CS1210 Reaction Torque Sensor

- **Collar mechanical fittings**
- **Range from ±160 to ±10,000 Nm (±128 to ±8,000 lbf.ft)**
- **Stainless Steel or Aluminum**
- **Gland or Connector Output**
- **Built In Amplifier per Request**

DESCRIPTION

The CS1210 Series has been developed to measure torque in static applications. It offers high operating ranges up to 8,000 lbf.ft. 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 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 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

F.S. in Nm	160	300	600	1,2k	2,4k	3,5k	4,8k	7k	10k
F.S. in lbf.ft	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	$2.4x10^3$	$1.4x10^4$	$1.4x10^4$	$2.4x10^4$	$6.9x10^4$	$1x10^5$	$1.6x10^5$	$2.3x10^5$	$3.9x10^5$

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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./ 50 ° C [100° F]
Sensitivity Shift in CTR	<1% of reading / 50° C [100° F]
Range (F.S.)	±160 Nm to ±10 kNm [±128 lbf.ft to ±8 klbf.ft]
Over-Range	
Without Damage	1.5 x F.S.
Accuracy	
Combined Non-Linearity & Hysteresis	±0.25%F.S.

Electrical Characteristics

Model	**CS1210**	**CS1210-A1**	**CS1210-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 or aluminum alloy

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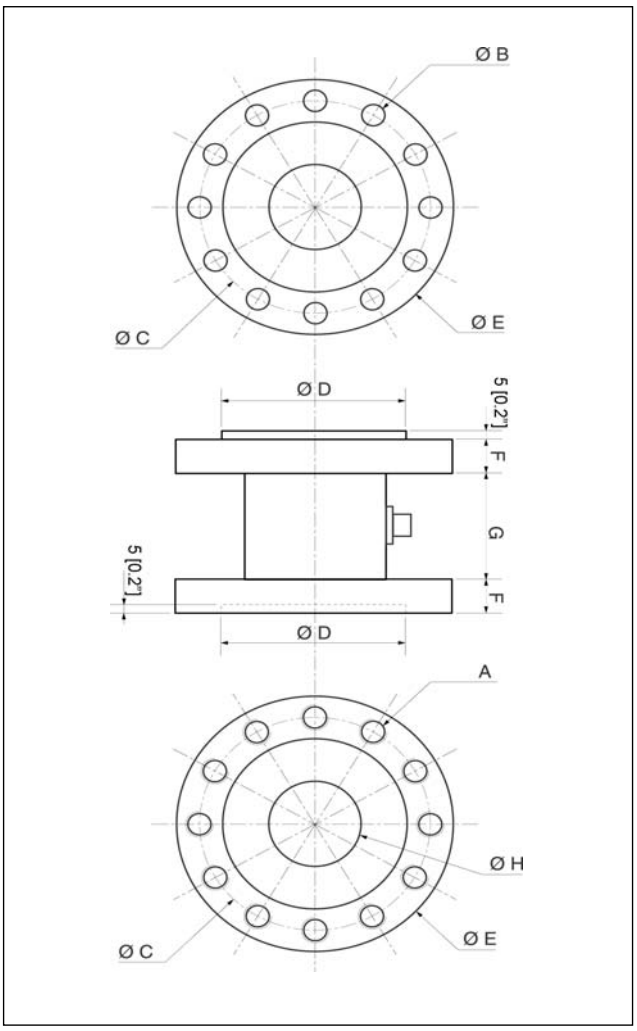
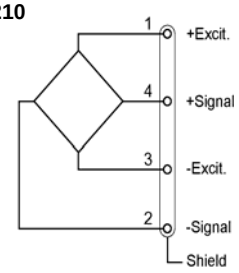
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)

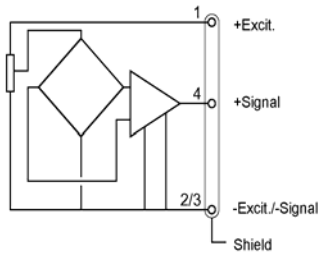


Wiring Schematic

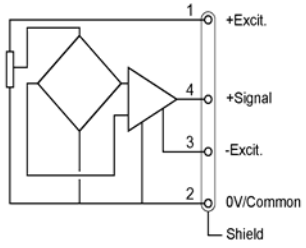
CS1210



CS1210-A1



CS1210-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 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]
Material	Aluminum Alloy				Stainless Steel											

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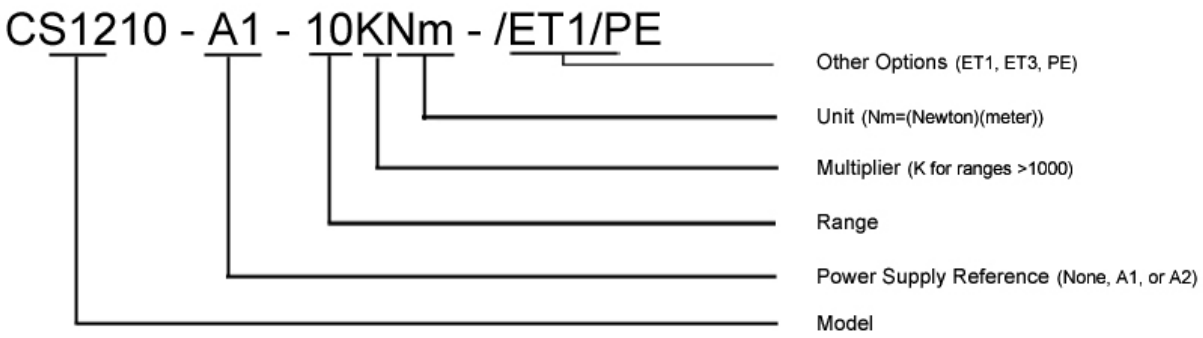
OPTIONS

A1 : Unipolar Tension
A2 : Bipolar Tension
ET1 : CTR -20 to 100° C [-4 to 212° F] OTR=CTR
ET3 : CTR -40 to 150° C [-40 to 302° F] OTR=CTR (**Note** : ET3 not available with A1 and A2 options)
PE : Cable Gland Termination with 2 m [6.6 ft] cable

ORDERING INFO



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