TECHNICAL BULLETIN

# MINIATURE TORQUE TRANSDUCERS SERIES MLY

2/12/06


## FEATURES

- MilliNewton meter torque ranges
- Non-contact torque sensing
- Compact and robust
- Low rotational inertia
- High dynamic response
- Versatile mechanical arrangements
- Four instrument grade ball bearings
- Unsurpassed value

## DESCRIPTION

Series MLY torque transducers fulfill the need for small size, low inertia, robust, and economical instruments for measuring torques in milliNewton-meter (mN•m) ranges. (1 mN•m = 0.1416 oz.•in.). This unusual combination of desirable features is enabled by the use of polarized band magnetoelastic torque sensing technology*. MLY transducers offer those involved in the world of small machinery a size compatible means to monitor and control the torques involved in the operation of their motors and mechanisms.

Non contact torque sensing is intrinsic in MLY transducers; nothing except its 4 bearings is attached to the rotating shaft. In operation, a central "active" portion of the shaft, sized for the user specified measurement range, generates a magnetic field proportional to the transmitted torque. This is converted into an electrical signal by a pair of diametrically opposed Hall effect field sensors. Connections to external power source and signal conditioning, display, or data acquisition circuits, are made through user selected pigtail leads, attached cable or bulkhead connector. All internal electrical/electronic parts are encapsulated.

## SPECIFICATIONS

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|---|---|
| Ranges: | ±10 to ± 200 mN•m full scale (FS) |
| Overload: | 2 times FS range. |
| Accuracy: | Total error within ±1% of FS range. |
| Speed: | 0-30,000 rpm continuous in either direction. to 60,000 rpm intermittent |
| Temperature: | 0 – 50 °C<br><1% FS zero shift,<1% FS span change |
| Power: | 7-18 VDC 15 mA (internal 5 V regulator) |
| Output: | ±40 mV to ±80 mV for full range torque. 2.5 V nominal common mode. |
| Compliance: | 0.5° to 5° twist at full range torque. (decreasing with increasing full scale range) |
| Inertia: | $<1.13 \times 10^{-8}$ N m sec$^2$ ($1.6 \times 10^{-6}$ oz. in. sec$^2$ ) |

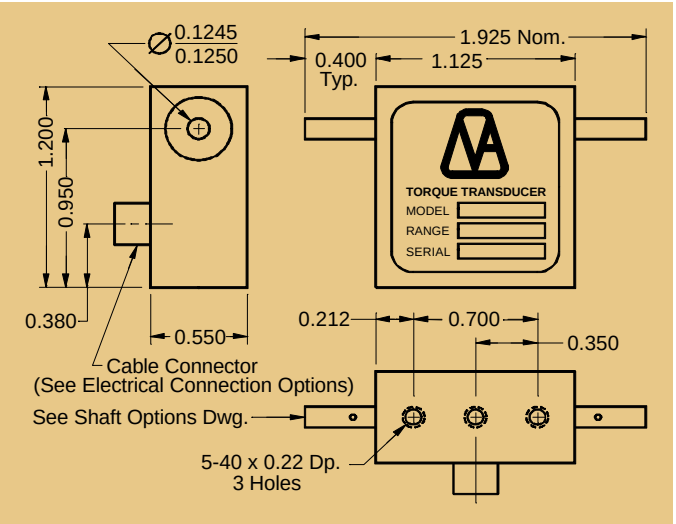
## TYPICAL APPLICATIONS

- Small motor and turbine testing
- Friction and drag torque measurements
- Bearing material, seals, lubricant, testing
- Threaded fastener torque control
- Viscosity/gelation measurements
- Ribbon, wire, tape, filament tension control
- Testing/adjustment of small machines
- Mechanism characterization/development
- Quality assurance and life testing

MLY transducers accommodate both rigid and shaft mounted arrangements. Torque may be coupled to the transducer shaft via gears, pulleys, linkages, etc., as well as through conventional inline couplings.

Custom, user specified, mechanical details and accessories are available. Signal conditioning electronics, both internal and external, are also available.

**See: Magnova.com/torque/techpub*

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