

# TorqueTrak 10K

## TORQUE TELEMETRY SYSTEM

### Transmit Live Torque Data from a Rotating Shaft

Measuring live torque in real time is easier than ever with the TorqueTrak 10K telemetry system from Binsfeld Engineering. Convert virtually any drive shaft into a rotating torque sensor by simply mounting the transmitter, battery and a torque sensitive strain gage to the shaft.

Use the infrared remote control to adjust transmitter gain, activate the remote shunt calibration or switch the transmitter to standby power mode. The multi-line LCD receiver display and keypad make system adjustments straightforward. Low power consumption in the rugged transmitter allows longer battery life while sophisticated electronics ensure accurate and reliable torque data output.



## FEATURES

### Easy to Use

Fits any size shaft, any torque level. No machine modifications or disassembly required. Calibration is done off-the-shaft. Receiver display and keypad provides user-friendly interface.

### Infrared Remote Control

Control transmitter operation including channel select, gain/range, shunt calibration and low-power standby mode.

### Reliable Data Transmission

Clean, noise-free data signal through analog voltage output or digital data output via RS-232.

### Standby Power Mode

Extends transmitter battery life without disconnecting battery.

### 16 Channels, 500 Hz Frequency Response

Use multiple systems simultaneously.

### Rugged

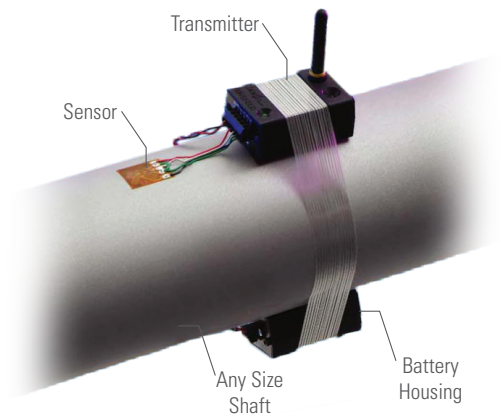
Reinforced, injection-molded transmitter housing is built for demanding applications and features V-groove and tape slot for secure mounting.

### User-Adjustable Gain

Amplify the strain/torque signal to the most useful level.

### Equipment Case Included

Convenient carrying case provides rugged, watertight protection.



## TX10K-S Strain Transmitter

<b>Sensor Input:</b>	Full Bridge strain gage (4 active arms, 350 $\Omega$ standard; up to 1000 $\Omega$ acceptable)
<b>Bridge Excitation:</b>	2.5 VDC, $\pm$ 0.1%
<b>Sensor Range:</b>	User-selectable per chart below (chart based on gage factor = 2.0):

Transmitter Gain	Full Bridge 4 Active Arms (Torque or Bending)	Full Bridge 2.6 Active Arms (Tension or Compression)	1/4 Bridge 1 Active Arm (Single Gage)
16000	$\pm$ 125 microstrain	$\pm$ 192 microstrain	$\pm$ 500 microstrain
8000	$\pm$ 250 microstrain	$\pm$ 385 microstrain	$\pm$ 1000 microstrain
4000	$\pm$ 500 microstrain	$\pm$ 769 microstrain	$\pm$ 2000 microstrain
2000	$\pm$ 1000 microstrain	$\pm$ 1538 microstrain	$\pm$ 4000 microstrain
1000	$\pm$ 2000 microstrain	$\pm$ 3077 microstrain	$\pm$ 8000 microstrain
500	$\pm$ 4000 microstrain	$\pm$ 6154 microstrain	$\pm$ 16000 microstrain

### Sensor & Power

<b>Connection:</b>	Screw terminal block
<b>Transmitter Voltage:</b>	7 - 18 VDC (9 V battery typical)
<b>Transmitter Current:</b>	Transmit: 40 mA nom, 50 mA max with 350 $\Omega$ bridge. Standby: 4 mA nom, 5 mA max
<b>Transmitter Battery Life:</b>	24 hours in Transmit mode (9V lithium, 350 $\Omega$ bridge, 25°C (77°F))
<b>Transmission Freq.:</b>	902-925 MHz
<b>Transmit Distance:</b>	20 feet (6 m) or more
<b>G-force Rating:</b>	3000 g's (steady state), for example, 5700 RPM on a 4 inch (102 mm) diameter shaft
<b>Operating Temp.:</b>	-30° to 85°C (-22° to 185°F)
<b>Size and Weight (without Antenna):</b>	1.00 in x 1.63 in x 2.50 in, 3 oz (25 mm x 41 mm x 64 mm, 85 grams)

## RM10K Remote Control (for setup of TX10K-S Strain Transmitter)

<b>Control Functions:</b>	Channel select; Gain/Range; Shunt Calibration 1 and 2; Power Standby
<b>Transmit Type and Distance:</b>	Infrared; up to 10 feet (3 m). For use while shaft is stopped.

## RX10K Receiver

<b>Voltage Output:</b>	$\pm$ 10 VDC (field adjustable 0.25x to 4.0x) 5-way binding posts (banana jacks)
<b>Digital Output Connection:</b>	RS-232 type DB9 connector (cable provided for PC COM port)
<b>Receiver Power Input:</b>	12 VDC nom. (10 - 18 VDC acceptable), 300 mA max (110 VAC or 220 VAC adapter provided)
<b>Operating Temp.:</b>	-20° to 70°C (-4° to 158°F)
<b>Size and Weight:</b>	2.88 in x 5.75 in x 8.50 in, 2 lbs (73 mm x 146 mm x 216 mm, 1kg)

## TT10K System

<b>Resolution:</b>	14 bits
<b>Gain Error<sup>1</sup>:</b>	$\pm$ 0.25% Reading (max), 25°C ambient
<b>Gain Temp. Coeff.<sup>1</sup>:</b>	$\pm$ 0.005% Reading/°C (max), 0° to 50°C ambient
<b>Offset Error<sup>1</sup>:</b>	$\pm$ 0.16% FS (max), 25°C ambient
<b>Offset Temp. Coeff.<sup>1</sup>:</b>	$\pm$ 0.004% FS/°C (max), 0° to 50°C ambient
<b>Frequency Response<sup>2</sup>:</b>	0 - 500 Hz (-3dB @ 500Hz). Several low pass filter options.
<b>Delay<sup>2</sup>:</b>	4.2 msec, typical
<b>Sample Transm. Rate:</b>	2400 samples/sec

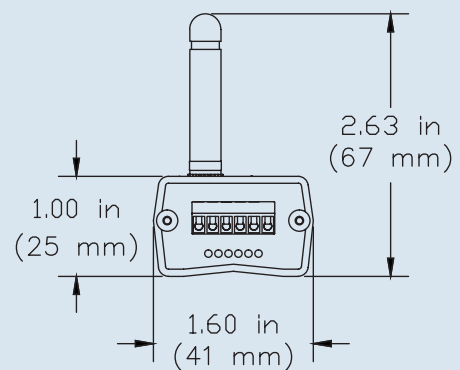
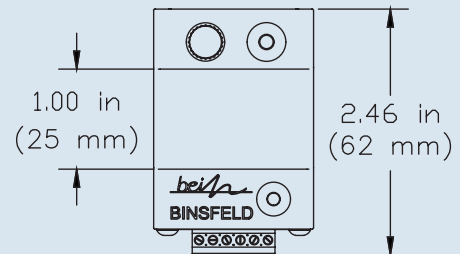
<sup>1</sup> TX10K Gain = 4000

<sup>2</sup> RX10K filter setting = 500Hz

Specifications subject to change without notice.

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### TX10K-S Transmitter



### RX10K Receiver

