

# TorqueTrak Revolution

## TORQUE AND POWER MONITORING SYSTEM

### Continuous Torque and Power (HP or kW) Data from a Rotating Shaft

The TorqueTrak Revolution system is a torque and/or power (HP or kW) monitoring and control system that features inductive (non-contact) power and data transfer for continuous operation. Designed for applications that require ongoing measurements of torque and/or horsepower, the TorqueTrak Revolution system is custom-machined to install on existing shafting up to 40 inches (1016 mm) in diameter. Machine disassembly is not required. The microprocessor-based system features 14-bit signal processing to provide precise, reliable data in real time during actual machine operation.

#### Four independent output signals are standard:

1. Torque: 4-20 mA ( $12 \pm 8$  mA), scalable
2. Power: 4-20 mA ( $12 \pm 8$  mA), scalable
3. Shaft Speed/RPM: Frequency-based pulse indicator, mA
4. Shaft Direction: Binary indicator, mA

## FEATURES

### ➤ Easy Installation

Rotating Collar and stationary Power Coil are split and bolt together around the shaft. Shaft modification is not required.

### ➤ Convenient Calibration

Use at factory settings or utilize easy scaling and adjustment tools. No tuning required.

### ➤ Reliable Operation

Inductive power and data transfer with generous clearance between stationary and rotating parts. No wear surfaces.

### ➤ Digital Data Transmission

Delivers a clean, noise-free data signal with 14-bit resolution.

### ➤ Robust Construction

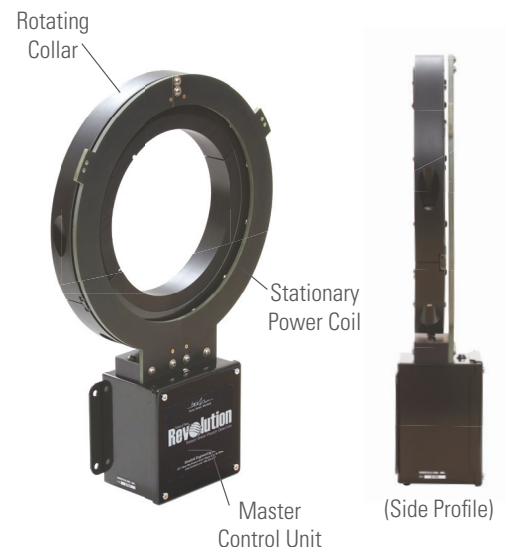
Sturdy hardware and electronics, built for demanding environmental conditions.

### ➤ Onboard Intelligence

System status indicators confirm proper operation and aid in troubleshooting.

### ➤ Product Support

Backed by BEI's proven outstanding customer service, before and after the sale.



## Transmitter Module (mounted inside Rotating Collar)

<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, regulated
<b>Sensor Range:</b>	$\pm 500$ microstrain (Full Bridge, 4 active arms – Torque or Bending) $\pm 769$ microstrain (Full Bridge, 2.6 active arms – Tension or Compression) Other microstrain ranges are available
<b>Temp Coefficient – Gain:</b>	$\leq 0.005\%$ FS/ $^{\circ}$ C (50 ppm/ $^{\circ}$ C) 20° to 70°C $\leq 0.010\%$ FS/ $^{\circ}$ C (100 ppm/ $^{\circ}$ C) -40° to 85°C
<b>Temp Coefficient – Zero:</b>	$\leq 0.005\%$ FS/ $^{\circ}$ C (50 ppm/ $^{\circ}$ C) 20° to 70°C $\leq 0.010\%$ FS/ $^{\circ}$ C (100 ppm/ $^{\circ}$ C) -40° to 85°C
<b>Linearity:</b>	$\leq 0.05\%$ FS
<b>G-force Rating:</b>	3000 g's. For example, 5700 rpm on a 4 inch (102 mm) shaft
<b>Sensor Connection:</b>	4-conductor cable

## Master Control Unit and Power Coil

<b>Receiver Output Signal:</b>	Four independent current output signals: 1. Torque 4-20 mA ( $12 \pm 8$ mA), scalable 2. Power 4-20 mA ( $12 \pm 8$ mA), scalable 3. Shaft speed/RPM: Pulse Indicator, 5-19 mA 4. Shaft Direction: Binary Indicator, 5 or 19 mA
<b>Receiver Input Power:</b>	11-16 VDC standard; 2 A max, 0.5 A nominal (115 VAC or 230 VAC option available)

<b>Receiver Output Connection:</b>	Screw terminals
<b>Mounting:</b>	Mounting flanges on Master Control Unit
<b>Dimensions:</b>	6 in x 6 in x 4 in (152 mm x 152 mm x 102 mm)

## System Dimensions

Shaft Dia.	A	B	C	D	E
0–1 in	2.75	5.00	5.50	12.88	–
0–25 mm	69.90	127.00	139.70	327.2	–
1–2 in	3.25	5.50	6.50	13.88	–
25–50 mm	82.60	139.70	165.10	352.6	–
2–4 in	4.25	6.50	8.50	15.88	–
50–100 mm	108.00	165.10	215.90	403.4	–
4–6 in	5.00	7.25	10.00	17.38	–
100–150 mm	127.00	184.20	254.00	441.5	–
6–8 in	6.00	8.25	12.00	19.38	7.90
150–200 mm	152.04	209.60	304.80	492.3	200.70
8–10 in	7.00	9.25	14.00	21.38	8.90
200–250 mm	177.80	235.00	355.60	543.1	226.10
10–12 in	8.00	10.25	16.00	23.38	9.90
250–300 mm	203.20	260.40	406.40	593.9	251.50

For shaft diameters larger than 12 inches (300 mm) contact Binsfeld Engineering or visit [binsfeld.com](http://binsfeld.com).

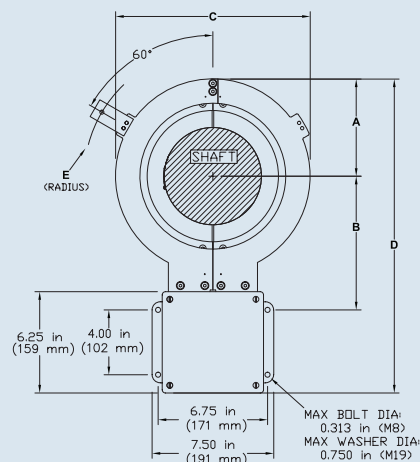
## System

<b>Resolution:</b>	14 bits (16384 points of resolution)
<b>Noise Level:</b>	$\leq 0.10\%$ RMS FS
<b>Frequency Response (Torque and Power):</b>	Switch selectable: 1000 Hz, 12 Hz, 1.5 Hz, or 0.1 Hz (-3dB frequency, typical)
<b>Delay:</b>	1 msec, typical (at 1000 Hz setting)
<b>Sampling Rate:</b>	4800 Hz
<b>Operating Temp:</b>	-40° to 85°C (-40° to 185°F)

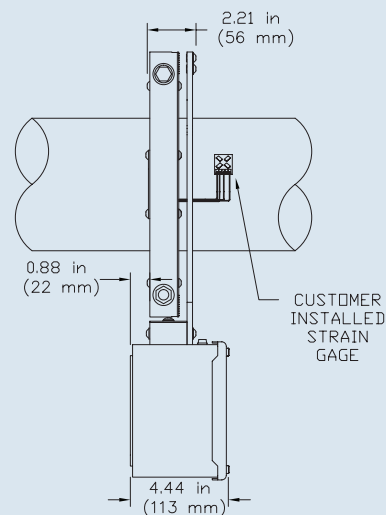
Specifications subject to change without notice.

## TorqueTrak Revolution (6 inch (154 mm) system shown)

**Front View**  
(see System Dimensions table)



**Side View**



**Bottom View**

