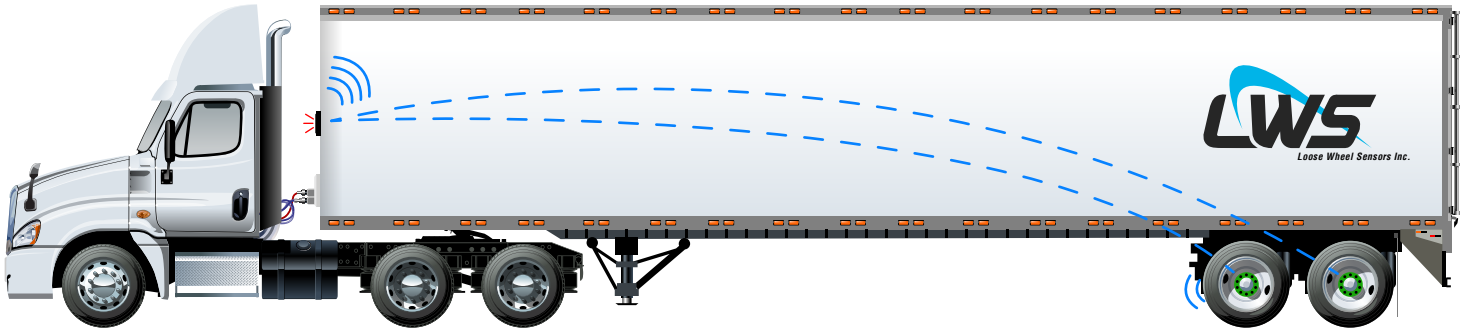


LWS SENSOR TECHNICAL SPECIFICATIONS



Principles of Operation

LWS's patented technology relies on the wheel stud's axial load to monitor that an appropriate clamping force threshold is maintained. As each monitored wheel nut is tightened (torqued) a pair of proprietary compression gaskets within the LWS ring produces a threshold (axial) force in the range of 32,000 lbs. at which point contact is made to complete (close) an electrical control circuit. The wheel nut is further tightened as it is now in contact with the rim, and the compression gasket will see no further deformation. In this way, over 60,000 lbs. of clamping force can be applied to the stud while limiting the force on the LWS compression gaskets. If the clamping force weakens to below the threshold force, the circuit is broken (opened) and a radio signal is sent to the operator to indicate which wheel and stud fastener is loosening. At this minimum threshold limit a significant clamping force still remains.

Heat sensors are incorporated into the LWS ring to monitor wheel hub temperature. If the wheel hub temperature reaches 175° F (79° C) a warning signal is sent to the operator.

A beacon located on the front of the trailer receives radio signals from each LWS ring and provides the operator with visual confirmation of both safe operating conditions and warnings.

General

- Complies with SAE J267 standards for aluminum and steel rims.
- Operating ambient temperature range is -40°F to +125°F (-40°C to +52°C).
- Monitored wheel studs are scanned every 4 seconds.
- Available for dual, triple and quadruple axle trailers.

LWS SENSOR TECHNICAL SPECIFICATIONS

- Wireless “one way” signal from LWS Rings to beacon using a 915Mhz LORA radio module (FCC modular approval #2ASE0RFM95C).
- Thermal sensors monitor and signal when hub temperature reaches 175°F (79°C).
- Warning signal sent immediately to beacon when issue detected.
- Secondary message sent to beacon every 5 minutes to confirm that all LWS rings are in good operating condition.
- All warning signals are time and date stamped and saved for 30 days in the beacon.
- Beacon output feature allows interfacing to compatible telematics/tracker systems
- DIY installation does not require removal of wheels from truck/trailer.
- High quality electronic assembly for rough service application.
- Circuitry potted into LWS ring to protect from environment.

Power

- Beacon is connected to the trailer’s 12-volt DC 7-way with single 2 conductor wire.
- LWS Sensor Ring Power Control Board (PCB):
 - o Powered by a two-pin removable battery connector
 - o Battery life is 4 years at 70° F ambient temperature
 - o Low battery level (30-day reserve) signal sent to beacon
- The LWS PCB has an onboard ‘reed’ switch used to activate the system and to synchronize the LWS rings with the beacon. Reed switch is triggered by an external magnet held near the wheels LWS ring electronic compartment.

Mechanical Specifications

- Rim size: 10-Hole, 11 1/4” Bolt Circle, 8.72 Bore, Aluminum or Steel.
- Stud Size: M22-1.5 with two-piece wheel nut.
- Safe clamping force remains when a loose lug nut alarm is sent to the beacon.
- Full torque clamping force of each stud is applied to the rims.
- Stretched over-torqued studs that do not provide a minimum axial force equal to the threshold clamping force are discovered during installation as they will not close contacts. These studs must be replaced.