

# Wheel Force Transducer

## Model WT20

- 14,750 lb · ft (20 kN · m) capacity
- Adapts to 16 in and larger single or dual wheels
- Environmentally protected
- Rugged stainless steel construction
- Consistent sensitivity among all units
- Configured to minimize magnetic sensitivity



## Description

The *WT20 Wheel Torque Transducer (WTT)* is ideal for measuring torque on light and heavy duty pickup trucks vans and SUVs. One transducer will measure the combined torque load for a dual-wheel set or a single tire. It mounts onto the vehicle using custom designed adapters, which duplicate the critical dimensions of the production wheel and place the tires on the production centerline. The *LW-2T-20K* can share the same adapters. Being rugged and waterproof, they are capable of on-road and off-road measurements in all conditions.

The *WT20* measures all torque developed between the tire patch and the vehicle hub and can be used for drivetrain development to study efficiency, optimize component design, and monitor torque distribution in all-wheel-drive vehicles. It is also ideal for brake system component development, as well as anti-lock brake development, traction control, and vehicle stability system design. Measured data can be used for component development, computer modeling, and laboratory simulation and validation.

## Specifications

Full Scale Measurable Load	14,750 lbf · ft (20 kN · m)
Max. Torque Capacity	14,750 lbf · ft (20 kN · m)
Maximum Static Weight (Fz)	4,000 lb (1,800 kg)
Rim Size	≥ 16 in
Sensor	4 arm strain gauge bridge
Nonlinearity	≤ 0.1 % of full scale output
Hysteresis	≤ 0.05 % of full scale output
Temperature Range, Operating	-40 °F to 350 °F (-40°C to 177 °C)
Excitation Voltage, Maximum	10 Vdc or ac rms
IP Rating	IP67

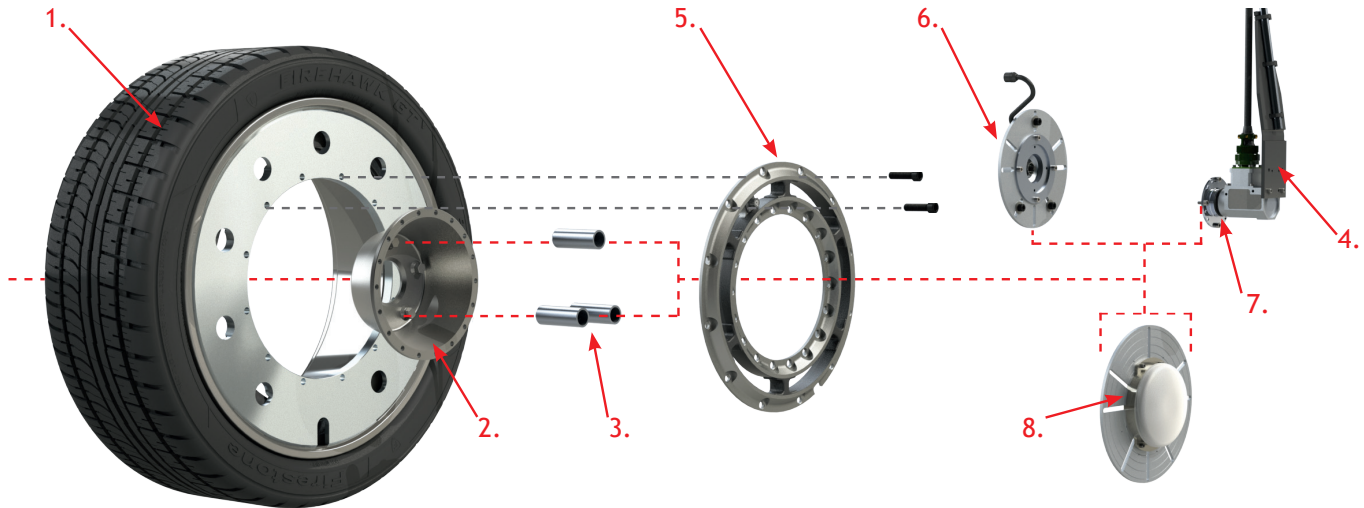
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# Wheel Force Transducer

## WT20 Configuration



### 1. RIM ADAPTER

Modified production wheel or custom machined wheel for mounting transducer to wheel

### 2. HUB ADAPTER

Custom adapter that mounts transducer and rim adapter assembly to production vehicle hub

### 3. QUICK CONNECT LUG NUT COLLETS

Quick Connect Lug Nut Collets mount to standard lug nuts

### 4. STATOR RESTRAINING ROD

Stabilizes the stator of the slip ring assembly relative to the vehicle for angle reference

### 5. WHEEL TORQUE TRANSDUCER

Measures drive and braking torque at vehicle corner

### SIGNAL CONDITIONING

### 6. Wheel Instrumentation Package (WIP)

Mounts to a variety of wheel lug bolt patterns and conditions signals from the transducer and provides (optional) thermocouple signal conditioning

### 7. Slip Ring Assembly

Measures rotational velocity and angular position while completing electrical connection between rotational and stationary components

OR

### 8. Telemetry Data Transmission Electronics

Wireless signal transfer to receivers located inside vehicle  
Does not provide rotational velocity or angular position

## Ordering Options

Michigan Scientific offers a fully weatherproof slip ring, encoder, and amplifier instrumentation assembly to be used with all Wheel Torque Transducers. Refer to the Instrumentation Assemblies section for more information.

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