

Torque Sensors

For Test, Measurement, and Monitoring Requirements in
Automotive, Aerospace, R&D, and Process Control Applications

- Reaction and Rotary Torque Measurements
- Low-maintenance Rotary Transformer Type
- Noise-free Digital Telemetry Type
- Shaft, Spline, and Flange Mounting
- NIST-traceable, A2LA Accredited Calibration






The Force/Torque Division of PCB® Piezotronics, Inc. manufactures a wide range of high-accuracy, strain gage torque sensors for aerospace, automotive, industrial, and process control requirements. Both reaction and rotary style units are offered to satisfy many applications, including dynamometers, electric motor testing, hydraulic pump testing, fan testing, and torsion test machines. Shaft, flange, and spline mount configurations, as well as rotary transformer and digital telemetry signal transmission technologies, are available. Measurement ranges span from 50 in-oz to 225,000 in-lb.

Custom torque sensors are available to satisfy unique measurement requirements. For special or unusual applications, please call to discuss your needs with one of our application engineers.

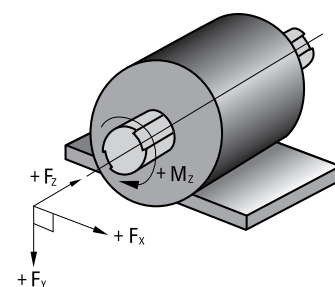
As with all PCB® instrumentation, this equipment is complemented with toll-free applications assistance, 24-hour customer service, and is backed by a no-risk policy that guarantees satisfaction or your money refunded.



TORQUE SENSORS

Style	TORKDISC®	Rotary Transformer	Rotary Transformer
Typical Appearance			
Series / Models	5302 / 5308 / 5309 / 5310	4203 / 4204 / 4205 4206 / 4207	4102 / 4103 / 4104 4105 / 4106 / 4107
Capacities	1000 to 225k in-lb FS 115 to 25.4k N-m FS	100 to 100k in-lb FS 11 to 11.3k N-m FS	50 in-oz to 100k in-lb FS 0.35 to 11.3k N-m FS
Applications	<ul style="list-style-type: none"> • Engine Dynamometer • Chassis Dynamometer • Efficiency Testing • Transmission Durability • Gear Box Testing • Electric Motor Testing 	<ul style="list-style-type: none"> • Blower/Fan Testing • Quality Assurance • Pump Testing • Dynamometer • Clutch Testing • Gear Box Efficiency 	<ul style="list-style-type: none"> • Fuel Pump Testing • Dynamometer • Efficiency Testing • Research & Development • Electric Motor Development • Torque to Turn
Mounting	<ul style="list-style-type: none"> • Flange-to-Flange 	<ul style="list-style-type: none"> • Keyed Shaft 	<ul style="list-style-type: none"> • Keyed Shaft
Features	<ul style="list-style-type: none"> • Compact • Low Weight • High Stiffness • Robust Construction • Digital Telemetry • High Noise Immunity 	<ul style="list-style-type: none"> • Doubled Keyed Shaft Ends • Integral Shunt Calibration • Temperature Compensated • Optional Foot Mount Housing • Optional Speed Sensor • Low Cost 	<ul style="list-style-type: none"> • High Speed Rating • High Overload Protection • High Noise Immunity • High Accuracy • Torsionally Stiff • High Precision
Performance	<ul style="list-style-type: none"> • 0.1% FS Combined Accuracy • 0 ± 10 V Output • 10 kHz ± 5 kHz Output • 2000 Hz Bandwidth • 26k samples/sec 	<ul style="list-style-type: none"> • 0.05% FS Non-Linearity • 0.05% FS Hysteresis • 0.02% FS Non-Repeatability • 2 mV/V Output 	<ul style="list-style-type: none"> • 0.05% FS Non-Linearity • 0.05% FS Hysteresis • 0.02% FS Non-Repeatability • 2 to 2.5 mV/V Output

Please consult factory to discuss your particular torque measurement application and to request certified documents prior to designing mounting hardware.

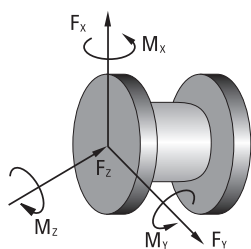


Axis and Nomenclature
PCB Torque



Rotary Transformer	Reaction	Reaction
		
<p>4115K / 4115A</p>	<p>2308 / 2309 / 2508</p>	<p>2301 / 2302 / 2303 2304 / 2305</p>
<p>50 to 10k in-lb FS 5.6 to 1130 N-m FS</p>	<p>5 to 1000 in-lb FS 0.56 to 115 N-m FS</p>	<p>2000 to 500k in-lb FS 225 to 56.5k N-m FS</p>
<ul style="list-style-type: none"> Hydraulic Pump Testing Hydraulic Motor Testing 	<ul style="list-style-type: none"> Stepping Switch Testing Bearing Friction Measurements Viscosity Measurements Small Motor Testing 	<ul style="list-style-type: none"> Brake Testing Starter Testing Torsion Testing Brake Dynamometer
<ul style="list-style-type: none"> Flange Mount Spline Drive 	<ul style="list-style-type: none"> Flange-to-Flange 	<ul style="list-style-type: none"> Flange-to-Flange
<ul style="list-style-type: none"> AND 20002 & 10262 Splashproof High Accuracy Up to 300% Overload Protection Optional Speed Sensor Wide Range of Capacities 	<ul style="list-style-type: none"> Short Overall Length Low Weight 150% Overload Protection 	<ul style="list-style-type: none"> Standard Industrial Package Wide Range of Capacities Alloy Steel Construction 150% Overload Protection Short Overall Length
<ul style="list-style-type: none"> 0.05% FS Non-Linearity 0.05% FS Hysteresis 0.03% FS Non-Repeatability 2.5 mV/V Output 	<ul style="list-style-type: none"> 0.1% FS Non-Linearity 0.1% FS Hysteresis 0.05% FS Non-Repeatability 2 mV/V Output 	<ul style="list-style-type: none"> 0.1% FS Non-Linearity 0.1% FS Hysteresis 0.02% FS Non-Repeatability 2 mV/V Output

Load Sense
Application for
Load Cells



When weighing or measuring load, request information on our complete line of strain gage load cells for general purpose and fatigue-rated use.



Series 8159 — Signal Conditioners for Reaction-style Torque Sensors

Features

- Delivers ± 10 VDC and 4 to 20 mA Output Signals
- Provides 5 or 10 VDC Strain Gage Bridge Excitation
- 4 Programmable Set Points with LED Status Indicators
- 5-digit, Red LED Display with Easy, Menu-driven Set-up
- Shunt Calibration
- 1/8 DIN Panel Mounting
- Peak and Valley Recall
- Optional RS-232 Output
- Low Cost



Series 8159

Models 8120-400/410A — Signal Conditioners for Rotary Transformer and Reaction-style Torque Sensors

Features

- AC Bridge Excitation
- High Accuracy
- ± 5 Volt Analog Output
- Low Noise
- Selectable Filter
- Shunt Calibration

Options

- 230 VAC Power
- 12 Volt DC Power
- 4-1/2 Digit LED Display
- ± 10 Volt Analog Output
- 4 to 20 mA Current Output
- HI-LO set points
- Peak Capture

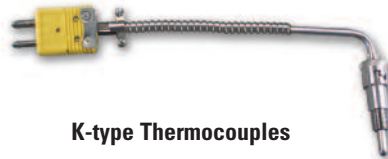


Models 8120-400/410A

Accessories



Cable Assemblies



K-type Thermocouples



Active and Passive Speed Sensors For Models 4100 and 4200



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ISO 9001:2000 CERTIFIED

A2LA ACCREDITED to ISO 17025

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The Force/Torque Division of PCB® Piezotronics, Inc. specializes in the development, application, and support of piezoelectric and strain gage force sensors, load cells, strain sensors, and torque sensors for a wide range of research, test, measurement, monitoring, and control requirements. This product focus, coupled with the strengths and resources of PCB, permits the Force/Torque Division to offer exceptional customer service, 24-hour technical assistance, and a **Total Customer Satisfaction** guarantee.

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