

# CD1110 Dynamic Rotary Torque Sensor



- Keyed Shaft couplings
- Range from  $\pm 0.05$  to  $\pm 2$  Nm ( $\pm 0.04$  to  $\pm 1.6$  lbf.ft)
- Integrated Mechanical Stops
- Aluminum
- Cable Gland or Connector Output
- Built In Amplifier per Request

## DESCRIPTION

The CD1110 series of dynamic torque sensors have extremely low operating ranges protected by mechanical stops permitting an overload of 10 times the F.S. measurement range. The rugged design provides accurate bidirectional torque measurements of rotating components up to 2000 rpm. Optionally the CD1110 can receive an on-board amplifier for high-level voltage output. Signal amplification is accomplished before transmission via the slip ring assembly, thus eliminating the noise generated by the contacts. It is also possible to eliminate the contact residual drag torque by placing the transducer sensing element directly in contact with the torque to be measured.

With many years of experience as a designer and manufacturer of sensors, Measurement Specialties often works with customers to design or customize sensors for specific uses and testing environments.

To meet your needs we also offer complete turnkey systems. The matched components (sensor, power, amplifier and digital display) are formatted, calibrated and ready for immediate use.

## FEATURES

- Ranges from  $\pm 0.05$  to  $\pm 2$  Nm ( $\pm 0.04$  to  $\pm 1.6$  lbf.ft)
- Integrated Mechanical Stops
- Keyed shaft mechanical connection
- High Level Output Model with Integrated Amplifier

## APPLICATIONS

- Low range dynamic applications
- Process control equipment
- Test and Measurement
- Robotics and effectors
- Laboratory and Research

## STANDARD RANGES

<b>F.S range in Nm</b>	0.05	0.3	0.5	1	2
<b>F.S range in lbf.ft</b>	0.04	0.22	0.4	0.8	1.6
<b>Rotation in rpm</b>	2000	2000	2000	2000	2000

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## PERFORMANCE SPECIFICATIONS

**Ambient Temperature: 20±1° C (unless otherwise specified)**

<b>Parameters</b>	
Operating Temperature Range (OTR)	-20 to 80° C (-4 to 176° F)
Compensated Temperature Range (CTR)	0 to 60° C (32 to 140° F)
Zero Shift in CTR	<0.5% F.S./ 50° C [100° F]
Sensitivity Shift in CTR	<1% of reading / 50° C [100° F]
Range (F.S.)	±0.05 to ±2Nm [4 to 1.6 lbf.ft]
Velocity of Rotation	≤2000 rpm ; Bidirectional operation
<b>Over-Range</b>	
Without Damage	10 x F.S. or 10Nm [max. 8lb-ft]
<b>Accuracy</b>	
Combined Non-Linearity & Hysteresis	±0.25%F.S.

### Electrical Characteristics

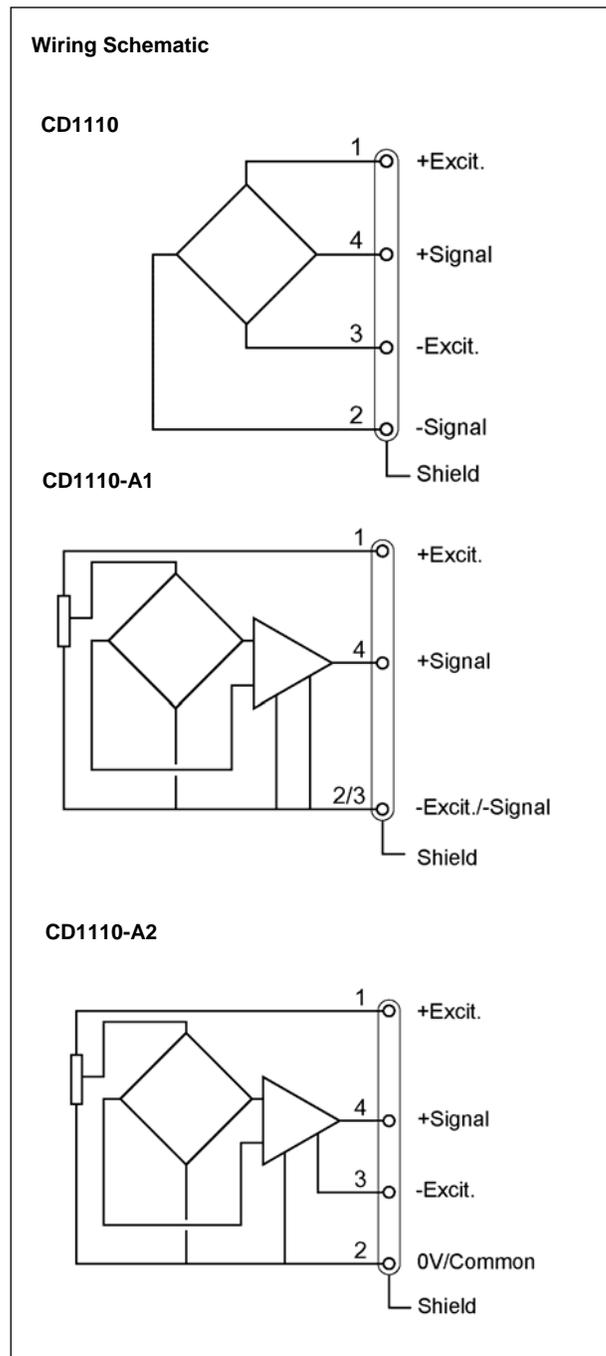
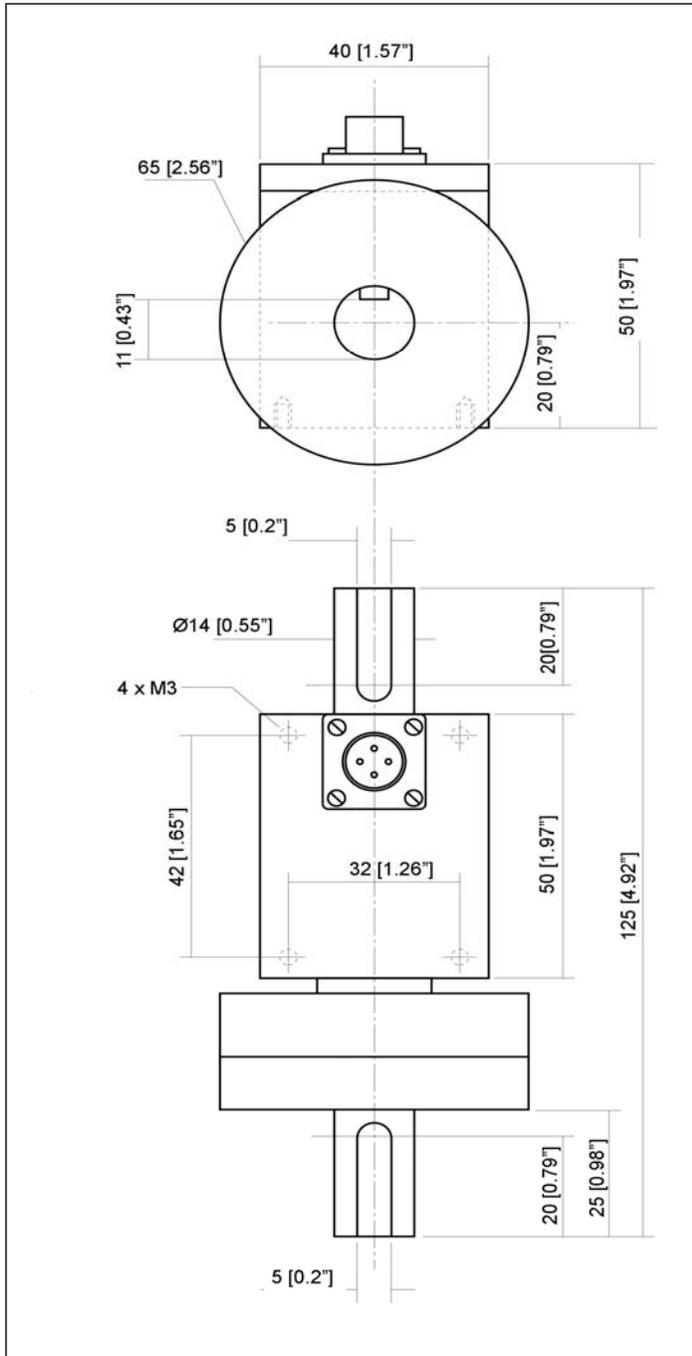
<b>Model</b>	<b>CD1110</b>	<b>CD1110-A1</b>	<b>CD1110-A2</b>
Supply Outage	10Vdc	10 – 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output	±2mV/V	±2V ±5% F.S	±5V ±5% F.S
Zero Offset	<±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	700Ω	<30mA	<30mA
Output Impedance	700Ω	<10Ω	<10Ω
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

### Notes

1. Electrical Termination: Connector output including mate
2. Material: Body and housing in aluminum alloy
3. Connection : Keyed shaft standard, other connection types on request (smooth shaft, cotter pin, etc)

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## DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



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## OPTIONS

<b>A1</b> : Unipolar Tension
<b>A2</b> : Bipolar Tension
<b>FMC</b> : Mating connector fitting with 2 m [6.6 ft] cable
<b>PE</b> : Cable Gland Termination with 2 m [6.6 ft] cable

## ORDERING INFO

CD1110 - A1 - 2Nm - /PE/FMC



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