

CBTPSEN01 User Manual

Product Description:

An “interactive” wireless sensor that attaches to the wheel rim (nylon strap), to measure the contained air temperature and pressure in real time. Model Number: **CBTPSEN-01**

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Key Features:

- 1 Year Warranty , Up to 4 Years Life Expectancy
- High integration, stable technology platform
- Light weight, robust
- User friendly installation

Application Notes:

The installation of the product must be reduced to a minimum, while ensuring 24/7 operation over the life of the tire. SST wireless rim sensor is packaged to provide efficient user friendly installation and designed to overcome all the environmental challenges presented.

The wireless rim sensor while incorporating the latest in technology is formed into a simple low profile package that is attached or secured to the rim offering maximum validity and integrity of data captured and processed. The low profile of the package along with the positioning of the sensor allows for the use of standard tire install procedures and equipment.

This device complies with part 15 of the FCC Rules and with Industry Canada license - exempt RSS standard(s). 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.

Specifications:

Performance

Temperature Accuracy	+/- 2° C
Pressure Accuracy	+/- 1%

Electrical

Operating Voltage (Internal Battery)	2 - 3.6 V
Battery	Tadiran TL-5955, Lithium, 1600mAh

RF

Transceiver	CC1110F32, TI
Operating Frequency	434.375 MHz
Modulation	ASK / OOK,
Number of RF Channels	1
Data Rate	100 kbps
RF Output	-14.4 dBm
Sensitivity	-82 dBm
Packet Size	28 bytes
Encoding	Manchester
Transmission Interval	12 seconds
Transmission Period	4.48 mSec
FCC ID:	RQ6-CBTPSEN-01
IC ID	10853A-CBTPSEN-01

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Physical Properties

Dimensions	1.5" / 2.0"/3/4"
Operating Temperature Range	-35° C to 90° C
Operating Pressure Range	0 - 150 Psi
Operating Humidity	100%
Weight	70 grams
Battery Life	Up to 4 years

Specification Notes:

THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT

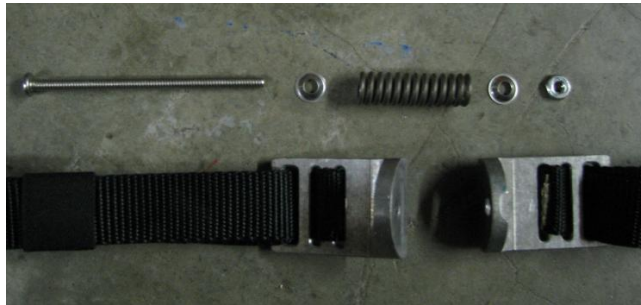
Commercial TPMS Sensor installation guide:

TPMS sensor individual component package



Consisting of:

- One - TPMS sensor unit
- One - Corresponding Sensor ID label



Provided hardware:

- One – 3-1/2" screw
- One – Nut
- One – Spring
- Two – Washers
- One - Black Nylon Strap
- One (pair) - Aluminum Buckles

Tool requirements:

- One - Screw driver (*power unit preferred*)
- One - Clean (*dry*) cloth
- and de-greasing agent (*CRC electrical contact cleaner recommended*)

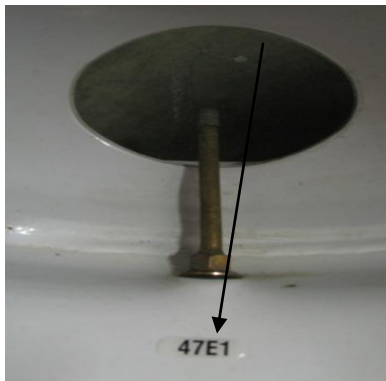
Getting started

- 1) Remove the contents of the plastic bag containing the TPMS sensor components
- 2) Check contents
- 3) Remove the Sensor ID label from its bag





- 4) Taking a rag and cleaner, clean a 2" x 3" spot on the inner rim near the base of the valve stem
- 5) Peel the protective backing off the label and place it on the prepared clean patch ...press into place note: if no label, the ID off the top of the sensor can be written down on rim using automotive paint marker



- 6) Remove and uncoil the sensor unit from its bag



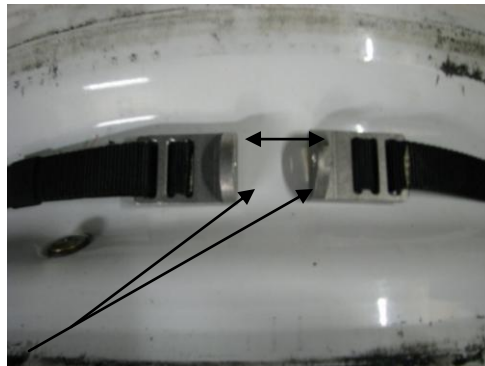
- 7) Stand the receiving wheel rim on end



- 8) Wrap the sensor around the wheel rim making sure that it rests in the valley of the rim with the sensor and straps laying flat in valley (*engraving faced out*)



- 9) Wrap the sensor and band around the rim to check the distance between the flat faces on the buckle ends (should be a gap of 1-1/2" to 2" max) ***if not*** see the ***strap adjustment segment*** at the end of this document.

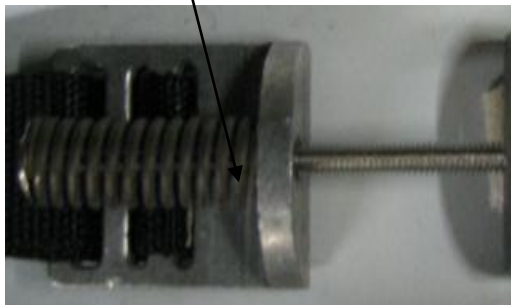


Buckle faces

- 10) Spring tentonor hardware installation

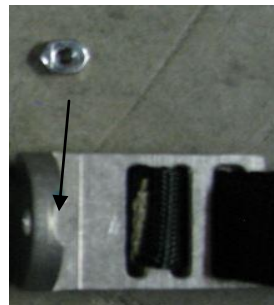
- ***(Very Important)*** Fit the locking nut into the slot on buckle end with recessed groove around the screw insert hole (the slot is designed to hold the nut in place while the screw is tightened)

Screw and tentonor spring assembly



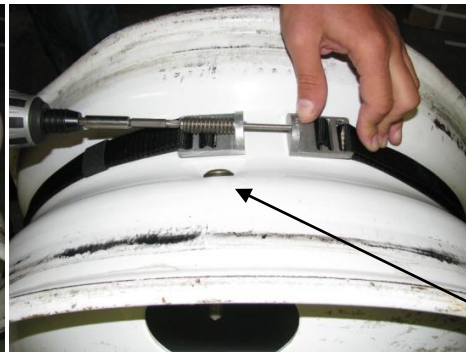
View of correct component set-up

Lock nut





- 11) The tightening process: (**Note: final resting position of buckle should near the valve stem*)
- Using one hand hold the two buckles in place (see photo below)
 - Using the other hand take screw driver or power driver and push the screw into the corresponding buckle hole until it connects with the lock nut
 - Then pulsing the trigger on the power driver (so as not to bind the threads while tightening) tighten the screw and nut

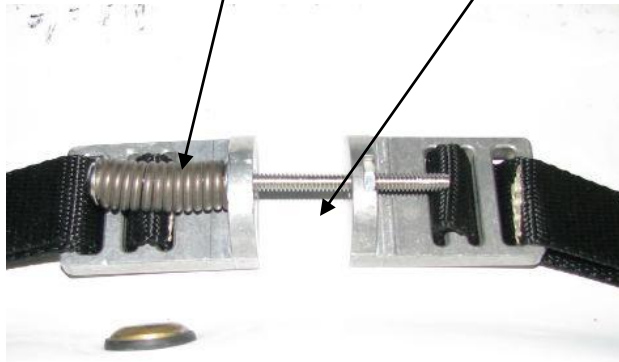


Valve stem

12) The finished product should look as follows (**if not the spring assembly will have to be unscrewed and the strap length will have to be adjusted to suit**)

a) The spring should be completely compressed

b) There should a 1" gap between the buckle faces



You are now ready to install the tire:

Special note to tire installer...the led tire bead should go over the buckle first then install the balance of the tire as per standard procedure

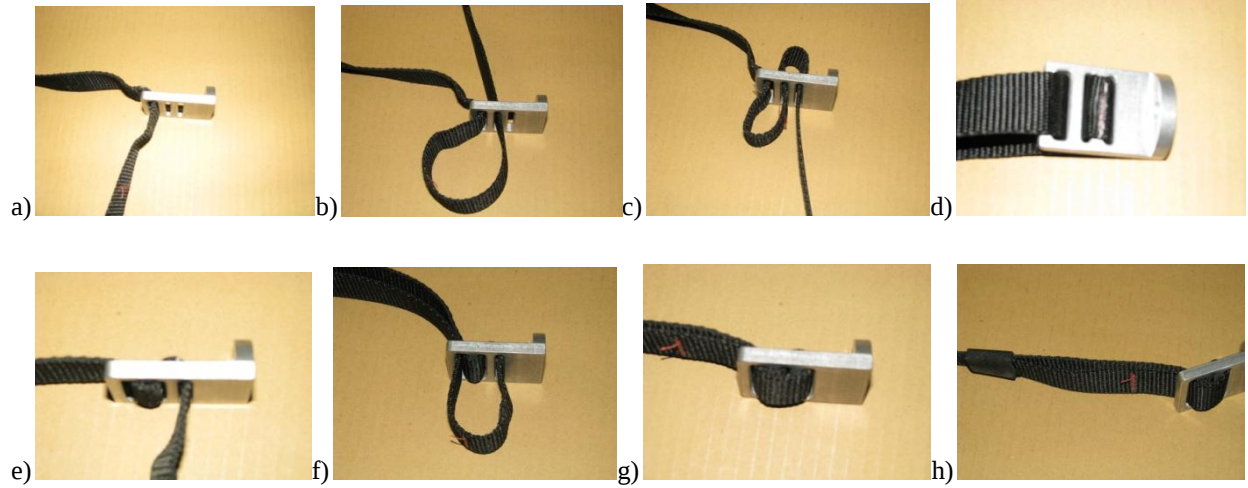
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Lengthening and Shorting of nylon retaining strap on SST TPMS Commercial Sensors



Remove the buckle from one end of the strap only:

- 1) Making sure that the end is faced up (*corresponding with the TPMS sensor face and other attached buckle...pass the strap down through the first slot...see (a)*)
- 2) Then back up through the second slot (b)
- 3) Then down through the third (c)
- 4) Looking down at the top of the buckle the strap should look as shown in images d, and e, (*At this point the length should again be checked on the rim before carrying on to the final steps*)
- 5) Take the strap and now pass it back through the first slot from the underside f, and g,
- 6) Pull tight and slide the nylon eyelet over the extra material to hold in place (h)



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CBSTPSEN01 installed on rim, side view



CBSTPSEN01 installed on rim, top view

Sensor setup procedure:

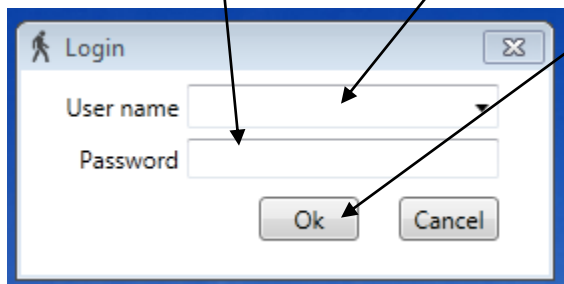
Getting Started (basics)...*to skip to the tire sensor change out section, see page 4, step 9*

Step 1) Opening the TPMS monitoring page

- Click on the **CBS Client** icon on the desk top

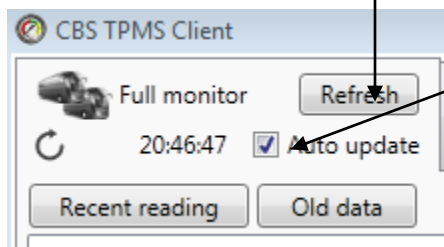


Step 2) Fill in the **User Name** and **Password** in the login boxes for Centennial the User Name is "**Marcel**" or use the scroll down arrow and select "**Marcel**" from the drop down list and for the Password type in "**tpms2012**" all in lower case then click "**Ok**"



Step 3) You should now have the **CBS TPMS Client monitoring page** open

Step 4) To view all buses on the network complete with their most recent readings click on the **Refresh** tab making sure that the **Auto Update** box is checked

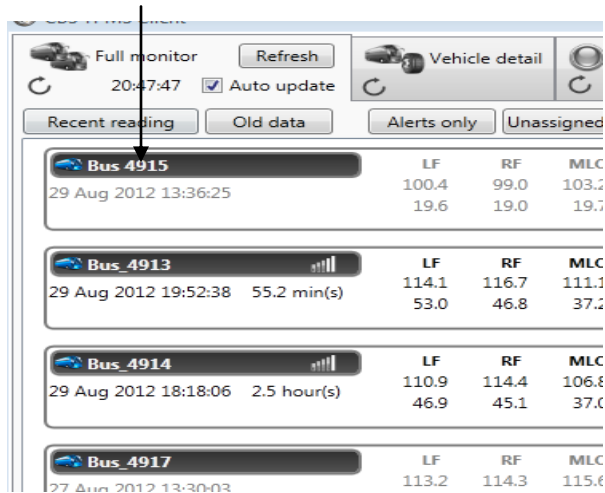


Step 4.1) Alarms: If you just want to check for any **recent alarms** click on the Alerts tab at the top of the page





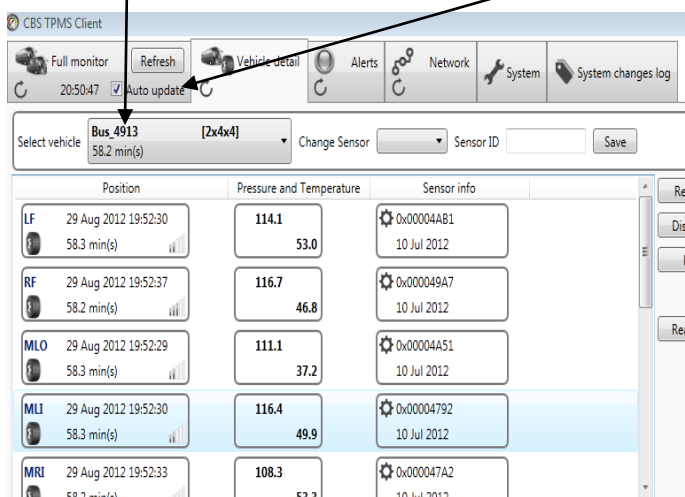
Step 5) To look at an individual unit **click on the unit ID number** and that will take you over to the most current reading for that unit or just click Vehicle Detail



Vehicle	LF	RF	MLC
Bus_4915 29 Aug 2012 13:36:25	100.4 19.6	99.0 19.0	103.2 19.7
Bus_4913 29 Aug 2012 19:52:38 55.2 min(s)	114.1 53.0	116.7 46.8	111.1 37.2
Bus_4914 29 Aug 2012 18:18:06 2.5 hour(s)	110.9 46.9	114.4 45.1	106.8 37.0
Bus_4917 27 Aug 2012 13:30:03	113.2	114.3	115.6

Step 6) In the **Select Vehicle box** choose a vehicle from the **drop down list** and click on the Unit Line item to select

- You will now see the most current readings for the selected unit (make sure that the **Auto Update** button is checked)



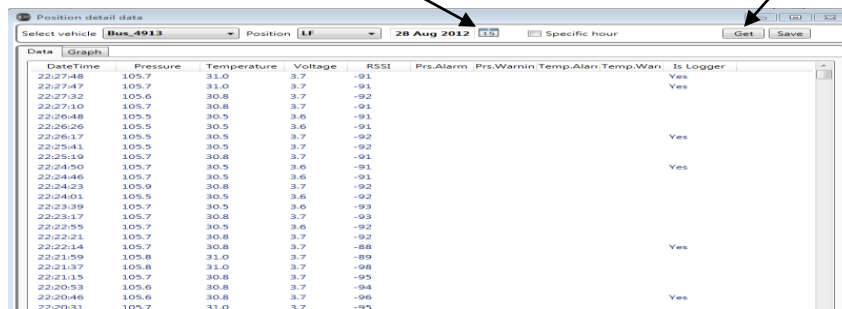
Select vehicle: **Bus_4913** [2x4x4] 58.2 min(s) Change Sensor: Sensor ID: Save

Position	Pressure and Temperature	Sensor info
LF 29 Aug 2012 19:52:30 58.3 min(s)	114.1 53.0	0x00004A81 10 Jul 2012
RF 29 Aug 2012 19:52:37 58.2 min(s)	116.7 46.8	0x000049A7 10 Jul 2012
MLO 29 Aug 2012 19:52:29 58.3 min(s)	111.1 37.2	0x00004A51 10 Jul 2012
MLI 29 Aug 2012 19:52:30 58.3 min(s)	116.4 49.9	0x00004792 10 Jul 2012
MRI 29 Aug 2012 19:52:33 58.2 min(s)	108.3 52.2	0x000047A2 10 Jul 2012

Step 7) If you wish to look at the **history** of particular tire, **click on tire position** e.g. MLO **above the tire logo** and that will take you over to the event log screen



Step 8) **Position detail screen or Event Log**, to select a time period you wish to review click on the **“Calendar”** icon and select a date then click **“Get”**



DateTime	Pressure	Temperature	Voltage	RSSI	Prs.Alarm	Prs.Warnin	Temp.Alarm	Temp.Warn	Is Logger
22:27:48	105.7	31.0	3.7	-91					Yes
22:27:47	105.7	31.0	3.7	-91					Yes
22:27:32	105.6	30.8	3.7	-92					
22:27:10	105.7	30.8	3.7	-91					
22:26:48	105.5	30.5	3.6	-91					
22:26:26	105.5	30.5	3.6	-91					
22:26:17	105.5	30.5	3.7	-92					Yes
22:25:41	105.5	30.5	3.7	-92					
22:25:19	105.7	30.8	3.7	-91					
22:24:50	105.7	30.5	3.6	-91					Yes
22:24:46	105.7	30.5	3.6	-91					
22:24:23	105.9	30.8	3.7	-92					
22:24:01	105.5	30.5	3.6	-92					
22:23:39	105.7	30.5	3.6	-93					
22:23:17	105.7	30.8	3.7	-93					
22:22:55	105.7	30.5	3.6	-92					
22:22:21	105.7	30.8	3.7	-92					
22:22:14	105.7	30.8	3.7	-88					Yes
22:21:59	105.8	31.0	3.7	-89					
22:21:37	105.8	31.0	3.7	-98					
22:21:15	105.7	30.8	3.7	-95					
22:20:53	105.6	30.8	3.7	-94					
22:20:46	105.6	30.8	3.7	-96					Yes
22:20:31	105.7	31.0	3.7	-95					

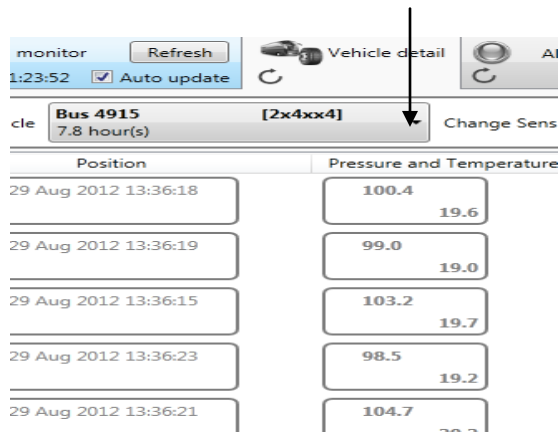
Step 9) Changing out a TPMS sensor (things you'll need)

- **First you will need the 4 digit hex number** (individual sensor ID)
This should be supplied to you by the tire installer in the “ETS Tire” change journal. The journal will give the **wheel position and new sensor ID number** for that location

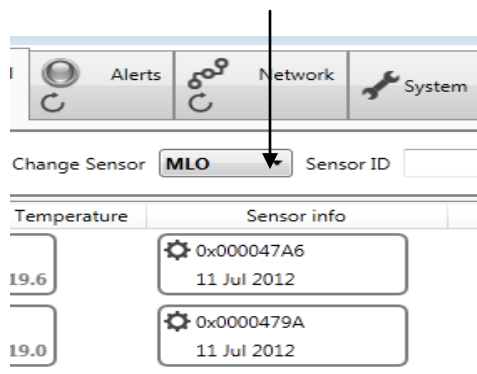
Note: To the tire installer the 4 digit sensor ID no. is marked on or near the valve stem of every TPMS equipped tire on either a small plastic label or in some cases hand written on the rim and **this no. is to be entered for every TPMS equipped vehicle on or after every tire change**

To start, follow previous steps 1 through 6

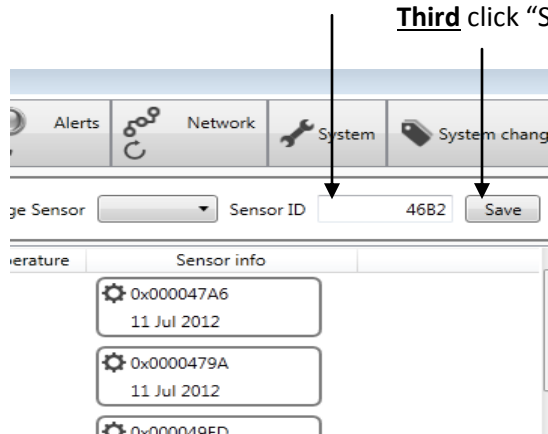
Step 10) On the **Vehicle Detail** screen select the desired bus from the drop down list that you wish to edit or change



Step 11) First select the wheel position from the **Sensor Change** drop down menu



Step 12) Second enter the 4 digit sensor ID number in the "Sensor ID" box (**all in caps**)
Third click "Save"



- You will be prompted by a **Change Accepted** prompt in the center of the screen

You're done...keep repeating steps 10 and 12 until all the changes for that vehicle have been entered.

Note: 1) The new settings for the vehicle will take place the next time the bus is switched ``on`` and within network range

2) To quickly save any document or screen image it's suggested that you use the Microsoft "snip tool" application supplied on this computer under all programs making sure that the image is saved as a jpeg format for future ease of use.



CBSTPSEN01, top view



CBSTPSEN01, bottom view