

# CD1095 Dynamic Rotary Torque Sensor



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



## 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

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

# CD1095 Dynamic Rotary Torque Sensor

## 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.)	±5 Nm to ±2,5 kNm [±4 lbf.ft to ±2 klbf.ft]
Velocity of Rotation	Up to 3000 RPM ; Bidirectional operation
<b>Over-Range</b>	
Save Overload	1.5 x F.S.
Ultimate Load	3 x F.S.
<b>Accuracy</b>	
Combined Non-Linearity & Hysteresis	<±0.25%F.S

### Electrical Characteristics

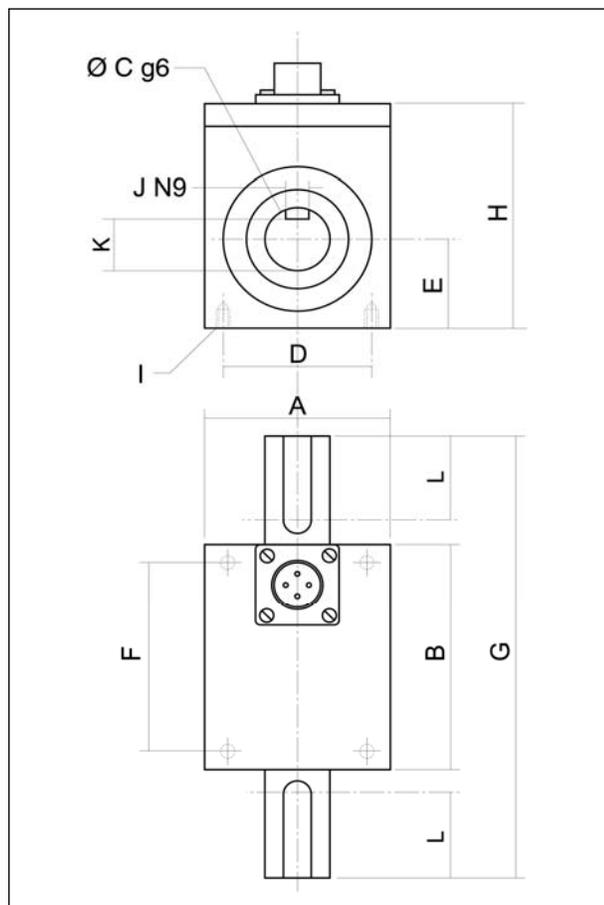
Model	CD1095	CD1095-A1	CD1095-A2
Supply Outage	10Vdc	10 – 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output	±2mV/V	±2V ±5% F.S	±5V ±5% F.S
Zero Offset	<±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	350 to 700Ω	<50mA	<50mA
Output Impedance	350 to 700Ω	<10Ω	<10Ω
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥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)

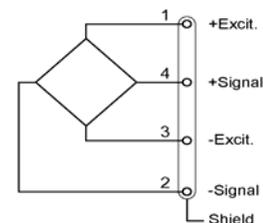
# CD1095 Dynamic Rotary Torque Sensor

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

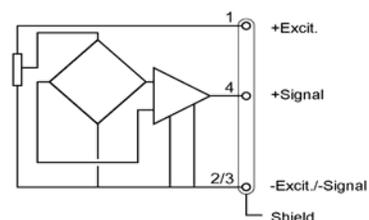


### Wiring Schematic

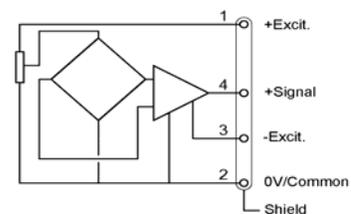
#### CD1095



#### 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]

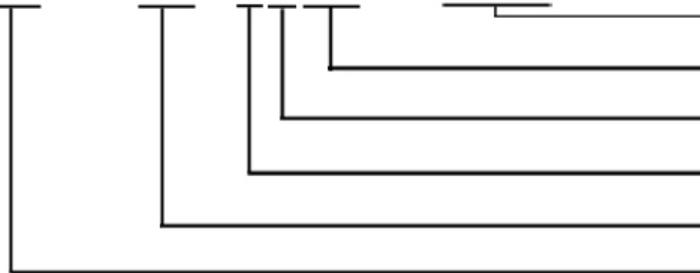
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## OPTIONS

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

## ORDERING INFO

CD1095 - A1 - 2KNm - /ET1/PE



Other Options (ET1, PE, etc.)

Unit (Nm=(Newton)(meter))

Multiplier (K for ranges >1000)

Range

Power Supply Reference (None, A1, or A2)

Model

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