of light allowed through the aperture creates a sine wave output. Internal electronics then amplify and convert this sine wave output into a square wave.

Two square waves, Channel A and Channel B, provide a quadrature output. Channel A leads Channel B by 90° electrically in a counterclockwise direction at a rate of 128 pulses per channel per revolution. Quadrature output allows the user to potentially determine incremental position, direction and speed.

The 600 Series is available with PC terminals, cable, or cable with connector.

Table 1. Electrical Specifications

Characteristic	Parameter			
	600-128-C24	600-128-B66	600-128-CBL	600-128-CN1
Electrical travel	continuous/360°			
Input voltage	5 Vdc ±5%			
Output voltage: high low	2.4 V min. with 10 kOhm load to ground 0.4 V, max.			
Output rate	128 pulses/revolution per channel			
Supply current	30 mA,max.			
Channels	two separate output channels in quadrature, 90° ±45°			

Table 2. Mechanical Specifications

Characteristic	Parameter			
	600-128-C24	600-128-B66	600-128-CBL	600-128-CN1
Mechanical travel	continuous/360°			
Operating speed	300 RPM, max.			
Operating torque	0,011 N m [1.5 in oz], max.			
Rotational life	10 million shaft rotations, min.			
Shaft: diameter end play radial play axial force material	6,35 mm [0.25 in] 0,127 mm [0.005 in], max. 0,254 mm [0.010 in] at 25,4 mm [1 in] 6,8 kg [15 lb] push/pull stainless steel			
Bushing: diameter/thread size material	9,53 mm [0.375 in] x 32 NEF 2A nickel-plated brass			
Termination type and material	PC, type C-24, 4-pin, gold-plated	PC, type B-66, 4-pin, gold-plated	cable with four-lead ribbon, 28 AWG, IL-W-168780 Type B or equivalent insulation	cable with Berg connector, 28 AWG, IL-W-168780 Type B or equivalent insulation
Terminal strength	2 lb push or pull			
Mounting hardware material: mounting nut lockwasher	nickel-plated brass nickel-plated brass			
Sealing	Controls are not sealed for board washing. Consult Honeywell for details.			

Table 3. Environmental Specifications

Characteristic	Parameter			
	600-128-C24	600-128-B66	600-128-CBL	600-128-CN1
Operating temperature	-40 °C to 65 °C [-40 °F to 149 °F]			
Storage temperature	-55 °C to 110 °C [-67 °F to 230 °F]			
Humidity	85 %RH at 40 °C [104 °F] 240 hr			

Figure 1. Mounting Dimensions (For reference only: mm [in].)

600-128-C24

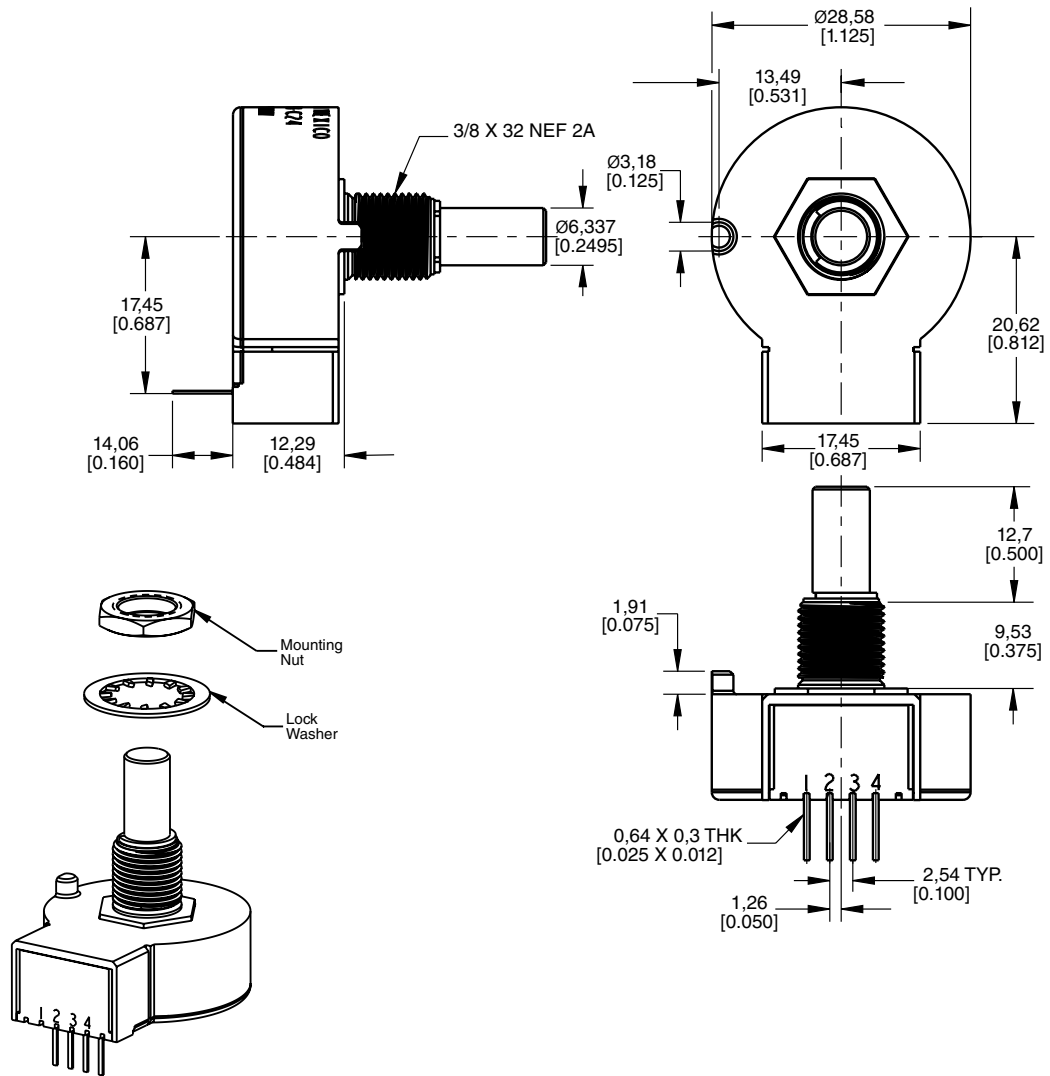


Figure 1. Mounting Dimensions (continued)

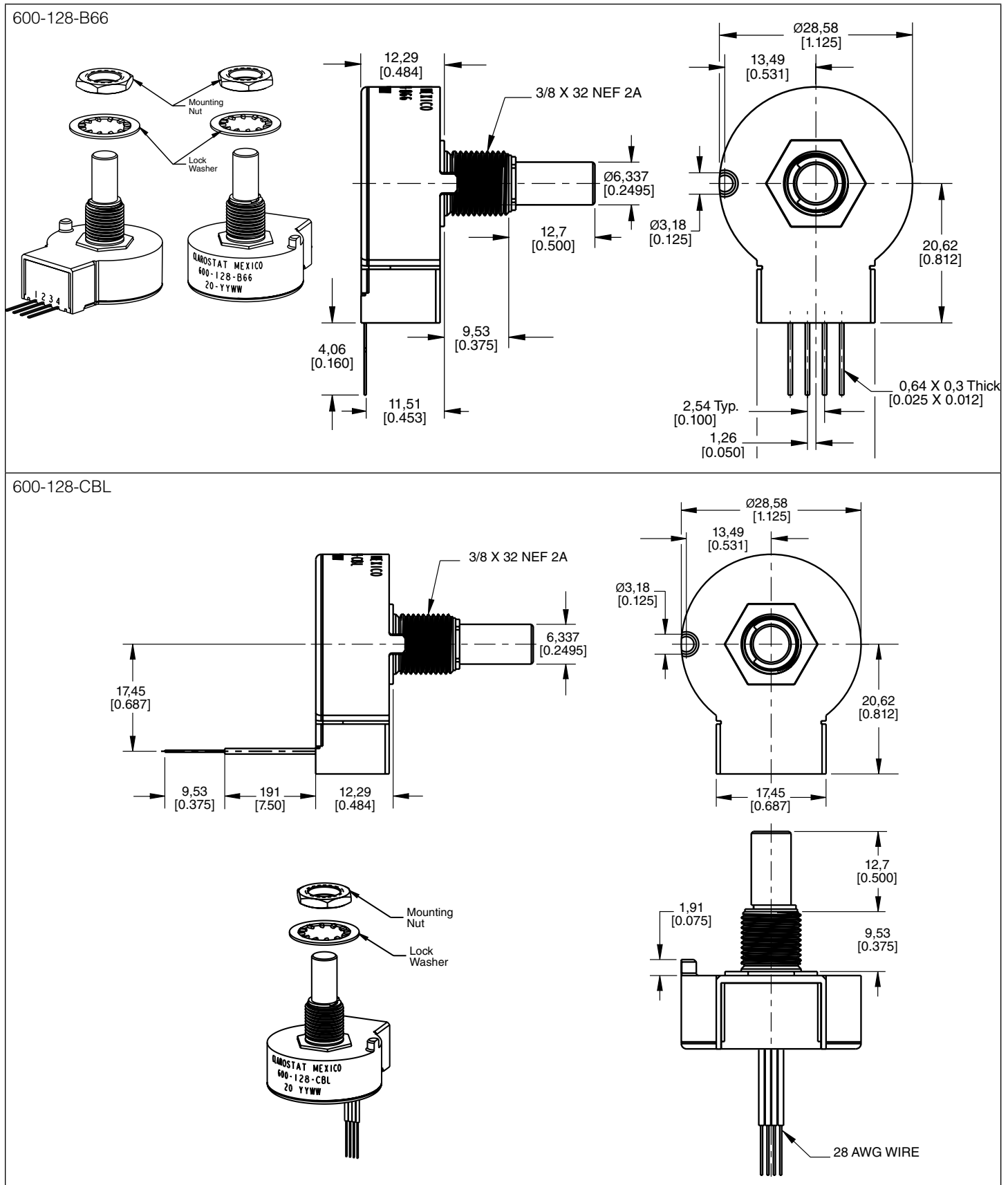


Figure 1. Mounting Dimensions (continued)

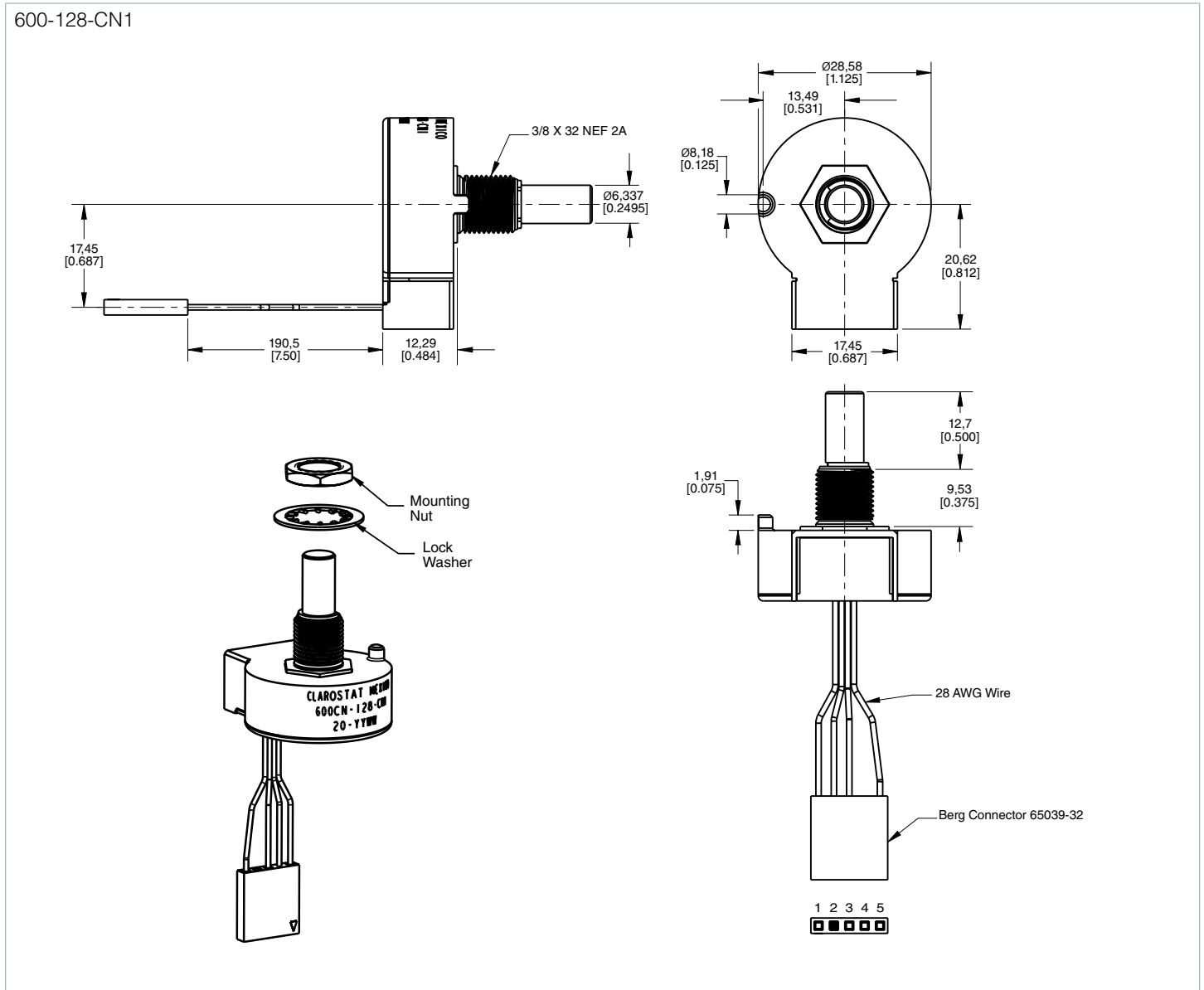


Figure 2. Mounting Hardware

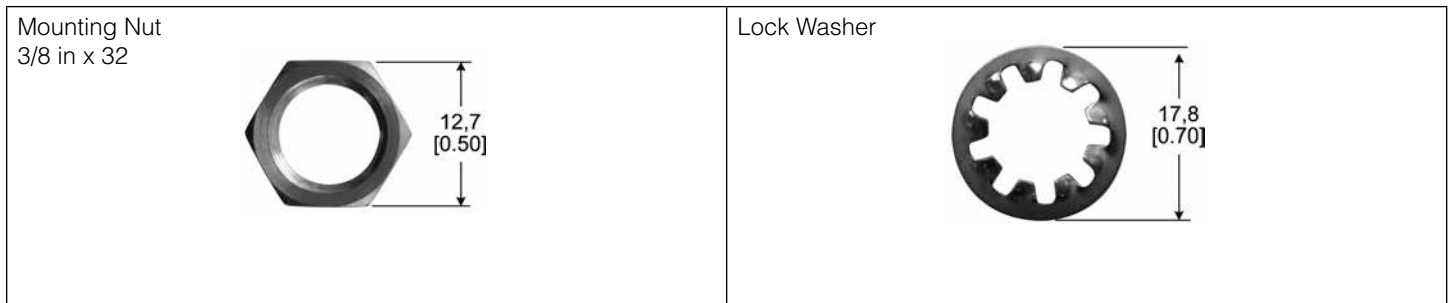


Figure 3. Output Waveform

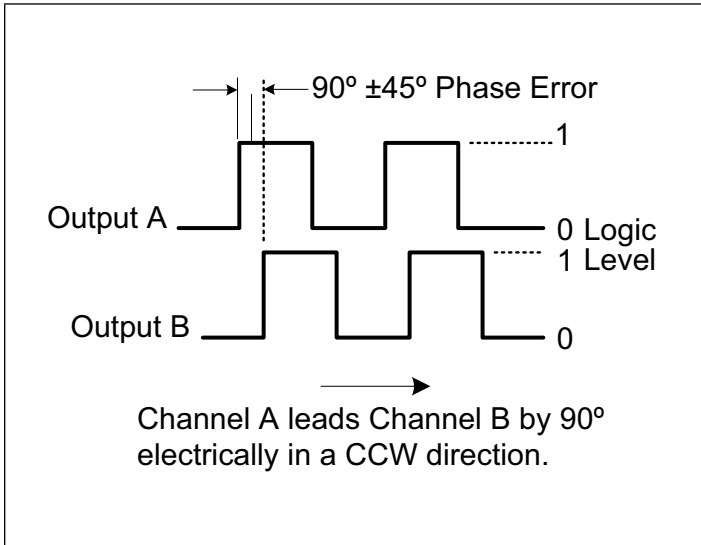
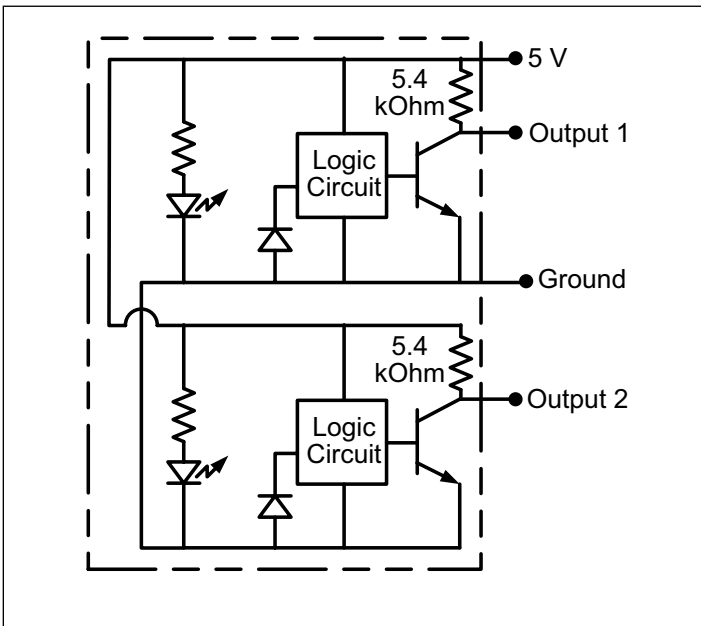


Figure 4. Block Diagram



⚠ WARNING PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

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While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

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E-mail: info.sc@honeywell.com

Internet: sensing.honeywell.com

Phone and Fax:

USA/Canada +1-800-537-6945

International +1-815-235-6847; +1-815-235-6545 Fax