



Features

- Dual torque outputs
- Non-contacting sensor technology
- Production proven design
- Electronic calibration
- $\pm 4^\circ$ to $\pm 10^\circ$ torque angle ranges available
- Self-diagnostics and diagnostic output

Applications

- Column drive steering systems
- Rack drive steering systems
- Pinion drive steering systems

Non-Contacting Torque Sensor for Electric Power Steering with Parallel Outputs

Introduction

Bourns® Torque Sensors offer non-contacting solutions for column, rack and pinion drive electric power steering systems. Based on production proven technology, Bourns® Torque Sensors meet the full range of steering system design requirements including resolution, accuracy, and repeatability. Simple installation and electronic calibration ensure efficient and accurate system integration. Dual parallel slope outputs facilitate system interface and together with sensor self-diagnostics, provide enhanced system reliability.

Electrical Specifications¹

| | |
|--|-------------------------|
| Operating Voltage..... | 5.0 vdc ± 0.5 vdc |
| Output Voltage | Analog ratiometric, PWM |
| Torque Angle Accuracy (includes Linearity)..... | 1 % of FS ² |
| Torque Angle Resolution | 0.02 % of FS |
| Electrical/Magnetic Hysteresis | 0.1 % of FS |
| Sensor Power Current Draw..... | < 10 mA |
| Source Current, 10 k Ω Load | ≤ 1 mA |

Mechanical Specifications

| | |
|-----------------------------|---------------------------------|
| Mechanical Hysteresis | N/A |
| Torque Angular Range..... | $\pm 4^\circ$ to $\pm 10^\circ$ |
| Total Angular Travel | $\pm 720^\circ$ typical |

Environmental Specifications

| | |
|-----------------------------------|-------------------------------|
| Operating Temperature Range | -40 °C to +65 °C |
| Storage Temperature Range | -40 °C to +85 °C ³ |
| Dither Life @ 25 °C | 3.5 million @ $\pm 5^\circ$ |
| Life @ -40 °C to +65 °C | 2 million $\pm 360^\circ$ |

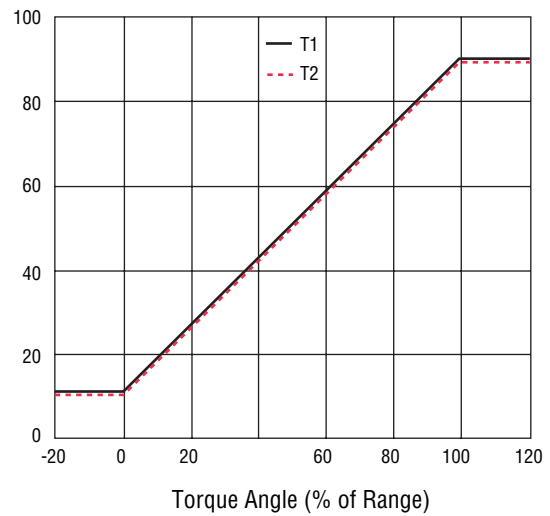
¹ Each output.

² Preliminary.

³ Column drive systems. Contact Bourns for rack drive and pinion drive systems requiring a +125°C temperature range.

Performance⁴

EPS Torque Sensor
with Dual Parallel Outputs

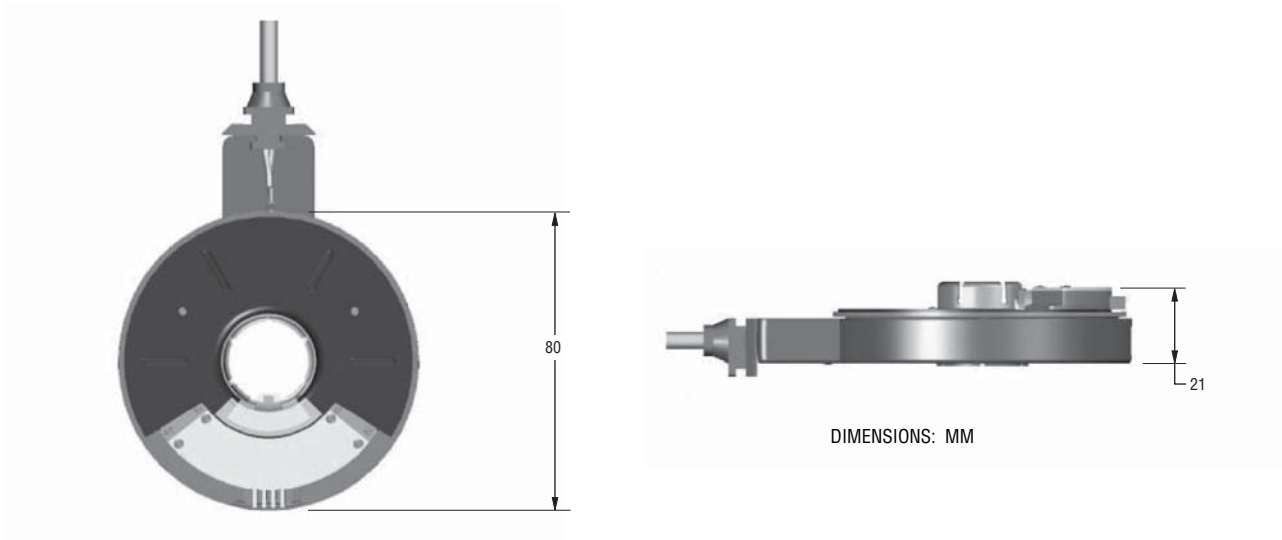


— T1
- - - T2

⁴ Typical performance for a torque angle range of $\pm 4.5^\circ$.
Each output has a common source.

Product Dimensions

Dimensions and specifications shown are typical. Sensor wire harness supplied with customer-specified sealing grommet and electrical connector. The Bourns® Torque Sensor can be mechanically and electrically modified to meet the customer's specific packaging requirements. Please contact Bourns with your application requirements.



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