

## FEATURES

- ◆ Slip ring measurement peaking
- ◆ High Stiffness
- ◆ Protection IP50
- ◆ High Level Output Model with Integrated Amplifier

## APPLICATIONS

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

## CD1095

### Dynamic Rotary Torque Sensor

## SPECIFICATIONS

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

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.

Another version with male square couplings exists under the reference **CD1050**.

With ma long standing experience as a designer and manufacturer of sensors, TE CONNECTIVITY often works with customers to design or customize sensors for specific uses and testing environments.

On request, Instruction documents can be provided to ease the selection and use of our sensors and provide helpful tips.

## STANDARD RANGES

|                                |  |  |  |  |  |
|--------------------------------|--|--|--|--|--|
| <b>Range in Nm (FS)</b>        | 5 - 10 - 20                                | 50 - 75 - 100                              | 150 - 200 - 300                            | 500 - 750                                  | 1k – 1.75k – 2,5k                          |
| <b>Range in lbf.ft (FS)</b>    | 4 - 8 - 16                                 | 40 - 60 - 80                               | 120 - 160 - 240                            | 400 - 600                                  | 800 – 1.4k – 2k                            |
| <b>Stiffness in Nm/rad</b>     | 1.4x10 <sup>2</sup> to 9x10 <sup>2</sup>   | 9x10 <sup>2</sup> to 7.5x10 <sup>3</sup>   | 7.5x10 <sup>3</sup> to 3x10 <sup>4</sup>   | 3x10 <sup>4</sup> to 1x10 <sup>5</sup>     | 1x10 <sup>5</sup> to 3.5x10 <sup>5</sup>   |
| <b>Stiffness in lbf.ft/rad</b> | 0.4x10 <sup>2</sup> to 0.6x10 <sup>2</sup> | 0.6x10 <sup>2</sup> to 5.1x10 <sup>2</sup> | 5.1x10 <sup>2</sup> to 2.1x10 <sup>3</sup> | 2.1x10 <sup>3</sup> to 6.9x10 <sup>3</sup> | 6.9x10 <sup>3</sup> to 2.4x10 <sup>4</sup> |
| <b>Rotation in rpm</b>         | 3000                                       | 3000                                       | 2200                                       | 1750                                       | 1250                                       |

## PERFORMANCE SPECIFICATIONS (typical values at temperature 23±3°)

|                                     |   |
|-------------------------------------|---|
| <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 [1/100° F]                |
| Sensitivity Shift in CTR            | <1% of reading / 50° C [1/100° 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                                  |

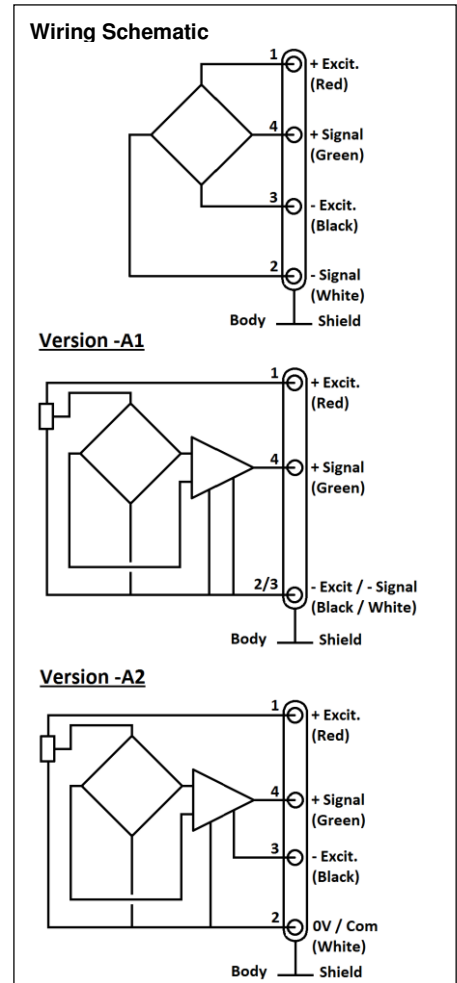
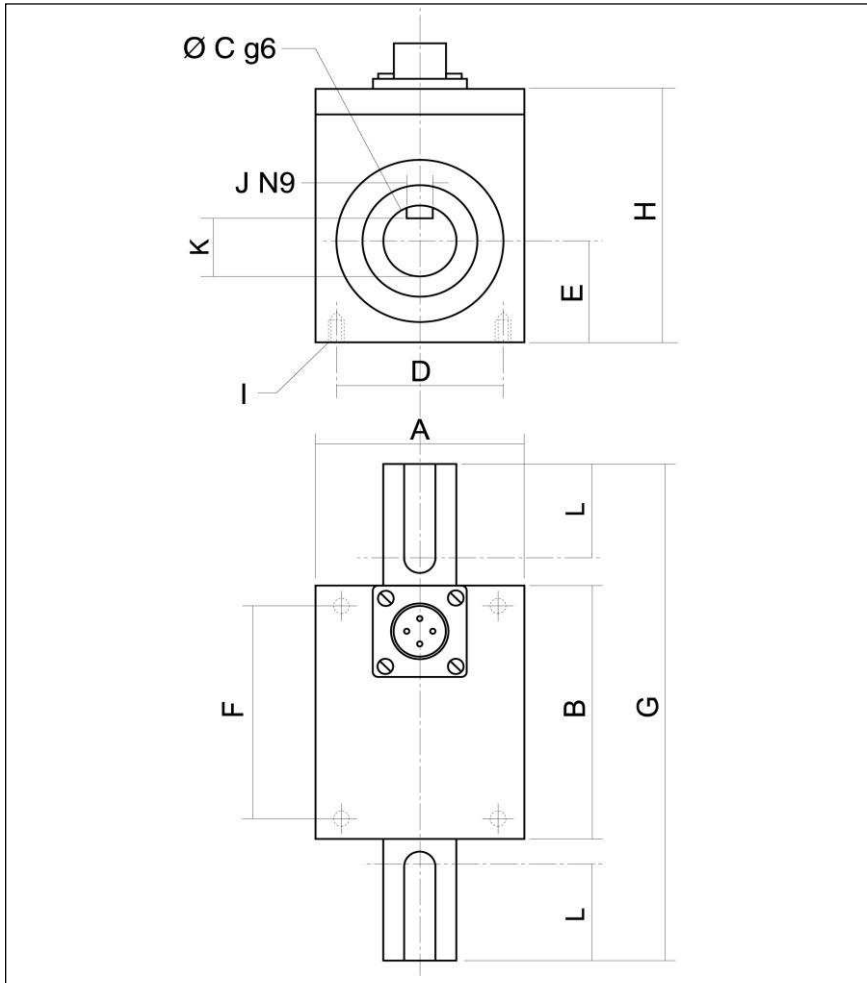
## Electrical Characteristics

| Model                          | CD1095 <sup>1</sup> | CD1095-A1         | CD1095-A2              |
|--------------------------------|---------------------|-------------------|------------------------|
| Supply Voltage                 | 1 to 10Vdc          | 10 to 30Vdc       | ±15Vdc (±12 to ±18Vdc) |
| Sensitivity "FSO" <sup>2</sup> | ±2mV/V              | ±2V ±0.2V         | ±5V ±0.2V              |
| Zero Offset <sup>2</sup>       | <±1mV               | 2.5V ±0.2V        | 0V ±0.2V               |
| Input Impedance/Consumption    | 350 to 700Ω         | <50mA             | <50mA                  |
| Output Impedance               | 350 to 700Ω         | 1 kΩ <sup>6</sup> | 1 kΩ <sup>6</sup>      |
| Insulation under 50Vdc         | ≥100MΩ              | ≥100MΩ            | ≥100MΩ                 |

## Notes

1. Sensors are calibrated with 10Vdc power supply as standard.
2. Signal goes positive in CW strain with standard wiring configuration. Other signal output on request
3. Electrical Termination: Connector output including mating plug
4. Material: Body in stainless steel ; aluminum alloy housing
5. Connection : Keyed shaft standard, other connection types on request (smooth shaft, cotter pin, etc)
6. Output impedance < 100Ω on request
7. CE conformance according to EN 61010-1, EN 50081-1, EN 50082-1

DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



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]  |

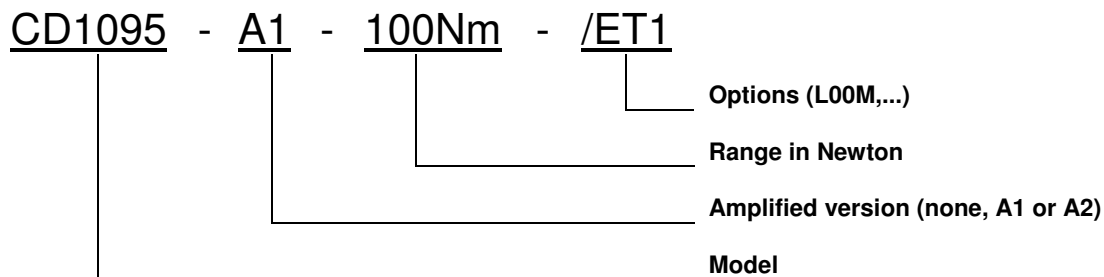
## CD1095

Dynamic Torquemeter

### OPTIONS

|   |
|---|
| <b>A1</b> : Amplified Tension output with unipolar power supply   |
| <b>A2</b> : Amplified Tension output with bipolar power supply  |
| <b>V00</b> : Non-standard power supply calibration, replace "00" with value in Volt (standard 10Vdc, unamplified sensor only) |
| <b>PE</b> : Cable Gland Termination with 2 m [6.6 ft] cable   |

### ORDERING INFO



### SUPPLIED ACCESSOIRES

**EFMX-4M** : mating plug Jaeger 530-801-006 with clamp 530-841-006

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