Troubleshooting SmarTire® Gen2

Ver. 2.0 © Bob Dickman Tire Center

Step 1

Familiarize yourself with the system and how it works. If you do not have an owners manual one can be downloaded from www.dickmantires.com under SmarTire resources.

Over 90% of issues with the system are related to the operator not understanding how it works or the pressures in the tires do not match the programming in the system.

Step 2

Using an accurate gauge verify that the system is reading the correct pressures. The screen will show "psi" on the screen and you can scroll through the tires and read pressure. If the pressures have been adjusted drive the vehicle to make sure the system records the changes. Keep in mind that it is possible that tires have been moved from their original positions or have been "rotated" in the display causing tires to be flipped in how they are shown on the display. The tolerance for the sensors is +/- 3 psi

Step 3

Verify programming and pressure specifications (CIP) match. The available settings are as follows. See the operator's manual for instructions on how to check and change these settings.

- Cold inflation pressure (CIP). This is the desired pressure specified for your vehicles tires. This is set for each individual axle in the system.
- High temperature alert. This is one setting for the entire system and will set an alert if any tire in the system exceeds this value.
- Pressure deviation alert. This will set an alert (light only) if any tire in the system gets above or below its desired pressure. The desired pressure is calculated by the system based on the CIP and the current temperature of the tire. The system uses 64 degrees

Fahrenheit as the standard value for cold in these calculations. The SL (slope) setting affects these calculations. Keep in mind that if your climate is above or below the 64 degrees that this will show you a deviation that is due to different ambient temperature. The factory default is 10 for this setting but this may be too sensitive in colder or warmer climates unless the system has been set to temperature compensated values. (***see the SmarTire Service bulletin on this subject***) This alert is designed to be an early warning of a problem and can be adjusted or turned off as desired.

- Critical low pressure alert. This value is set by the axle and will sound an alert both audible and visual if any tire on that axle gets below this value regardless of temperature.
- Slope. This is a value the system uses to calculate the desired pressure of the tire at its current temperature. The slope is normally set 10 points above the CIP value for that axle. If the CIP is changed the slope must also be changed to match. For advanced users the slope can be fine tuned 1 point at a time to match the characteristics of the tires being monitored.

If the systems doesn't read properly here are some steps to take

Problem: The shows no data.

Possible causes: Does the display go through a "screen test" when the key is turned on? If the receiver does not screen test check the receiver for 12 or 24 volt power with the correct polarity and a good ground. The receiver power should be on a keyed circuit that is not interrupted during engine cranking. Check the cables and connections and repair as needed.

Problem: The receiver powers up but does not display any data.

Possible causes: Has the vehicle been driven to activate the pressure sensors? The sensor in the wheel is an intelligent sensor and its logic is as follows: The sensor is activated (awake) when the vehicle is being driven or has been driven within the last 15 minutes. In this mode it will transmit 3 times upon initial start up and then sample the pressure every 12 seconds. If the sensor sees a pressure 3 PSI or greater from the last transmitted value it will transmit immediately, otherwise it will give random updates every 4-6 minutes. The sensor deactivates (goes to sleep) 15 minutes after the vehicle stops moving. When asleep the high pressure sensors will wake up and transmit at either a 1 hour or 15 minute interval depending on their date of manufacture. The standard low pressure sensors do not have this feature although there are some low pressure "commercial" sensors that do.***(note that due to these features of the sensors it may take***

a few minutes of the tire data to reappear if the vehicle has stopped and started in a short time period)

Problem: The display powers up and the sensors are activated but still no data.
Possible causes: Are the sensors programmed to the receiver? Each tire sensor has a unique ID serial number that is transmitted with data any time it transmits. All the sensor ID number s must be programmed into the correct wheel positions in order for the system to work. Once the ID numbers have been programmed into the system they should not need to be re-programmed and are not dependent on the vehicle battery to retain programming. If a sensor has been replaced or it is a new system that is not pre-programmed you will need to program the receiver with the sensor ID numbers using a dealer programming tool (DPT).
Check the antenna system by first doing a visual inspection. There should normally be 3 antennae on the RV that has a towed vehicle and 2 in the RV tires only are being monitored. The receiver has 2 ports so there will be a "T" either at the receiver or at some other place like the rear electrical bay when 3 antennae are used. The front antenna should be in plain view between the front tires with line of sight to the sidewalls. The center antenna should be somewhere in front of the duals or in between the drive and tag axle and the rear antenna at the rear of the engine compartment or at the very rear of the vehicle.
Under chassis antennae should have line on sight to the tires being monitored. Towed vehicle antennae may pick up signals though non metal body panels but should have as little obstruction as possible. The antenna system may also be tested with an ohm meter as it may have become either a shorted or open circuit. There should be continuity between the antenna rods and the center conductor on the BNC connector at the receiver. There should be no continuity between the outer shield and the center conductor. Replace defective antennae and do not splice cables.

Problem: The tire pressure displayed is inaccurate.
Possible causes: It is always possible that a sensor is inaccurate but it is much more likely that the sensor positions have been mixed up. See if another tire is off approximately the same value in the opposite direction. If you are unsure of or unable to determine the sensor locations the system may need to be re trained using the "learn" feature of the DPT (dealer programming tool). We do not recommend using the dashboard display to re learn sensors on the commercial/RV system.

Problem: The system works initially but after driving a distance the system displays and E-1 error on one or more tires.
Possible causes: An E-1 error on the display indicates that they system has not received and data from that tire in 15 minutes or more. If reception is weak problems will show up at higher speeds as it is more difficult for the signal to be read from the tire when it is turning at higher speeds. The first step is to check all antennas as mentioned above using an ohm meter. You can also check the position of the antenna in relation to the problem tire and try different positions of the antenna. If you have a three antenna

system put the antenna for problem tire and the receiver port by itself and put the other two antennas on the second port with the “t” fitting. A sensor that has broken loose from the rim (usually due to damage during installation) will sometimes act this way. If the after checking and adjusting the antenna and the problem still persists replace the sensor.

Here are some sample screens of system alerts

Note: Illustrations show aftermarket display. OEM display is similar.

1. ***Pressure deviation Alert***. This alert is temperature compensated using 65 degrees F as the reference for cold. This alert can be either plus or minus from the expected pressure based on the current temperature of the tire. This alert is one value for all tires in the system.

2. ***Critical low Pressure Alert.*** This alert will set if the tire gets below the programmed value for this alert. This alert is not temperature compensated. This alert is set for each axle.

3. ***High temperature Alert.*** This alert will set if any tire exceeds the specified warning level. The temperature alert is one value for all tires in the system.