CD1095 Dynamic Rotary Torque Sensor

- **Keyed Shaft couplings**
- **Range from ±5 to ±2,500 Nm (±4 to 2,000 lbf.ft)**
- **Stainless Steel**
- **Cable Gland or Connector Output**
- **Built In Amplifier per Request**

SENSOR WAY
www.sensorway.cn

DESCRIPTION

The CD1095 has been designed to measure in-line torque on rotating shafts. Its sensing element is based on thin layer strain gauges in a Wheatstone bridge configuration providing excellent temperature stability. Optionally the torque sensor can receive an on-board amplifier for high-level output. Intermediate ranges are available at no extra cost. Consult Measurement-Specialties' Engineering Department if the standard options do not meet your needs or should your application require a more comprehensive measurement system.

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

- For Dynamic Applications
- Keyed Shaft Mechanical Connection
- High Level Output Model with Integrated Amplifier

APPLICATIONS

- Dynamic applications
- Process control equipment
- Test and Measurement
- Robotics and effectors
- Laboratory and Research

STANDARD RANGES

F.S range in Nm	5 - 10 - 20	50 - 75 - 100	150 - 200 - 300	500 - 750	1k – 1.75k – 2,5k
F.S range in lbf.ft	4 - 8 - 16	40 - 60 - 80	120 - 160 - 240	400 - 600	800 – 1.4k – 2k
Stiffness in Nm/rad	$1.4x10^2$ to 9x102	$9x10^2$ to 7.5x103	$7.5x10^{3\ to}$ $3x10^4$	$3x10^4$ to 1x105	$1x10^5$ to 3.5x105
Stiffness in lbf.ft/rad	$0.4x10^2$ to 0.6x102	$0.6x10^2$ to 5.1x102	$5.1x10^{2\ to}$ $2.1x10^3$	$2.1x10^3$ to 6.9x103	$6.9x10^3$ to 2.4x104
Rotation in rpm	3000	3000	2200	1750	1250

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PERFORMANCE SPECIFICATIONS

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

Parameters	
Operating Temperature Range (OTR)	-20 to 80º C (-4 to 176° F)
Compensated Temperature Range (CTR)	0 to 60º C (32 to 140° F)
Zero Shift in CTR	<0.5% F.S./ 50º C [100° F]
Sensitivity Shift in CTR	<1% of reading / 50° C [100° F]
Range (F.S.)	±5 Nm to ±2,5 kNm [±4 lbf.ft to ±2 klbf.ft]
Velocity of Rotation	Up to 3000 RPM ; Bidirectional operation
Over-Range	
Save Overload	1.5 x F.S.
Ultimate Load	3 x F.S.
Accuracy	
Combined Non-Linearity & Hysteresis	<±0.25%F.S

Electrical Characteristics

Model	**CD1095**	**CD1095-A1**	**CD1095-A2**
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	350 to 700Ω	<50mA	<50mA
Output Impedance	350 to 700Ω	<10Ω	<10Ω
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

Notes

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

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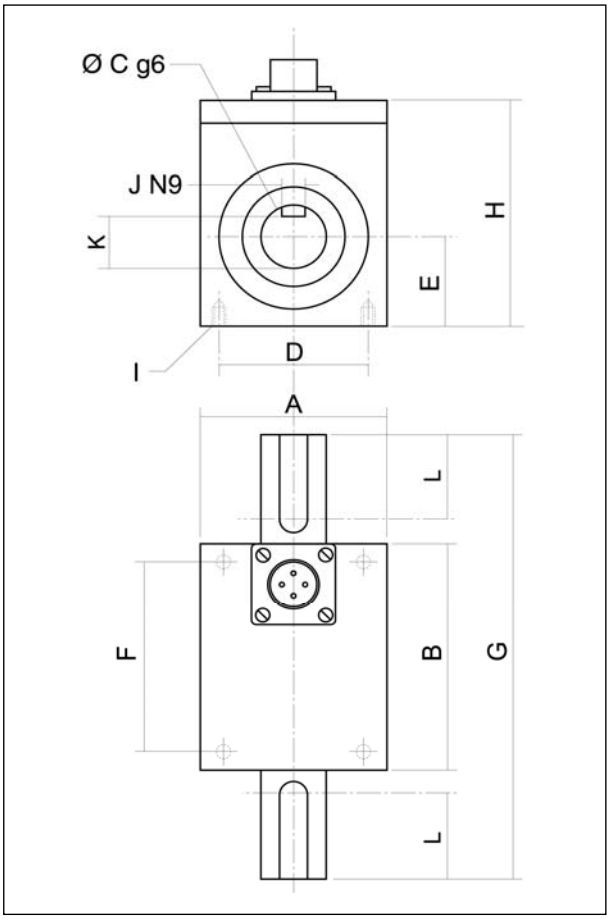
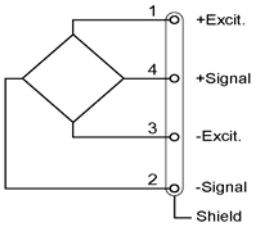
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)

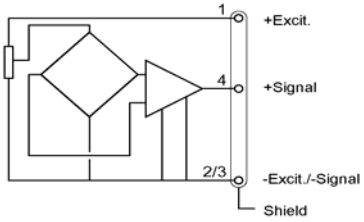


Wiring Schematic

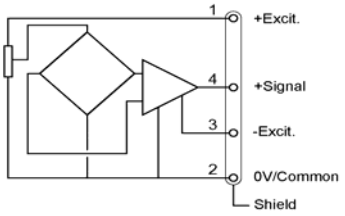
CD1095



CD1095-A1



CD1095-A2



Dimensions in mm [inch]

Range in Nm [lbf.ft]	5 - 10 - 20 [4 - 8 - 16]		50 - 75 - 100 [40 - 60 - 80]		150 - 200 - 300 [120 - 160 - 240]		500 - 750 [400 - 600]		1k – 1,75k – 2,5k [800 – 1,4k – 2k]	
A	40	[1.57]	40	[1.57]	50	[1.97]	60	[2.36]	80	[3.15]
B	50	[1.97]	50	[1.97]	55	[2.17]	60	[2.36]	75	[2.95]
C	14	[0.55]	19	[0.75]	28	[1.10]	39	[1.54]	54	[2.13]
D	32	[1.26]	32	[1.26]	40	[1.57]	50	[1.97]	70	[2.76]
E	20	[0.79]	20	[0.79]	25	[0.98]	30	[1.18]	40	[1.57]
F	42	[1.65]	42	[1.65]	45	[1.77]	50	[1.97]	65	[2.56]
G	90	[3.54]	110	[4.33]	150	[5.91]	180	[7.09]	260	[10.24]
H	50	[1.97]	50	[1.97]	60	[2.36]	70	[2.76]	90	[3.54]
I	4 x M3		4 x M3		4 x M3		4 x M4		4 x M4	
J	5	[0.20]	6	[0.24]	8	[0.31]	12	[0.47]	16	[0.63]
K	11	[0.43]	15.5	[0.61]	24	[0.94]	34	[1.34]	48	[1.89]
L	15	[0.59]	25	[0.98]	40	[1.57]	50	[1.97]	80	[3.15]

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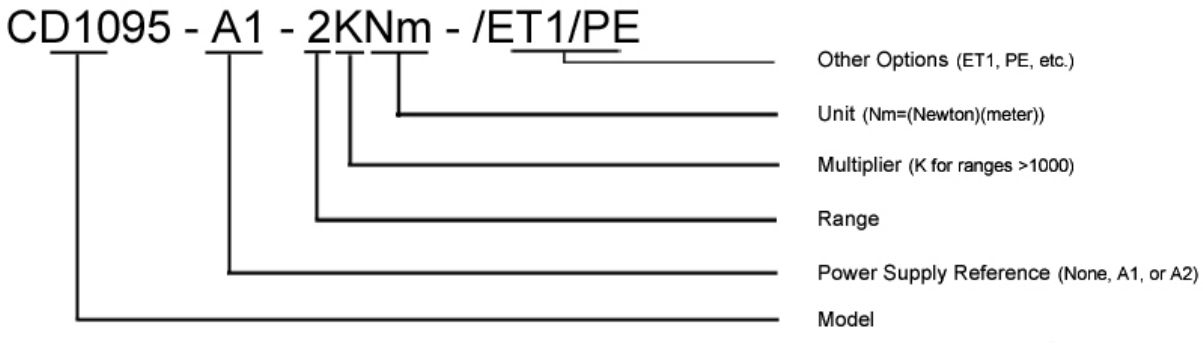
OPTIONS

A1 : Unipolar Tension
A2 : Bipolar Tension
PE : Cable Gland Termination with 2 m [6.6 ft] cable

ORDERING INFO



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