

# Wheel Force Transducer, 6-Axis

## Model LW12.8-50

- 11,200 lbf (50 kN) radial load capacity
- 5,600 lbf (25 kN) lateral load capacity
- 4,800 lbf · ft (6.5 kN · m) moment capacity
- Measures 3 forces and 3 moments
- Measures X & Z accelerations
- Adapts to 12 in and larger wheels
- Low cross axis sensitivity
- Environmentally protected
- Temperature compensated
- Rugged stainless steel construction
- Tested to SAE J328 fatigue strength standard



## Description

The *LW12.8-50 Wheel Force Transducer (WFT)* is capable of measuring all of the wheel forces and moments on passenger cars and light duty trucks. It provides independent output signals for vertical, lateral, and longitudinal forces as well as camber, steer, and torque moments. Completely weatherproof, it is ideal for on-road and off-road measurements in all conditions. It can also be used to monitor and control laboratory tests.

When using an outboard slip ring, the amplifier package easily mounts onto the transducer. It amplifies and digitizes the transducer signals before they pass through the slip ring. Michigan Scientific *Slip Ring Assemblies* are known worldwide for their signal quality and robust design.

The *CT3 User Interface Box* performs real-time coordinate transformation and crosstalk compensation, and provides CAN FD, CAN2.0, and Ethernet signal outputs. EtherCAT and analog signal outputs are also available with optional modules. An embedded webpage accessed via USB allows the user to easily configure the WFT system. A front display indicates important information and prompts the user with instructions.

## Specifications

Maximum Force Capacity [Fx, Fz] (radial)	11,200 lbf (50 kN)
Maximum Force Capacity [Fy] (lateral) at Tire Patch	5,600 lbf (25 kN)
Maximum Torque Capacity [Mx, My, Mz]	4,800 lbf · ft (6.5 kN · m)
Accelerometer Range	± 55 g
Sensor	4 arm strain gauge bridges
Nonlinearity [Fx, Fy, Fz, My]	≤ 0.5 % of full scale output
Nonlinearity [Mx, Mz]	≤ 1.0 % of full scale output
Hysteresis	< 1.0 % of full scale output
Crosstalk after Correction	< 0.5 % of full scale output
Temperature Range, Operating	-40 °F to 257 °F (-40 °C to 125 °C)
Temperature Offset Drift	≤ 0.0011 % FS/°F (≤ 0.0020 % FS/°C)
Angular Resolution	0.17°

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# Wheel Force Transducer, 6-Axis

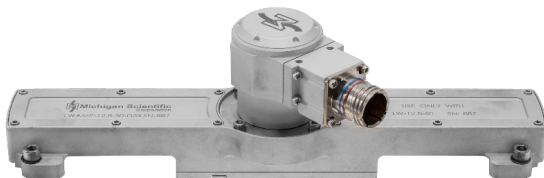
## CT3 User Interface Box

- Performs real-time coordinate transformation and crosstalk correction, offset correction, and polarity correction
- Simple Zero, Shunt Calibration Check, and Zero Angle set-up functions
- CAN FD, CAN 2.0, analog, Ethernet, and EtherCAT signal outputs available
- Synchronization through IEEE 1588 PTPv2
- Front display which prompts the user with instructions
- Embedded webpage enables user to:
  - Change set-up options
  - Move WFT measurement origin
  - View transducer static values
  - Correct file type creation



## Amplifier & Slip Ring Package

- Internal  $\pm 100$  g X, Y, and Z accelerometers
- High resolution optical encoder for position and speed measurement
- Removable smart chip contains all calibration, zero, and shunt values
- Provides signal conditioning, amplification, and digitization to the transducer strain gauge signals



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