CD1110 Dynamic Rotary Torque Sensor

- **Keyed Shaft couplings**
- **Range from ±0.05 to ±2 Nm (±0.04 to ±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, Inc. 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 ±0.05 to ±2 Nm (±0.04 to ±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

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

CD1110 Dynamic Rotary Torque Sensor

PERFORMANCE SPECIFICATIONS

All values are typical at temperature 20±1° C

Parameters	
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
Over-Range	
Without Damage	10 x F.S. or 10Nm [max. 8lb-ft]
Accuracy	
Combined Non-Linearity & Hysteresis	±0.25%F.S.

Electrical Characteristics

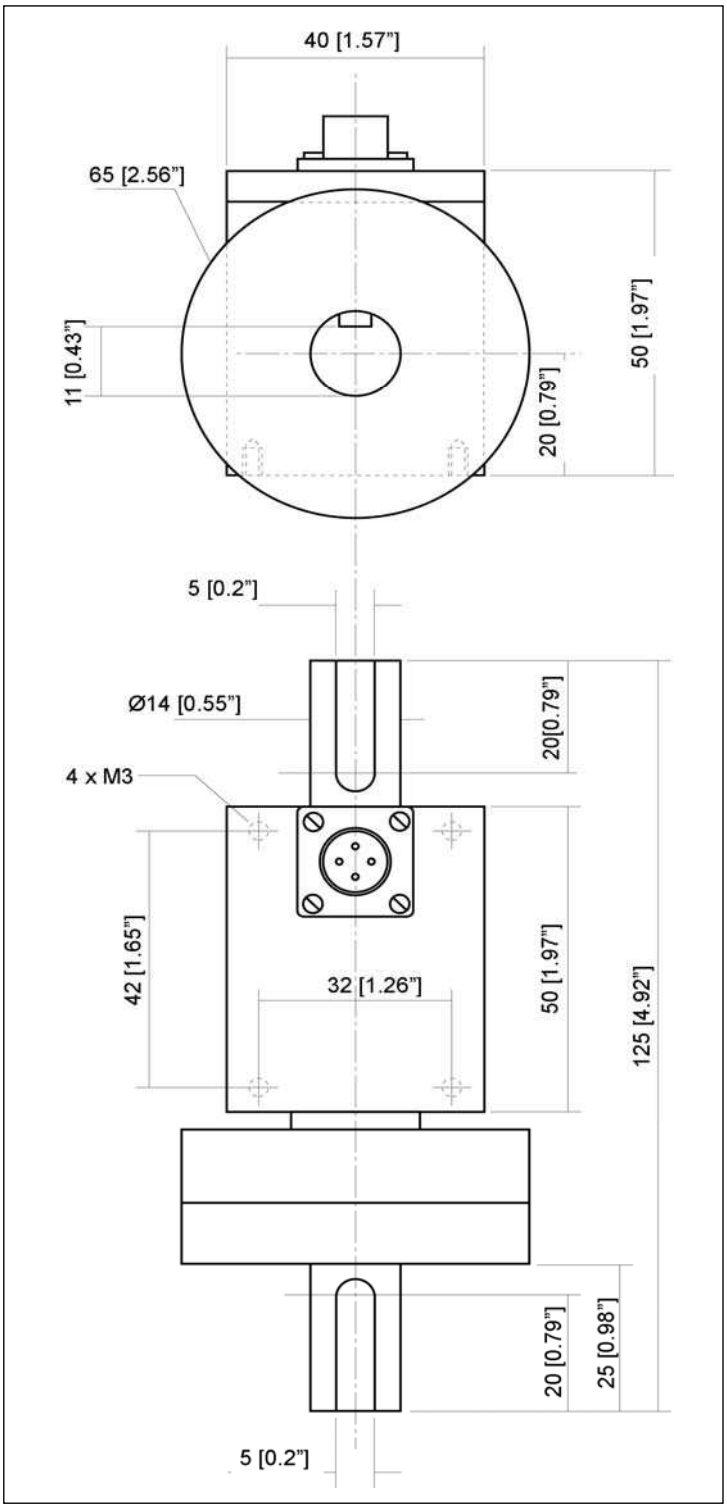
Model	**CD1110**	**CD1110-A1**	**CD1110-A2**
Supply Voltage	10Vdc	10 – 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output [4]	±2mV/V	±2V ±5%	±5V ±5%
Zero Offset [4]	<±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	700Ω	<30mA	<30mA
Output Impedance	700Ω	1 kΩ [5]	1 kΩ [5]
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

Notes

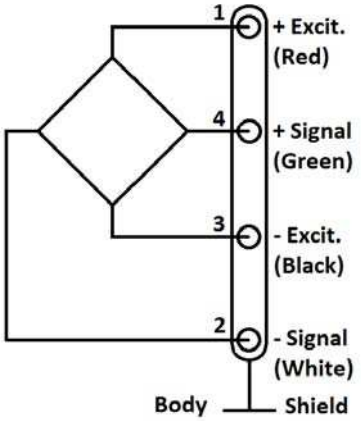
1. Electrical Termination: Connector output including mate
2. Material: Body and housing in aluminum alloy
3. Connection : Keyed shaft standard, other connection types on request (smooth shaft, cotter pin, etc)
4. Other signal output on request
5. Output impedance < 100Ω on request
6. CE conformance according to EN 61010-1, EN 50081-1, EN 50082-1

CD1110 Dynamic Rotary Torque Sensor

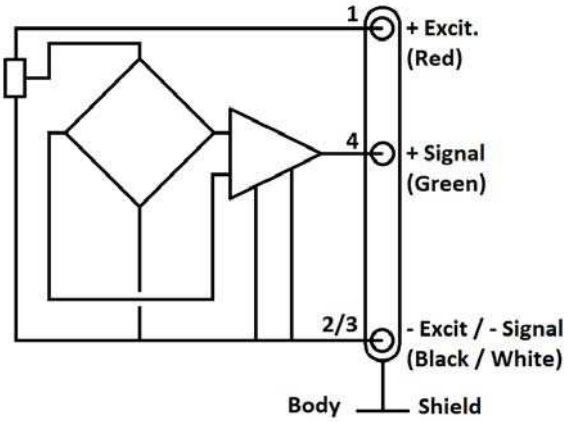
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



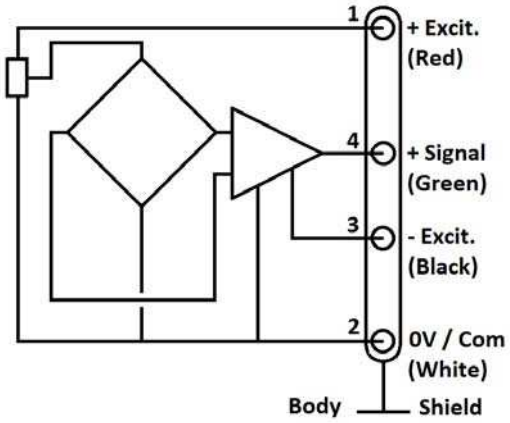
Wiring Schematic



Version -A1



Version -A2

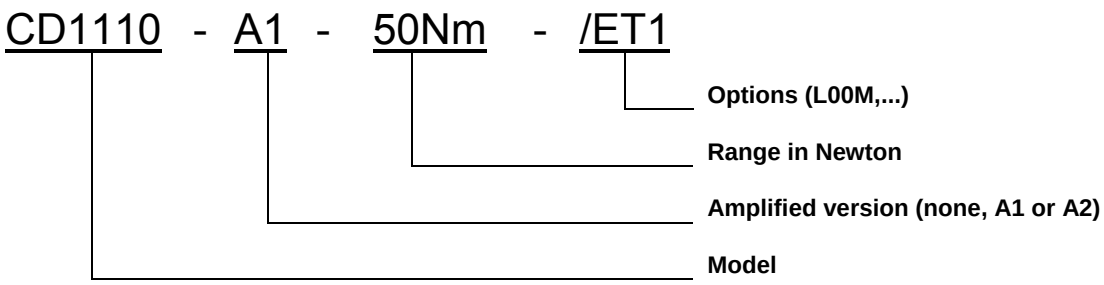


CD1110 Dynamic Rotary Torque Sensor

OPTIONS

A1 : Amplified Tension output with unipolar power supply
A2 : Amplified Tension output with bipolar power supply
FMC : Mating connector fitting with 2 m [6.6 ft] cable
PE : Cable Gland Termination with 2 m [6.6 ft] cable

ORDERING INFO



NORTH AMERICA

Measurement Specialties, Inc.
Vibration Design Center
32 Journey - Suite 150
Aliso Viejo, CA 92656
United States USA
Tel: 1-949-716-0877
Fax: 1-949-916-5677
t&m@meas-spec.com

EUROPE

Measurement Specialties
(Europe), Ltd.
26 Rue des Dames
78340 Les Clayes-Sous-Bois,
France
Tel: +33 (0) 130 79 33 00
Fax: +33 (0) 134 81 03 59
cs.lcsb@meas-spec.com

ASIA

Measurement Specialties
(China), Ltd.
No. 26 Langshan Road
Shenzhen High-Tech Park (North)
Nanshan District, Shenzhen
518057
China
Tel: +86 755 3330 5088
Fax: +86 755 3330 5099
pfg.cs.asia@meas-spec.com