



TN-10

# EFFECT OF AXIAL LOAD, LATERAL LOAD, AND BENDING MOMENT ON THE TORKDISC® SERIES 3508 & 3509

# Effect of Axial Load, Lateral Load, and Bending Moment on the TORKDISC® Series 5308 & 5309

Series 5308 and 5309 TORKDISC® rotary torque sensors, from PCB Piezotronics Force / Torque Division, are ideally designed and suited for dynamometer applications that require a robust, rotary torque transducer. These sensors are capable of exposure to high axial loads, lateral loads, and bending moments, without introducing significant errors in the torque output signal.

The test results below are for a representative TORKDISC® sensor and show the effects of axial load, lateral load and bending moments on the torque output signal. The typical error values are expressed as a percentage of full scale rated capacity, per unit of applied load (or moment).

<b>TORKDISC® Typical Extraneous Load Sensitivities</b>				
<b>Sensor Model No.</b>	<b>Rated Capacity in-lb</b>	<b>Axial Load % F.S. / lb</b>	<b>Lateral Load % F.S. / lb</b>	<b>Bending Moment % F.S. / in-lb</b>
5308-01A	10,000	0.000096	0.000096	0.000046
5308-02A	20,000	0.000048	0.000048	0.000023
5308-03A	30,000	0.000032	0.000032	0.000015
5308-04A	2,400	0.000023	0.000023	0.000011
5308-101-01A	18,000	0.000053	0.000053	0.000026
5308-102-01A	885	0.000023	0.000023	0.000011
5309-01A	50,000	0.000040	0.000040	0.000010
5309-02A	100,000	0.000020	0.000020	0.000005

Extraneous load sensitivities may vary from unit to unit. If an application requires a sensor with extraneous load sensitivities within certain limits, then a unit that is compensated, tested, and certified

within specified limits should be used. PCB can provide such compensated, tested, and certified sensors upon request at additional cost. Please contact us with your specific requirements.



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PCB Piezotronics, Inc. is a designer and manufacturer of microphones, vibration, pressure, force, torque, load, and strain sensors, as well as the pioneer of ICP® technology used by design engineers and predictive maintenance professionals worldwide for test, measurement, monitoring, and control requirements in automotive, aerospace, industrial, R&D, military, educational, commercial, OEM applications, and more. With a worldwide customer support team, 24-hour SensorLineSM, and a global distribution network, PCB® is committed to Total Customer Satisfaction. Visit [www.pcb.com](http://www.pcb.com) for more information. PCB Piezotronics, Inc. is a wholly owned subsidiary of MTS Systems Corporation. Additional information on MTS can be found at [www.mts.com](http://www.mts.com).

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