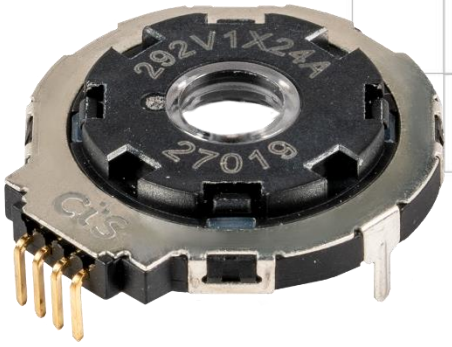
Series 292
20mm Optical Ring Encoder

- Compact Ø20mm size package
- 3 million cycles rotational life (1 million cycles with detent)
- 24 PPR resolution
- Wide operating temperature range (-10°C to +85°C)
- 5.0 VDC and 3.3 VDC power options
- Integrated Schmitt trigger and pull-up resistor



Applications

- Medical diagnostic equipment
- Industrial automation controls
- Automotive HVAC controls
- Infotainment controls
- Professional audio and lighting equipment

Description

The Series 292 optical ring encoder provides a reliable and durable solution to applications that require extended rotational life where traditional mechanical contacting designs fall short. The hollow shaft design allows the engineer to integrate an additional push switch or LED in the center of the unit. Power options allow for use in standard or energy efficient circuits. The integrated Schmitt trigger and pull up resistor reduces the number of components required when adding an encoder to a circuit. The reduced number of components translates into cost savings and reduction in required PCB space.

Ordering Information

Series	Terminal Type	Output Combination	Voltage
292	V1	X24	A

Code	Spec.
V1	.050" pitch pi rear facing

Code	Output Combination
X00	24 PPR No detents
X24	24 PPR 24 detents

Code	Spec.
A	5.0 VDC
B	3.3 VDC

Electrical Specifications

Encoder Function

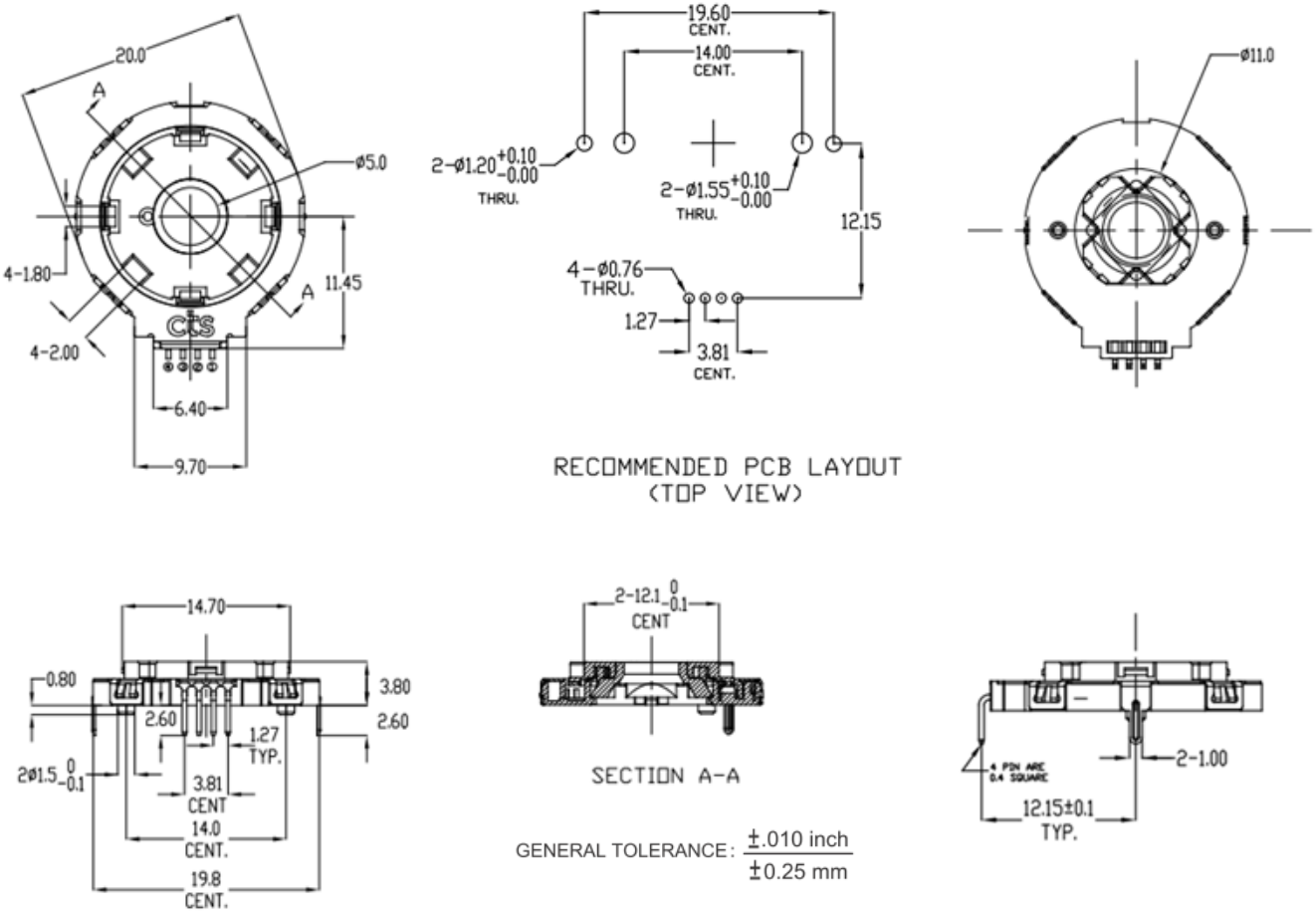
Parameter	Conditions & Remarks	Min	Nominal	Max	Unit
Input Voltage		4.95 2.97	5.0 3.3	5.50 3.63	VDC
Supply Current	5.0 VDC 3.3 VDC			30 20	mA mA
Dielectric Strength	For 1 minute			500	VDC
Insulation Resistance	At 50 VDC			10	MegΩ
Sink Current	5.0 VDC 3.3 VDC	2.0mA 1.0mA			
Power Consumption	5.0 VDC 3.3 VDC			150 80	mW mW
Logic Output	Logic High 5.0 VDC Logic High 3.3 VDC Logic Low 5.0 VDC Logic Low 3.3 VDC	3.8 2.3		 0.8 0.8	VDC
Resolution	24				Pulses per Revolution
Output Code	2-Bit Incremental Quadrature – Channel A leads Channel B by 2.0 ms minimum @ 60 RPM in the clockwise rotation				

Mechanical and Environmental

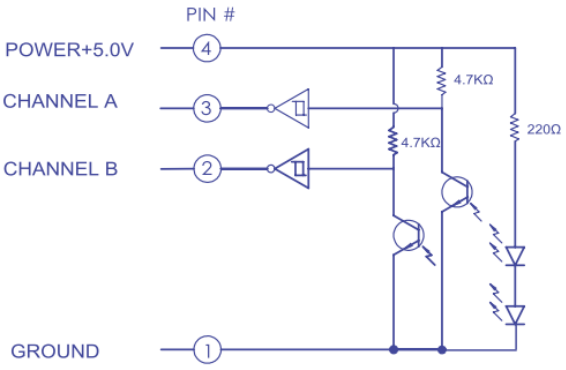
Wave Soldering	Maximum temperature of 260°C for 5 seconds
Operating Temperature:	-10°C to +85°C
Storage Temperature:	-10°C to +100°C
Rotational Life	3 million cycles (no detent @ 30 RPM) 1 million cycles (with detent @ 30 RPM) 500k cycles (with detent @30 RPM and 300 to 350 gf of side load)
Rotational Torque Non-detent Detent	 10 gf-cm max. 50 ± 20 gf-cm
Detent Position	Every 15° ± 3° of mechanical rotation
Travel	360˚ endless
Operational Speed	120 RPM max.
RoHS	Fully compliant to RoHS3 directive
IP Rating	IP 50
Marking	CTS logo, part number, date code
Packaging	Standard anti-static tray packaging
Weight	1.2g

All testing is performed at room ambient conditions except as noted. Users should verify device actual performance in their specific applications
RoHS3 Directive 2015/863 Amendments of Annex II.
Custom and value-added options available on request. Please contact your sales representative for additional information.

Mechanical Specifications

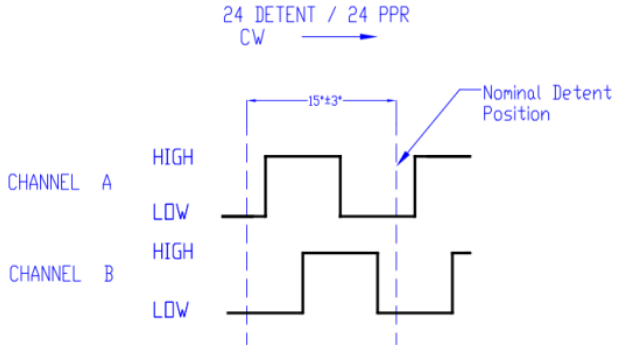


Electric Circuit And Waveform



Schmitt trigger and pull-up resistor (4.7kΩ) are integrated into the optical encoder eliminating the necessity to use external pull-up resistors for the application circuit.

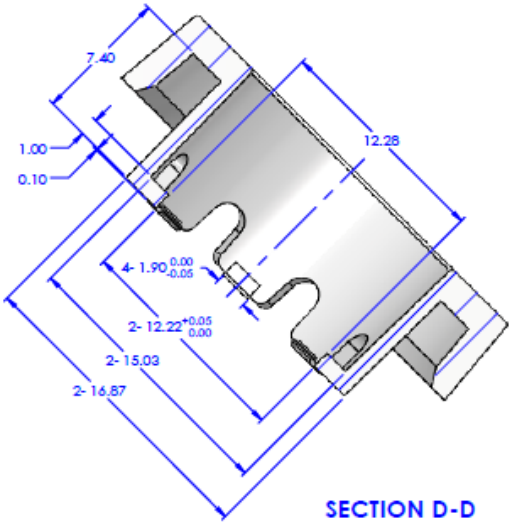
Standard Quadrature 2-Bit Code



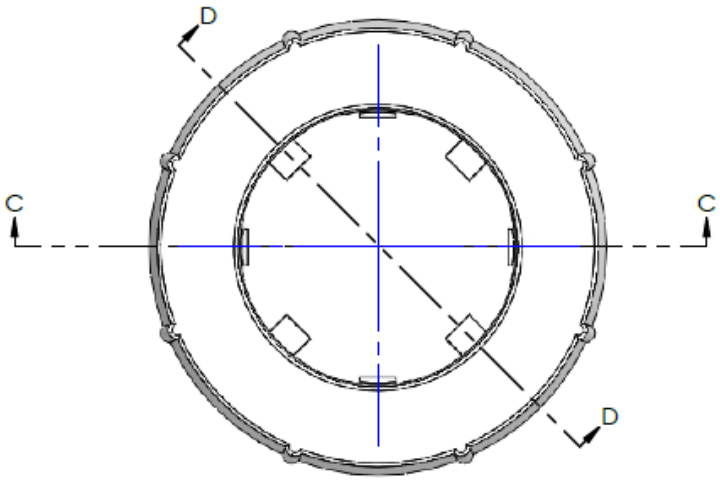
Channel A leads channel B in the CW direction, and lags in the CCW direction.

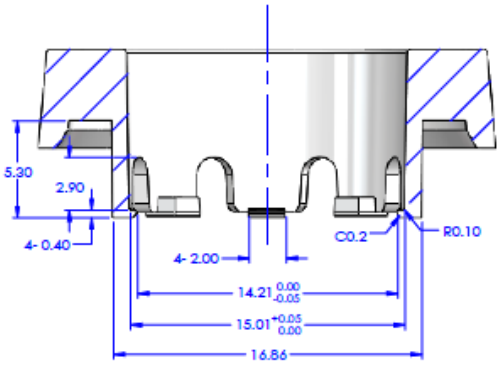
Knob Reference Design

UNLESS OTHERWISE SPECIFIED
GEN. TOL. ±0.05 mm



SECTION D-D





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