

## CS1210 Reaction Torquemeter

### SPECIFICATIONS

- ◆ Range from  $\pm 160$  to  $\pm 10,000$  Nm ( $\pm 1 \pm 8,000$  lbf.ft)
- ◆ Collar mechanical fittings
- ◆ Stainless Steel or Aluminum
- ◆ Gland or Connector Output
- ◆ Built In Amplifier per Request

The **CS1210** Series has been developed to measure torque in static applications. The mechanical design and gauge placement minimizes transverse effects.

Fitted with metallic strain gauges in a Wheatstone bridge circuit, the **CS1210** is providing excellent temperature stability. For high-level output a model with integrated amplifier is available.

With a 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.

### FEATURES

- ◆ For Static Applications
- ◆ High Stiffness
- ◆ Collar Mechanical Fittings
- ◆ High Level Output Model with Integrated Amplifier

### APPLICATIONS

- ◆ Process control equipment
- ◆ Torque fatigue test benches
- ◆ Robotics and effectors
- ◆ Bearing torque measurement
- ◆ Laboratory and Research



**STANDARD RANGES**

<b>Range in Nm (FS)</b>	160	300	600	1,2k	2,4k	3,5k	4,8k	7k	10k
<b>Range in lbf.ft (FS)</b>	128	240	480	960	1,92k	2,8k	3,84k	5,6k	8k
<b>Stiffness in Nm/rad</b>	3.5x10 <sup>4</sup>	6x10 <sup>4</sup>	2x10 <sup>5</sup>	3.5x10 <sup>5</sup>	1x10 <sup>6</sup>	1.4x10 <sup>6</sup>	2.3x10 <sup>6</sup>	3.4x10 <sup>6</sup>	5.7x10 <sup>6</sup>
<b>Stiffness in lbf.ft/rad</b>	2.4x10 <sup>3</sup>	1.4x10 <sup>4</sup>	1.4x10 <sup>4</sup>	2.4x10 <sup>4</sup>	6.9x10 <sup>4</sup>	1x10 <sup>5</sup>	1.6x10 <sup>5</sup>	2.3x10 <sup>5</sup>	3.9x10 <sup>5</sup>
<b>Material</b>	Aluminum Alloy			Stainless Steel					

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

<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]
<b>Over-Range</b>	
Without Damage	1.5 x F.S.
<b>Accuracy</b>	
Combined Non-Linearity & Hysteresis	±0.25%F.S.

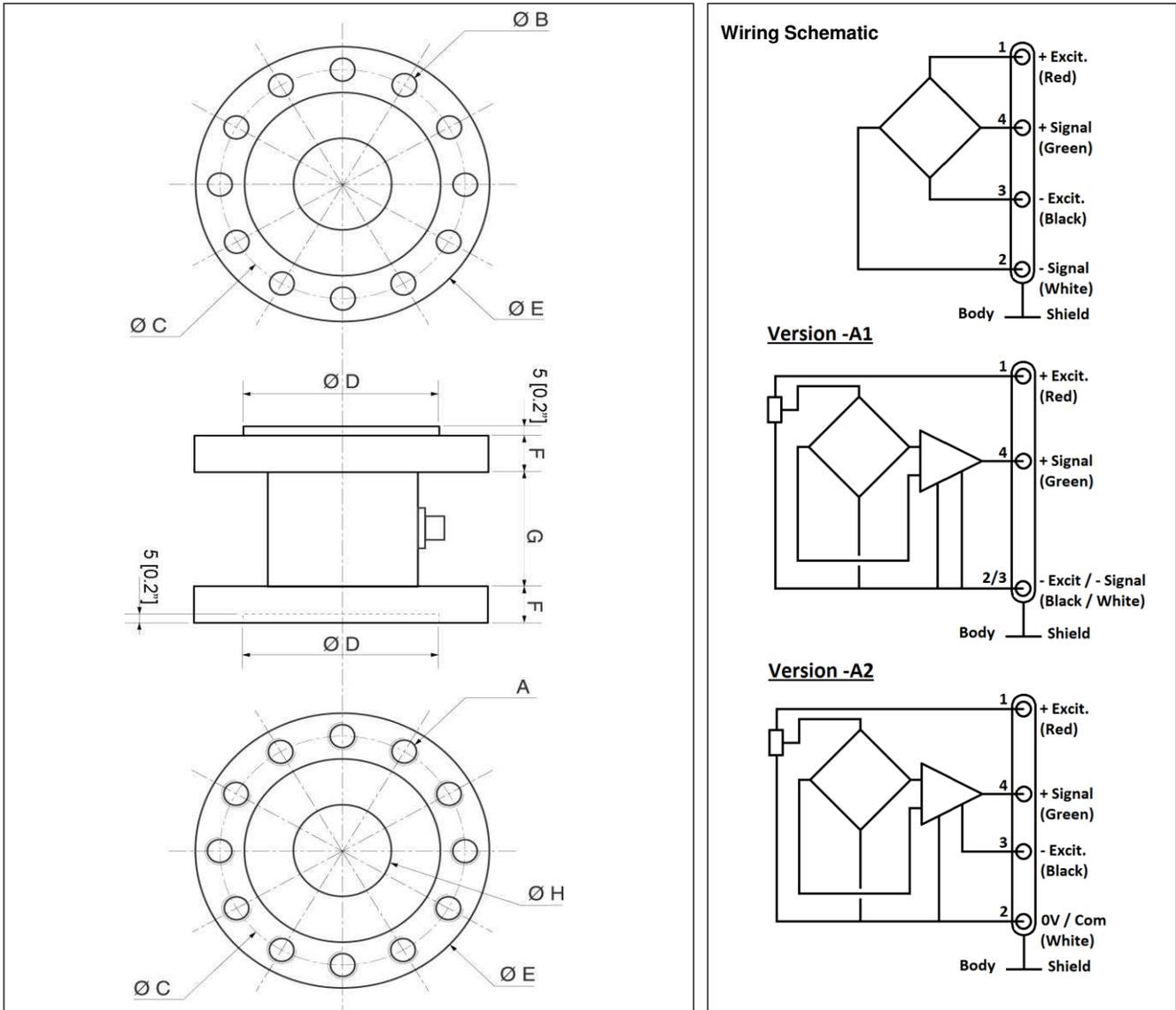
**Electrical Characteristics**

<b>Model</b>	<b>CS1210<sup>1</sup></b>	<b>CS1210-A1</b>	<b>CS1210-A2</b>
Supply Voltage	1 to 10Vdc regulated	10 – 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>5</sup>	1 kΩ <sup>5</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 mate
4. Material: Body in stainless steel or aluminum alloy
5. Output impedance < 100Ω on request
6. CE conformance according to EN 61010-1, EN 50081-1, EN 50082-1

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



Dimensions in mm [inch]

F.S. in Nm [lbf.ft]	160 - 300 [128 - 240]	600 [480]	1,2k [960]	2,4k [1,92k]	3,5k [2,8k]	4,8k [3,84k]	7k [5,6k]	10k [8k]
A	12 x M10	12 x M10	12 x M10	12 x M12	12 x M16	12 x M18	12 x M20	12 x M24
B	12 x Ø10.3	12 x Ø10.3	12 x Ø10.3	12 x Ø12.3	12 x Ø16.3	12 x Ø18.3	12 x Ø20.5	12 x Ø24.5
C	100 [3.94]	100 [3.94]	100 [3.94]	125 [4.92]	160 [6.30]	180 [7.09]	215 [8.46]	235 [9.25]
D	80 [3.15]	80 [3.15]	80 [3.15]	90 [3.54]	120 [4.72]	140 [5.51]	160 [6.30]	180 [7.09]
E	118 [4.65]	118 [4.65]	118 [4.65]	148 [5.83]	186 [7.32]	218 [8.58]	248 [9.76]	272 [10.71]
F	15 [0.59]	15 [0.59]	15 [0.59]	15 [0.59]	15 [0.59]	15 [0.59]	20 [0.79]	20 [0.79]
G	45 [1.77]	45 [1.77]	45 [1.77]	48 [1.89]	52 [2.05]	55 [2.17]	60 [2.36]	60 [2.36]
H	30 [1.18]	45 [1.77]	45 [1.77]	70 [2.76]	85 [3.35]	100 [3.94]	110 [4.33]	130 [4.33]

## CS1210

Reaction Torquemeter

### OPTIONS

<b>A1</b> : Amplified Tension output with unipolar power supply
<b>A2</b> : Amplified Tension output with bipolar power supply
<b>ET1</b> : CTR -20 to 100° C [-4 to 212° F] OTR=CTR
<b>ET3</b> : CTR -40 to 150° C [-40 to 302° F] OTR=CTR ( <b>Note</b> : ET3 not available with A1 and A2 options)
<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 INFORMATION

CS1210 - A1 - 10KN.M - /ET1

Options (ET1, L00M,...)

Range in Newton.meter

Amplified version (none, A1 or A2)

Model



### SUPPLIED ACCESSOIRES

<b>EFMX-7M</b> : mating plug Jaeger 530-272-006 with clamp 530-371-006 for standard and ET1
<b>EFMX-7H</b> : mating plug Jaeger 530-604-006 with clamp 530-693-006 for ET2 or ET3 option

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