

CS1210 Reaction Torquemeter

SPECIFICATIONS

- Range from ± 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

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

PERFORMANCE SPECIFICATIONS (typical values at temperature 23±3°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]
Over-Range	
Without Damage	1.5 x F.S.
Accuracy	
Combined Non-Linearity & Hysteresis	±0.25%F.S.

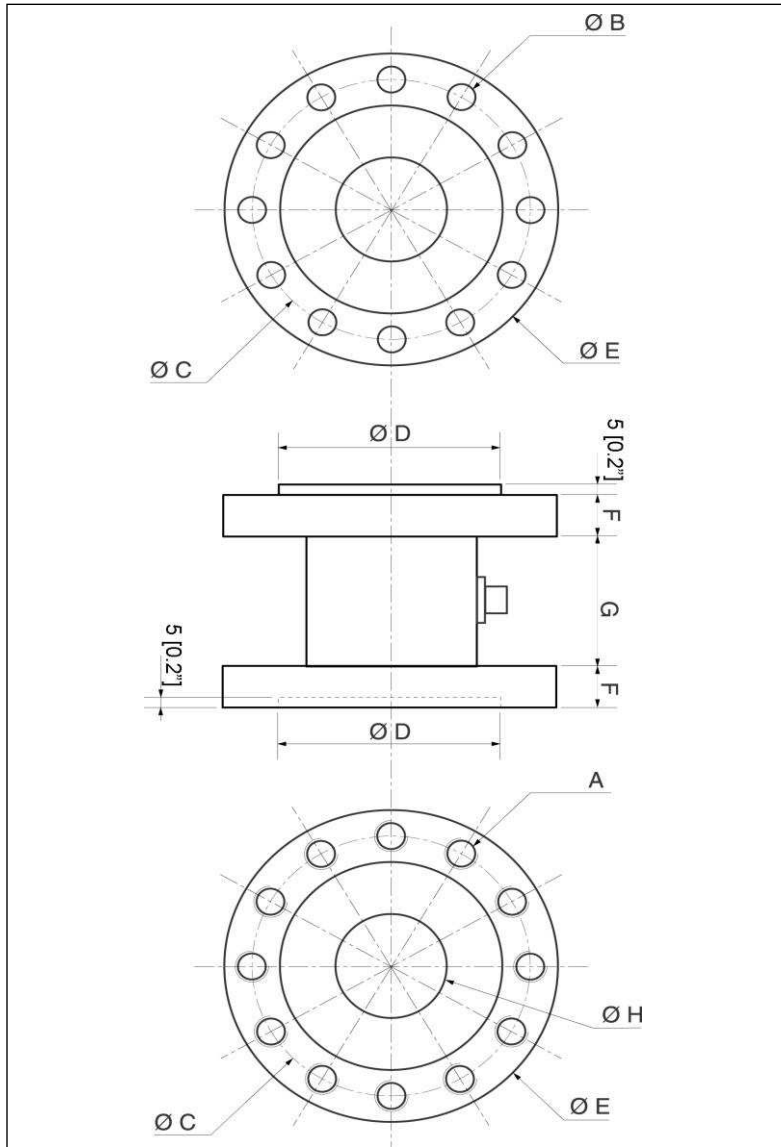
Electrical Characteristics

Model	CS1210¹	CS1210-A1	CS1210-A2
Supply Voltage	1 to 10Vdc regulated	10 – 30Vdc	±15Vdc (±12 to ±18Vdc)
Sensitivity "FSO" ²	±2mV/V	±2V ±0.2V	±5V ±0.2V
Zero Offset ²	<±1mV	2.5V ±0.2V	0V ±0.2V
Input Impedance/Consumption	350 to 700Ω	<50mA	<50mA
Output Impedance	350 to 700Ω	1 kΩ ⁵	1 kΩ ⁵
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

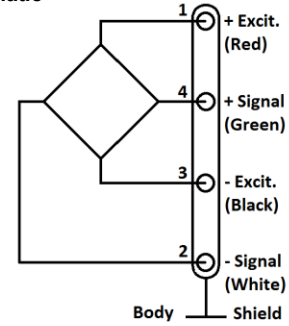
Notes

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

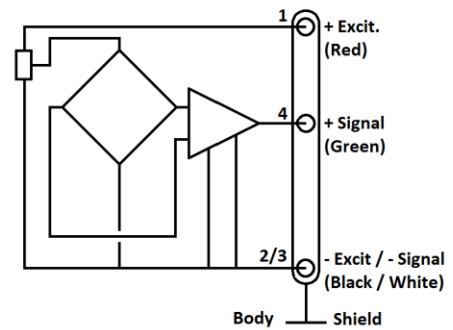
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



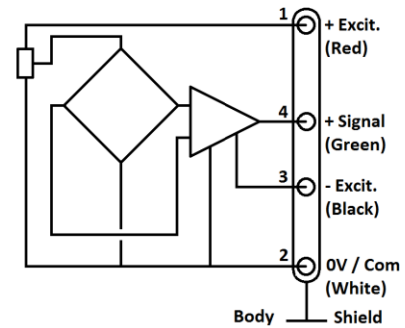
Wiring Schematic



Version -A1



Version -A2



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 \varnothing 10.3	12 x \varnothing 10.3	12 x \varnothing 10.3	12 x \varnothing 12.3	12 x \varnothing 16.3	12 x \varnothing 18.3	12 x \varnothing 20.5	12 x \varnothing 24.5
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]

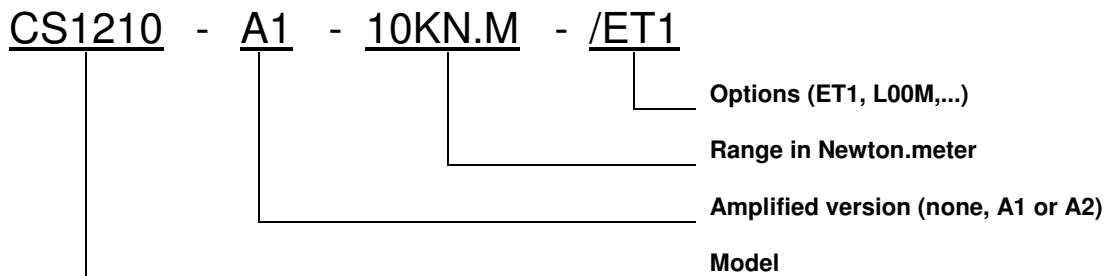
CS1210

Reaction Torquemeter

OPTIONS

A1 : Amplified Tension output with unipolar power supply
A2 : Amplified Tension output with bipolar power supply
Z14 : CTR -20 to 100° C [-4 to 212° F] OTR=CTR
Z06 : CTR -40 to 150° C [-40 to 302° F] OTR=CTR (Note : Z06 not available with A1 and A2 options)
V00 : Non-standard power supply calibration, replace "00" with value in Volt (standard 10Vdc, unamplified sensor only)
PE : Cable Gland Termination with 2 m [6.6 ft] cable

ORDERING INFORMATION



SUPPLIED ACCESSOIRES

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