

MODEL: WES

Product Specification/ User Manual



The Wheel End Sensor (WES) is a round, puck-shaped device designed to mount on Hendrickson axle wheel ends, specifically the hub cap. This location enables the WES to sense pressure from outer and inner tires (latter if present) between the air hoses and rotary union. WES internal temperature is measured to indicate wheel end thermal condition. Finally, an onboard accelerometer detects motion/vibration. An onboard microprocessor manages WES activity and wireless communication via Thread.

The Wheel End Sensor (WES) System is a sensing, processing, and communication system for monitoring and reporting tire and axle information. The system consists of four WES units, a Wireless Gateway Module (WGM), optional telematics unit, and associated harnessing. The system can be used standalone without data connectivity, with a Sensata telematics unit, or integrated with third-party telematics.

The overall mission of the WES system is to collect data on trailer tire pressure, wheel end temperature, and wheel end vibration and transmit relevant data with appropriate urgency. WES units only communicate wirelessly, sending data to an associated WGM. Acting as the central manager of the system, the WGM further communicates to other systems and controls the trailer's ATIS lamp for status notification.



Fig 1: Parameters

| | | |
|--------------------------------|---------------------------|---|
| Hendrickson Part Number | B-40699 | |
| Energy Storage | Battery type | 2x Lithium coin cell |
| | Battery life | >5 years typical |
| Communications | Wireless link to WGM | Thread 2.4 GHz, IEEE 802.15.4 |
| | Max declared Output Power | 5.0 dBm EIRP mean |
| | Pressure range | 0 – 202.6 psi gauge |
| Sensing | Pressure accuracy | ±5 psi |
| | Temperature range | -40° to 221° F -40° to 105° C |
| | Temperature accuracy | ±7° F / ± 4° C typical |
| | Accelerometer g range | ±6 g |
| Mechanical | Dimensions | 4.5" H x 4.5" W x 1.2" D 114 mm H x 114 mm W x 29 mm D |
| | Weight | 0.39 lbs / 175 g |
| | Housing material | Glass-reinforced PPA |
| | Hub fitment | Hendrickson Pro HN C-39764 Hendrickson Pro HP C-39765 |
| | Operating temperature | -40° to 85° C |
| Environmental | Storage temperature | -40° to 85° C |
| | Seal rating | IP6K9K |
| | Vibration | IEC 60068-2-64 |
| | Salt Spray | ISO 9227 |
| Power supply | | 6.0 V DC via two lithium coin cells |

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The device under test is manufactured by the grantee (**Sensata Technologies**) and sold as an Aftermarket product. Per 47 CFR 2.909, 2.927, 2.931, 2.1033, 15.15(b) etc..., the grantee must ensure the end-user has all applicable / appropriate operating instructions. When end-user instructions are required, as in the case of this product, the grantee must notify the end-user.

Sensata Technologies will include the contents of this document in the end user's manual for the commercial product.

INFORMATION TO BE INCLUDED IN THE END USER'S MANUAL

The following information (in blue) must be included in the end product user's manual to ensure continued FCC and Industry Canada regulatory compliance. The ID numbers must be included in the manual if the device label is not readily accessible to the end user. The compliance paragraphs below must be included in the user's manual.

FCC ID: 2ATIMWES

IC: 25094-WES

This device complies with Part 15 of the FCC Rules and with Licence exempt RSS standards of Industry Canada.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Exposure to radio frequency energy. The radiated output power of this device meets the limits of FCC/ISED Canada radio frequency exposure limits. This device should be operated with a minimum separation distance of 20 cm (8 inches) between the equipment and a person's body.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

L'exposition à l'énergie radiofréquence. La puissance de sortie rayonné de cet appareil est conforme aux limites de la FCC/ISDE Canada limites d'exposition aux fréquences radio. Cet appareil doit être utilisé avec une distance minimale de séparation de 20 cm entre l'appareil et le corps d'une personne.

WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.
