

# Wheel Force Transducer, 6-Axis, Telemetry

## Model LW12.8-T-TEL

- 8,000 lb (35 kN) radial load capacity
- 3,700 lb-ft (5 kN-m) moment capacity
- **As light as standard aluminum rims**
- Low profile package
- Measures 3 Forces and 3 Moments
- Wireless Telemetry and Induction System
- Adapts to 14" and larger wheels
- Temperature compensated



## Description

The *Lightweight LW12.8-T-TEL Wheel Force Transducer (WFT) System* is capable of measuring all of the wheel forces and moments on passenger cars and SUVs. **When the LW12.8-T-TEL is fully assembled with a titanium hub adapter, 8x18" solid machined aluminum rim adapter, and titanium bolts, the system weight is 13.0 kg (28.6 lb) which is less than some standard aluminum rims.** It is important in durability testing and simulation to match the unsprung mass of the test vehicle to the unsprung mass of the production vehicle, so that relative damage from durability testing is an accurate representation of the production vehicle.

This WFT System provides independent output signals for vertical, lateral, and longitudinal forces as well as camber, steer, and torque moments. It is completely weatherproof (IP67) making it ideal for testing in any weather conditions.

The Telemetry and Induction Power electronics are packaged into the transducer to create a low profile and durable assembly.

The CT2-TEL *Transducer Telemetry Interface Box* performs real-time coordinate transformation and cross-talk compensation, provides induction power, and outputs analog, CAN, and Ethernet signals.

## Specifications

Maximum Force Capacity, [Fx, Fz] Radial	8,000 lb (35 kN)
[Fy] Lateral at Tire Patch	4,000 lb (18 kN)
Maximum Torque Capacity [Mx, My, Mz]	3,700 lb-ft (5 kN-m)
Sensor	4 arm strain gage bridges
Nonlinearity	< 0.5% of full scale output
Hysteresis	< 0.5% of full scale output
Cross Axis Sensitivity after correction	< 0.5% of full scale
Transducer Temperature Range, Operating	-40°F to 257°F (-40°C to 125°C)
CT2-TEL Temperature Range	-5°F to 140°F (-20°C to 60°C)
Weight (Transducer & Telemetry Electronics)	9.0 lb (4.0 kg)
Angular Resolution	0.25°
Angular Accuracy	±0.25°
Transmission Rate of Data	2,200 Hz
Data Bandwidth	200 Hz (<-0.1 dB) ; 500 Hz (<-1.0 dB)
Data Resolution in Engineering Units (16 bit ADC)	0.4 lb (1.6 N) ; 0.2 lb-ft (0.25 N-m)
System Delay on Analog Channels	20.69 ms
Anti-Alias filter type	Bessel Linear Phase
Input Power Requirements	10–36 VDC, ~1.8 Amps @ 13.5 VDC Typ.

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# Wheel Force Transducer, 6-Axis, Telemetry

## CT2-TEL Transducer Telemetry Interface Box

- Performs real time coordinate transformation and cross-talk compensation
- Easy to use Zero, Shunt Calibration, and Bridge Power off Functions
- Provides power to Induction System
- Simultaneous Analog, CAN, & Ethernet signal outputs
- Embedded webpage enables user to:
  - Change set-up options
  - Move WFT measurement origin
  - View Transducer static values
  - Create .dbc file



## Telemetry Stator

- Receives and Decodes the telemetry signal from the Transducer
- Provides High Resolution Speed & Position Signals
- Mounts inboard of the Transducer



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