



Z-BOX Transceiver Installation Manual TPMS sensor Installation guide



IMPORTANT: SENSORS MUST BE INSTALLED DIRECTLY ONTO THE WHEELS VALVE STEM IN THE CORRECT LOCATION AS PER EXAMPLES ON PAGE 10. SENSORS ARE LOCATION SPECIFIC

DO NOT INSTALL THEM ON ANY TYPE OF VALVE EXTENSION AS THE WEIGHT OF THE SENSOR WILL CAUSE THE VALVE STEM/EXTENSION TO FLEX, RUB AND BREAK.

FOR INNER WHEELS, ONCE THE SENSOR IS FITTED DIRECTLY TO THE WHEELS VALVE AND IF YOU REQUIRE AN EXTENSION, PLEASE ORDER PART NO. OZX-PE140 (140MM WHITE PLASTIC VALVE EXTENSION)

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Acronyms and Abbreviations

CAN.....	Controller Area Network
N/A	Not applicable
PN.....	Part number
RF.....	Radio Frequency
TBD	To be defined
UART.....	Universal Asynchronous Receiver-Transmitter



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1. Introduction

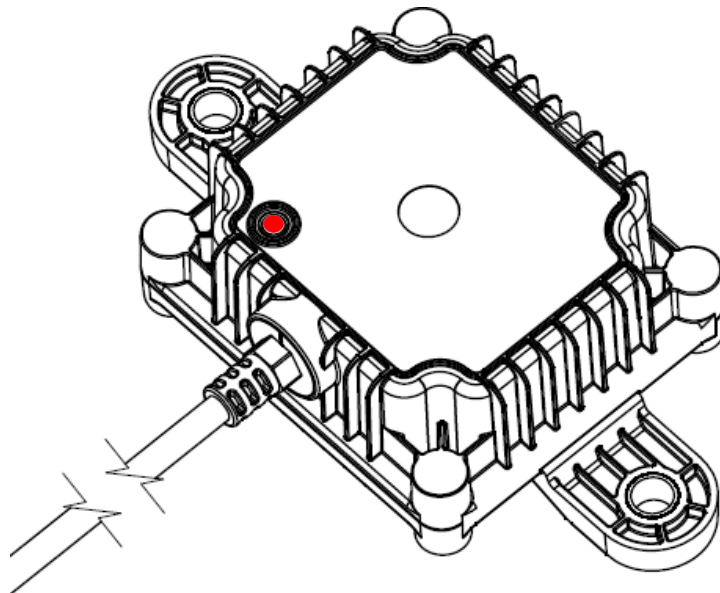
This installation manual is aimed to guide the proper installation of Z-Box Transceivers on trucks and trailers. The scope of this manual is to outline the specifications of the receiver and details for installation to optimize the performance and functionality of the Z-Box Transceiver in a commercial vehicle setting.

2. Technical Specifications

- Operating Voltage: 7 – 32V
- Working current: $\leq 30\text{mA}@24\text{V}$
- Working temperature: $-40^{\circ}\text{C} - 85^{\circ}\text{C}$
- Overvoltage protection

3. Mechanical Specifications

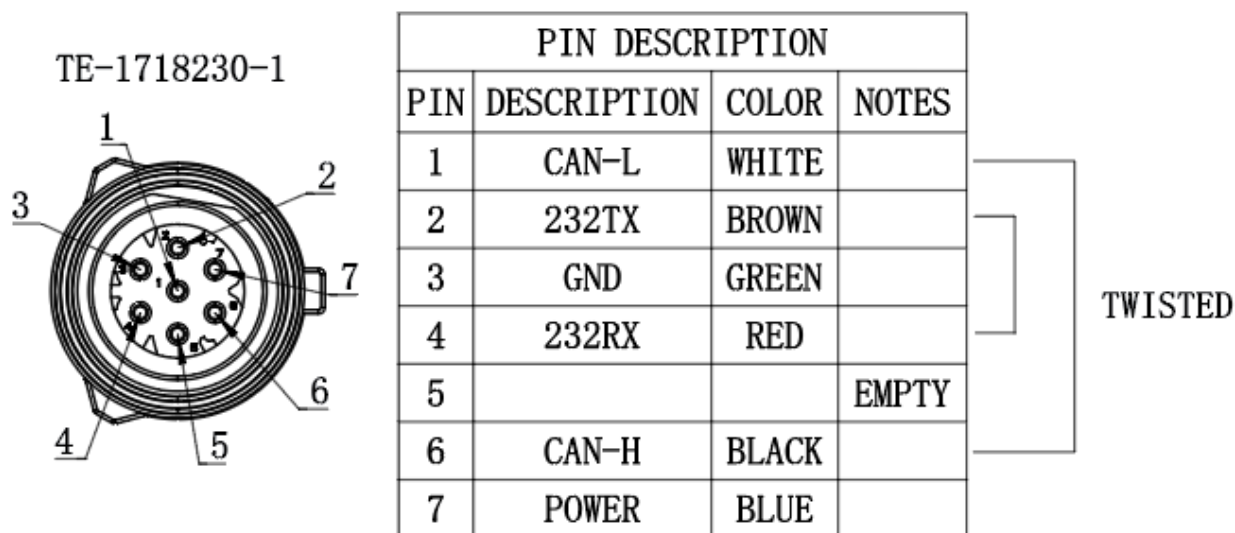
- Designed for heavy-duty automotive environments
- Weight: 190g
- Dimensions: 80x126x42mm (LxWxH)
- IP69 rating
- RGB LED available for diagnosis
- Material: PA66+GF30



4. Connection Specifications

The OZX-RTXM Z-Box Transceiver comes with a 1-meter-long cable and a TE 7 Pin connector (PN: 1718230-1) preinstalled.

The following figure shows the connector pinout:



P/N: **OZX-THR** - Oz-Sensor 1.8m Jump Cable with TE 7 Pin connector to bare wires. 2A Fused.

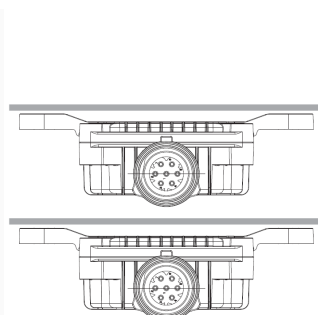
P/N: **OZX-THR-7M-T** - Oz-Sensor 7m Jump Cable with TE 7 Pin connector to bare wires. 2A Fused.

Wiring Colours.

Blue – Ignition Power 12/24V
 Green – Ground
 Red – RS232 RX
 Brown – RS232 TX
 White – CAN-L
 Black – CAN-H
 Orange – N/A



P/N: **OZX-Z-BKT** - Oz-Sensor Universal Z-Box Transceiver Mounting bracket. Heavy Duty 3mm Mild Steel, Powder Coated.



5. Positioning Recommendations

The range of the sensors is restricted. Consequently, we generally advise determining an installation placement for the Z-Box Transceiver that is relatively central to all the installed sensors sending data to it, ensuring dependable data transmission.

Consider the following recommendations when identifying the optimal mounting position for the Z-Box Transceiver:

- Aim for an unobstructed line of sight between the Z-Box Transceiver and the corresponding sensors, or at least the wheels.
- Steer clear of any metal barriers between the Z-Box Transceiver and the associated sensors that could impede reception, such as a trailer pallet box or an air tank.
- When seeking the ideal position for the Z-Box Transceiver, prioritize the distance to sensors placed in more challenging environments, like deep rims or twin wheels.
- For trucks, the Z-Box Transceiver should be closer to the driving axle (deep rims, twin wheels) than the steering axle.
- Place the Z-Box Transceiver where the temperature remains within the specified operating range and away from devices generating heat.
- Maintain a minimum distance of at least 20 cm between the Z-Box Transceiver and any high-bitrate cables and 50 cm from electric motors, alternators, or other electrical machines with coils and windings.
- Begin by setting up the first vehicle of a particular type in a fleet and thoroughly verify its performance. Subsequent vehicles of the same type can then be replicated with less time spent on performance verification.

Z-Box Transceiver Positioning Guide Example (logo size facing down towards the ground)

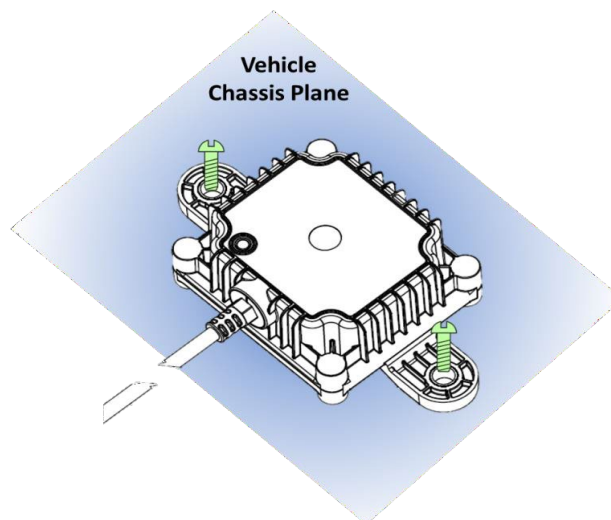


5.1. Receiver mounting

The receiver can be affected by interference, so it's important to install it properly. Place the unit with its **top** side, which includes antennas, facing outward (away from any metal) and preferably facing down towards the ground. Make sure the **top**, face with laser markings and LEDs, is not obstructed.

The **bottom** of the receiver should be in direct contact with the vehicle chassis or mounting bracket. Avoid leaving any gaps that could cause vibrations between the unit and the vehicle chassis.

To secure the unit to the vehicle chassis, you can use M8 screws (not included) in existing holes. Alternatively, use heavy duty cable ties to fasten the unit in your preferred position. Remember not to use metal ties.



6. Wiring the Z-Box Transceiver

6.1. General wiring scheme

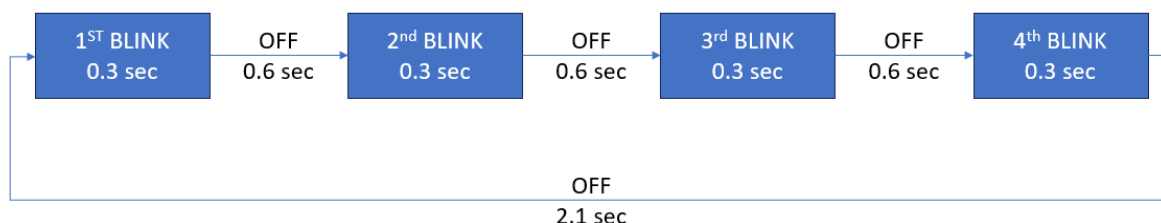
IMPORTANT NOTE: DISCONNECT AND ISOLATE POWER BEFORE MAKING OR BREAKING ANY WIRING CONNECTIONS.

Consider the following:

- Connect the **PWR** wire of the installation cable to **clamp 15 (IGN). (Blue Wire)**
 - **Not** to permanent power – of the truck/trailer.
 - Fuse this connection with **min 2A / max. 10 A**.
- Connect the **GND** wire to **ground (clamp 31). (Green Wire)**
- Optional CAN Bus connection:
 - Connect the **CAN-H (Black Wire)** and **CAN-L (White Wire)** to the corresponding CAN bus connection.
 - The Z-Box Transceiver includes a 120 Ohm termination resistor, which can be disabled.
 - If the desired CAN-Bus is not terminated, a 120 Ohm termination resistor is required
- Optional RS232 connection:
 - Connect the **RS232 Tx (Brown Wire)** and **RS232 Rx (Red Wire)** to the corresponding RS232 interface connection.

7. Status LED

The in-built RGB LED for diagnosis is a visual indicator to inform about the operational status or health of the system. These LEDs are designed to emit different colours or patterns to communicate specific messages, providing users or technicians with a quick and intuitive way to assess the condition of the device. See the below description to identify the system status through the status LED.



1st BLINK RF receiving status

RED	Channels 1 and 2 not receiving frames
GREEN	Channel 1 or 2 receiving frames
BLUE	Channels 1 and 2 receiving frames

2nd BLINK 2.4GHz Link Status

RED	Transmitting only
GREEN	Receiving and Transmitting
BLUE	Connected

3rd BLINK	CAN/UART receiving status
RED	CAN/UART Error
GREEN	Transmission OK
BLUE	Tx and Rx OK

4th BLINK	TBD
RED	Always red
GREEN	N/A
BLUE	N/A

KITS MAY COME SUPPLIED PREPROGRAMMED TO SUIT THE VEHICLE IT'S BEING INSTALLED INTO. THEY WILL BE LABELLED WITH A FLEET/ASSET NUMBER. PLEASE ENSURE THE TRANSCEIVERS, SENSORS AND DISPLAY (IF USED) ARE INSTALLED INTO THE CORRECT VEHICLE.

8. Configuration

Use the "OZ-X Installer" app available for Android and iOS to configure and program the OZX-RTXM and OZX-TMON. (if not already supplied pre-programmed)

The available configuration options for the **OZX-RTXM** includes

- Communication Type (BLE, CAN, RS232)
- Vehicle Type: Truck or Trailer
- Device Name (Fleet/Asset Number)
- Number Trailers support / Auto drop and hook enable / disable
- Temperature compensation enable/disable
- Auto Wheel Learn enable/disable
- Repla



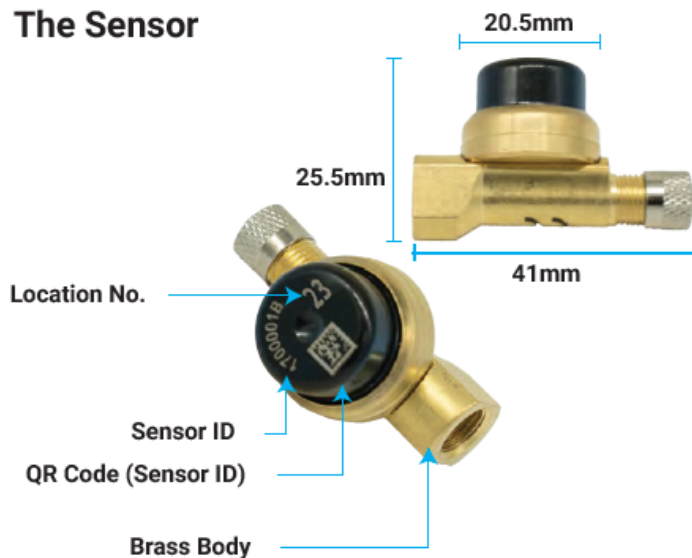
Apple IOS INSTALLER App: <https://apps.apple.com/au/app/oz-sensor-x-tpms-installer/id6478497932>

Android INSTALLER App: <https://play.google.com/store/apps/details?id=com.nlpcontrolcenter.bleapp.zylux&hl=en&gl=US>

9. Location Specific TPMS Sensor Installation Guide & Features

The OZX-FTXX location-specific flow-through sensor is designed for ease of use and reliability in automotive applications. This sensor allows quick installation and inflation without requiring dismounting, ensuring a hassle-free experience. It measures both pressure and temperature, with an impressive capacity of up to 180 PSI at 433 MHz, offering accurate real-time data. Its long-lasting battery exceeds 5 years, ensuring minimal maintenance.

The Sensor



Specifications:

Pressure Range: 0 to 180 PSI

Pressure Resolution: 1.5 PSI

Pressure Accuracy: ± 1.5 PSI

Temperature Range: - 40 to 85°C (125 °C Max)

Temperature Resolution: 1°C

Temperature Accuracy: $\pm 4^\circ\text{C}$

Dimensions: 41.3 x 25.5 x 20.5 mm

Sensor Weight: 27 grams ± 2

Life: Approx. 5 plus years

TX Frequency: 433.92Mhz

Key Features

The OzSensor OZX-FTXX sensors feature a unique numbering system that ensures accurate pressure and temperature monitoring for each wheel location.

Easily Programmable: The sensors offer various programming options, including automatic relearn, QR code scanning, NFC, or manual ID input. All programming and configurations can be done seamlessly through the OZ-X Installer App.

Location Specific Sensor Part Numbers:

OZX-FT11 - Flow Through Sensor Location 11
 OZX-FT12 - Flow Through Sensor Location 12
 OZX-FT13 - Flow Through Sensor Location 13
 OZX-FT14 - Flow Through Sensor Location 14
 OZX-FT21 - Flow Through Sensor Location 21
 OZX-FT22 - Flow Through Sensor Location 22
 OZX-FT23 - Flow Through Sensor Location 23
 OZX-FT24 - Flow Through Sensor Location 24
 OZX-FT31 - Flow Through Sensor Location 31
 OZX-FT32 - Flow Through Sensor Location 32
 OZX-FT33 - Flow Through Sensor Location 33
 OZX-FT34 - Flow Through Sensor Location 34
 OZX-FT41 - Flow Through Sensor Location 41
 OZX-FT42 - Flow Through Sensor Location 42
 OZX-FT43 - Flow Through Sensor Location 43
 OZX-FT44 - Flow Through Sensor Location 44

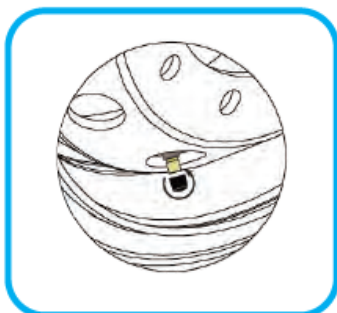
Installation/Service Tool Part Numbers:

OZX-TKIT - Complete Tool Kit for TPMS Installation & Service
 OZX-TDK300 - Sensor Installation Torque Tool w/ Extension

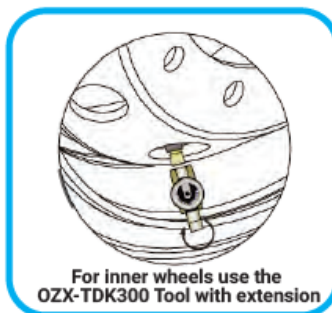
Installation: Sensors are location specific, so you must ensure you install the correct numbered sensors in the correct location. Refer to example Trucks and Trailers location guide below.

IMPORTANT NOTE: SENSORS MUST BE INSTALLED DIRECTLY ONTO THE WHEELS VALVE STEM. DO NOT INSTALL THEM ON ANY TYPE OF VALVE EXTENSION AS THE WEIGHT OF THE SENSOR WILL CAUSE THE VALVE STEM/EXTENSION TO FLEX, RUB AND BREAK. DO NOT FIT SENSORS TO ANY VALVE THAT IS BENT OR DAMAGED. SENSORS SHOULD NOT BE OVERTIGHTENED. RECOMMENDED TORQUE 2-3Nm / HAND TIGHT ONLY. SPRAY SENSOR / VALVE WITH SOAPY WATER TO ENSURE NO LEAKS AFTER INSTALLING. FOR INNER WHEELS, ONCE THE SENSOR IS FITTED DIRECTLY TO THE WHEELS VALVE AND IF YOU REQUIRE AN EXTENSION, PLEASE ORDER PART NO. OZX-PE140 (140MM WHITE PLASTIC VALVE EXTENSION). IF THE VALVE IS BENT, DAMAGED OR CROSS THREADED, MAKE SURE THIS IS REPLACED BEFORE ATTEMPTING TO INSTALL ANY SENSOR.

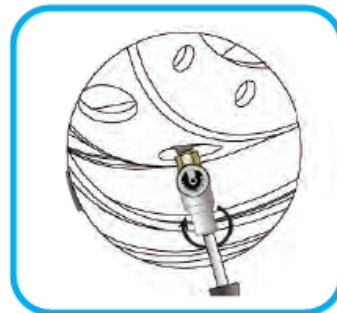
- 1) Remove valve cap and / or any extension. Check Valve condition.



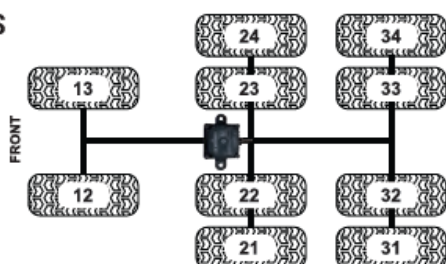
- 2) Hand Screw the correct Numbered sensor to suit wheel location



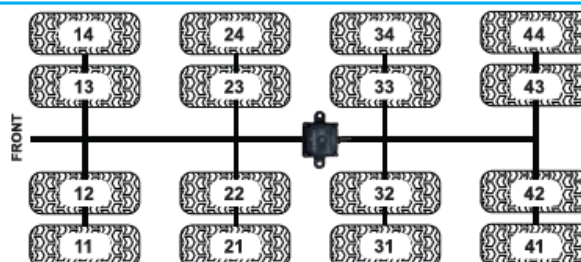
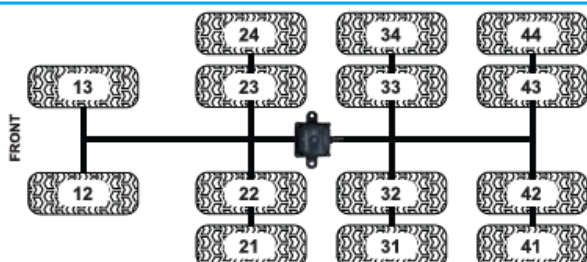
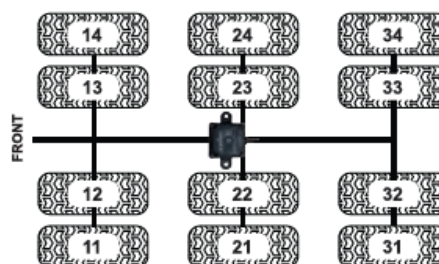
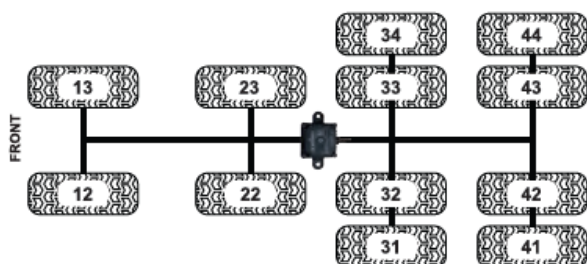
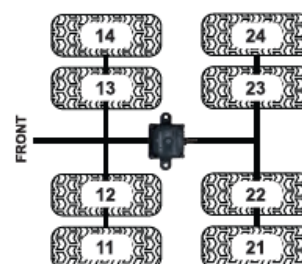
- 3) Tighten using 2-3Nm Torque (or hand tight) DO NOT USE A WRENCH



TRUCKS



TRAILERS



10. Optional In Cab Display.

P/N: OZX-TMON

Specifications

Operating Voltage: 7 to 32V DC

Operating Current: ≤ 50mA @ 24V

Dimensions: 110 x 85 x 28mm

Alerts: Low Pressure, Extreme Low Pressure, High Pressure

Audio Alerts: Yes: Programmable OFF / ON

RX: 2.4Ghz BLE

TX: 2.4Ghz BLE

Unit Weight: 115 grams (Excl. Cable)

Fully Programmable: Pressure unit, Temperature Unit, Sleep time, Audio Alarm, Number of Trailers



The Optional Display is wired to an ignition or accessory source. If the cig plug is removed, please ensure the monitor is fused (3A or 5A). The monitor will come pre-programmed to the Truck Transceiver unit. If not programmed, please use the OZ-X Installer App to program them together.

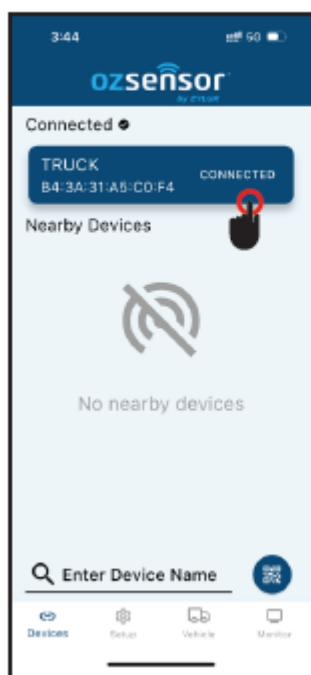
Wiring – Red – Ignition (12V/24V) / Black – Ground

Mounting – Use the window suction cup or fix mount bracket to mount the in cab monitor in a suitable location.

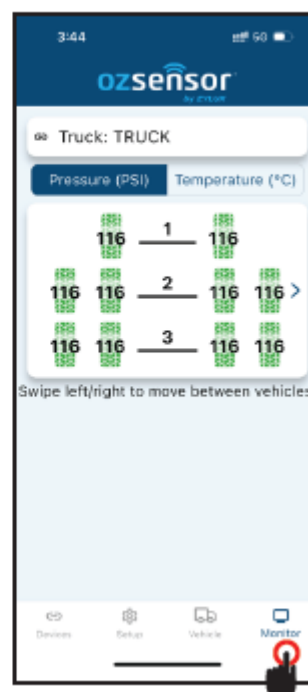
11. Testing.

Once all components have been installed, reconnect the vehicles power, turn the vehicles Ignition ON. Use the OZ-X Install App to test all the sensors are working. If fitted, check the in cab monitor is working and reading the Tyre Pressure and Temperature Data.

1. Connect to Device



2. Press Monitor



12. Trouble Shooting.

SENSOR (OZX-FTXX)



FAULT DESCRIPTION

SOLUTION

1) Sensor reading low or incorrect pressure. 2) Sensor not working or offline (Grey scale on app or always shows LEARN on in cab monitor)	1) Check actual tyre pressure to make sure tyre isn't flat. Use soapy water and check for leaks. Reprogram and replace sensor if sensor not working properly. 2) Locate and check sensor is present and installed in the correct position. Make sure Sensor is programmed to the Transceiver correctly. You can reprogram and/or check the sensor ID using the OZX-Installer App.
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TRANSCIVER BOX (OZX-RTXM)



FAULT DESCRIPTION

SOLUTION

1) Transceiver has no power. (No LED's on transceiver are flashing) 2) Transceiver has power but not data is being received on the monitor or OZ-X Display app..	1) Check the 2A-5A Fuse for the Transceiver module. Make sure Truck has ignition ON or Trailer has EBS power. For Trailers Check EBS Power cable going to Transceiver and make sure correct AUX output is enabled on the EBS system. 2) If LED's are flashing, use the OZ-X Installer App and check the Transceiver is programmed correctly to the In cab monitor and/or the OZ-X Display App.
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IN CAB MONITOR (OZX-TMON)



FAULT DESCRIPTION

SOLUTION

1) Monitor not showing any Tyre Pressure Data. Blank Screen 2) Low Pressure, High Pressure or High Temperature Flashing along with Amber or RED LED but displayed pressure and temperature readings look ok.	1) Check monitor has power. Use the OZ-X Installer App and check that the Monitor has been programmed to the correct Truck Transceiver and the Truck Transceiver has power. Make sure nobody with the OZX-Installer app is connected to the monitor. 2) Check Alarm Warning thresholds are set correctly.
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13. TPMS Labels.

Fit the included label to the Truck or Trailer in a suitable location once the installation is complete.

