



# SMART SCALE INSTALLATION & OPERATING MANUAL

Version V2.2



# Smart Scale Technologies

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## INSTALLATION & OPERATING MANUAL FOR AIR SUSPENSION V2.2

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[www.truckweight.com](http://www.truckweight.com)

**NOTE:** For your safety, please read this manual thoroughly before installing and operating your TruckWeight Smart Scale system. The safety messages presented throughout this manual are reminders to the operator to exercise care when installing and using this unit.

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## A) PARTS LIST

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A) Air Sensor



B) Hand Held



C) Hand Held Case<sup>1</sup>



### Installation Kit Components<sup>2</sup>:

D) 2 - Sensor Bolt Assemblies  
(1 bolt, 1 nut, 2 washers)



E) 1 - T Fitting



F) 1 - 90 Fitting



G) 2 - Batteries<sup>3</sup>



1. Hand Held Case is an optional item and will only be supplied if requested
2. Installation Kit Components are optional components and will only be supplied if requested
3. Batteries may not be supplied in certain regions due to regulatory restrictions



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## B) INSTALLATION INSTRUCTIONS

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To install your Truckweight sensor please follow these steps:

### 1. Getting Started:

- a. **Please read the “Important Safety Notices”** section of this manual before installing and operating the Truckweight Smart Scale system.
- b. **Examine the parts** to familiarize yourself with the parts and to ensure that you have all of the required parts to begin installation of your Truckweight system.
- c. **Install the batteries** provided into the battery chamber of all Air Sensors (Part A) and all Hand Holds (Part C). Note that the polarity of the battery is indicated inside the chamber. Be sure not to introduce moisture or foreign matter into the battery chamber.
- d. **Turn on the Handheld** by pressing and holding any button until the screen comes on. The Main Screen will appear. To extend battery life, the power turns off automatically in ten minutes when not in use.

**Main Screen**



### e. Set Time



- Press and hold **Center and Right** buttons together until the screen changes.
- Use the Up and Down buttons to set the time.
- Press the center button to save selection and return to Main Screen.

### f. Switching Between Kilograms and Pounds:



- On the Main Screen, press and hold the **Up and Down** buttons together until the read out changes and release to switch between Kilograms and Pounds.

**If you have any questions please send them via email to [info@truckweight.com](mailto:info@truckweight.com) or call toll free at 1-877-757-7888 and speak with one of our technical service representatives.**

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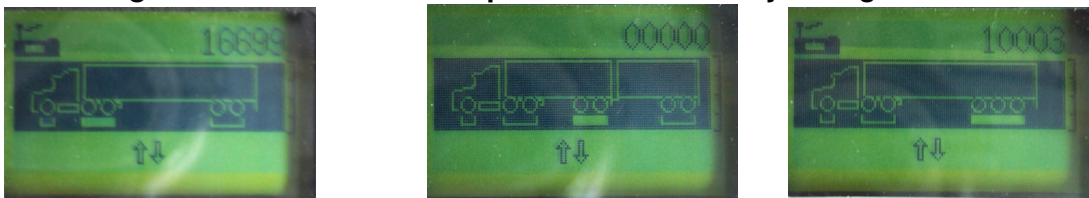
2. **Rig Set Up:** Prior to mounting the sensor(s), you must set up your rig in the handheld. To set up your rig do the following:

- a. **To select your rig type:**



- Hold the Center and Left buttons until the screen changes to the Rig Selection Screen.
- Use the Up or Down button to select a picture of a rig that is similar to yours. If you cannot find a rig similar to yours simply select a rig that has the correct number of axle groups/sensors (the picture of the rig will not affect the operation).
- Once you have selected a rig hit the center button to return to the Main Screen.

### Rig Selection Screen: Example of three of twenty-six rigs

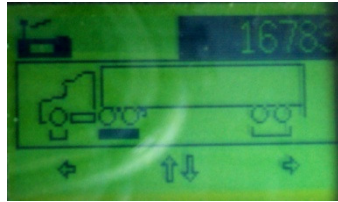


- b. **To enter sensor serial numbers (Pre-set by Smart Scale Technologies)**



1. On the Main Screen press and hold together the Center and Up buttons until the Screen changes to the Sensor Serial Number Setting Screen.
2. Use the Left and Right buttons to move the Black Cursor to different Axle Groups on the truck display.
3. Now select the Last Rear End Axle Group. (The picture only display one side, actually there are two sensors on this Axle Group).  
Use the Up and Down buttons to enter the Serial Number of the First Sensor you intend to mount on here. Check for correct entering of the Serial Number before pressing down the Center Button to confirm.
4. On the Main Screen press and hold together the Center and Up buttons until the Screen changes to the Sensor Serial Number Setting Screen.
5. Use the Left and Right buttons to move the Black Cursor to the Rear End Axle Group, use the Up and Down buttons to enter the Serial Number of Second Sensor mount on here. Check for correct entering of the Serial Number before pressing down the Center Button to confirm.
6. Repeat the steps described in paragraph 1. to 3. for the Third, Fourth and Front Sensors on the Second Rear End Axle Group and Front Steering Axle Group.

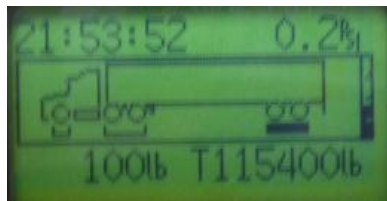
## Sensor Serial Number Screen



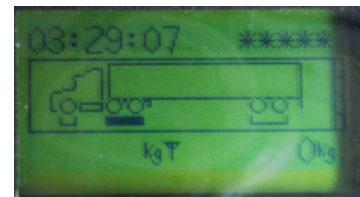
**REMARK :** Make sure that you had marked down the Serial Numbers entered on different Axle Groups on the captioned Sensors and the sketch showing the appearance of the truck.

3. **Signal Check:** Now that your sensors serial numbers are entered in the handheld it is time to check the radio connection between the devices:
  - a. To **check the radio connection** do the following:
    - Keep the sensors and the handheld within several feet of one another with no obstructions between the devices. The sensors should automatically connect to the handheld. Establishing the first connection will usually take between 30 seconds and 3 minutes.
    - You will know when you are getting the signal when you see the pressure and temperature reading on the Main Screen for each sensor/axle group (pressure should read between 0 PSI to 1 PSI). If the signal is not received you will see \*\*\*\* on the top right hand corner instead of the pressure and temperature readings.
    - Use the Left and Right buttons to move the black cursor and examine the signal coming from each axle group/sensor.

**Main Screen: Receiving signal**



**Main Screen: NOT receiving signal**



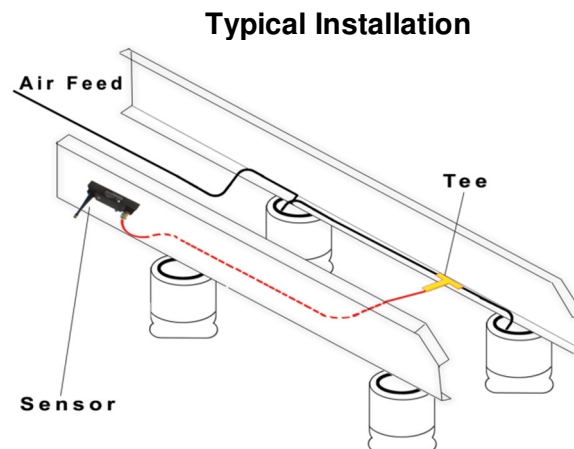
- b. **Place the sensors in the planned mounting locations.** Sensors can be mounted anywhere on your rig to which you can safely run a D.O.T. air line, with the exception of inside a metal casing.
  - Allow enough room for the battery cap to be removed so that the batteries can be changed.
  - Check the signal in the cab of the tractor and/or on a loader and/or other locations where you will want to receive a signal.
  - If you stop receiving a signal from a sensor, change the mounting location of the sensor to a location where you can receive the signal.

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## 4. Physical Installation of Sensors:

Once you have a satisfactory signal from all of your sensors in the mounting locations you have chosen, it is time to finish the physical installation of your sensors.

- a. Screw a 90-Fittings (Part G) into each of the Air Sensors (Part A). Use a wrench to tighten firmly.
- b. In all cases, the tee must be placed into the airline of the air suspension system between the air bags (see diagram below).
  - First turn off your truck, set the brakes and dump the air bags.
  - Cut the air line, and insert the T-Fitting (Part F). The below diagram reflects a typical installation.
  - It is OK to put the sensor on the inside of the frame rail as long as you get your signal where you need it. It is also OK to protect the sensor with a plastic case or bag; however, it is not necessary. **Mount the sensor with the antenna pointing up.**



- Cut a suitable length of D.O.T. tubing (not provided) to run from the mounted sensor to the tee.
  - Connect the D.O.T tubing to the T-Fitting and to the sensor via the 90-Fitting
  - Secure the tubing with tie wraps (Part H).
  - **IMPORTANT: Make certain D.O.T. runs in a downward position from the sensor fitting to prevent any moisture in the air line from running into the sensor.**
- c. Using an existing hole on the tractor and/or trailer frame, fasten the sensor to the frame using the Sensor Bolt Assemblies (Part E). Tighten the locking nut to about 20 ft-lb.

**NOTE:** The Lithium 1.5 volt batteries in the sensors should last approximately one year, and when the batteries are nearing the end of their life a low battery signal is sent to the handheld. Information is not lost if batteries are dead.

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## C). CALIBRATION INSTRUCTIONS

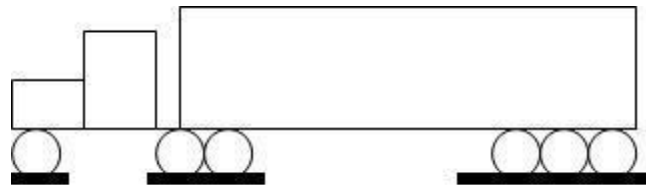
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### 1. Calibration Steps for a Sectional Platform Scale:

\*\*\* For more specific instructions on how to calibrate using a plain platform scale (non- sectional) section 2 of the Calibration Instructions. \*\*\*

**NOTE: For the calibration purposes only, ensure that your load per sensor is not heavier than 65,000 lbs. or 29,710 kg per axle group.**

- Drive to an accurate set of scales. **You will need to do all steps twice (first with loaded and then with unloaded weights or visa-versa).**
- Use the Calibration Data Sheet supplied in this manual on Page 12 to record your calibration data.
- When using a sectional platform scale, pull the truck onto the scale making sure that each section of the truck (steers, drives, and trailer) is properly on the scales as in the picture below.



- Dump and refill your airbags** before getting your PSI from the handheld. Watch the PSI reading in the top right hand corner of the screen to make certain the updated pressure is constant as some suspensions take longer than others to settle.
  - Ensure that the **air brakes are off** while on the scale. (Applying the brakes during the calibration process can place a slight torque on the air suspension system, which may affect the accuracy of the air pressure reading.)
  - Let the suspension settle** before taking a reading.
- While on the scale, write down the pressure reading for each axle group/sensor from the handheld along with the weight for each axle group from the in-ground scale. The PSI reading is in the top right corner on the handheld display.
  - To switch between sensors use the Left and Right buttons on the handheld to move the cursor below the desired axle group.
  - Keep this written document for your records.
  - Do this step for both the loaded and unloaded weights.**

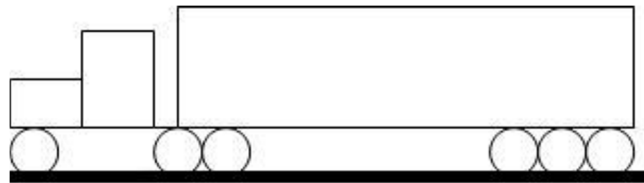
### 2. Calibration Steps for a Platform Scale (Non-sectional):

**NOTE: For the calibration purposes only, ensure that your load per sensor is not heavier than 65,000 lbs. or 29,710 kg per axle group.**

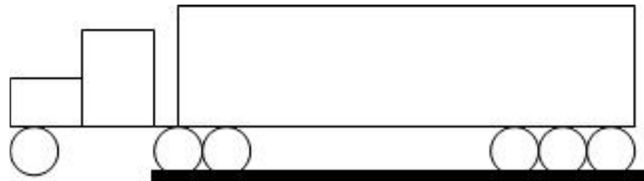


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- a. Drive to an accurate set of scales. **You will need to do all steps twice (first with loaded and then with unloaded weights).**
- b. **Record the Gross Vehicle weight:**
  - Pull onto the scale as shown below
  - Dump and refill your airbags before getting your pressure reading from the handheld and ensure that the air brakes are off while on the scale. (Applying the brakes during the calibration process can place a slight torque on the air suspension system, which may affect the accuracy of the air pressure reading.)
  - Let the suspension settle
  - Record the weight and PSI displayed by each sensor on the steers, drives, and trailer, and then record the corresponding scale weight.



- c. **Record the Drives & Trailer weight:**
  - Pull the truck forward so that just the drives and trailer are remaining on the scale
  - Dump and refill your airbags before getting your pressure reading from the handheld and ensure that the air brakes are off while on the scale.
  - Let the suspension settle till the PSI is similar to the previous readings<sup>4</sup>
  - Record the weight and PSI of the sensors on the drives and trailer and then the corresponding scale weight



If the pressure reading is off by more than 0.3PSI it may indicate that the truck is not on a level surface. Calibrating on an unlevel surface will cause a reduction in the accuracy of the system.

- d. **Record the Trailer weight only:**
  - Pull the truck ahead until only the trailer is on the scale
  - Dump and refill your airbags before getting your pressure reading from the handheld and ensure that the air brakes are off while on the scale.
  - Let the suspension settle till the PSI is similar to the previous readings<sup>5</sup>
  - Record the weight and PSI from each sensor on the trailer and then the corresponding scale weight





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- e. **Calculate the weight of each axle group** as follows and record the weights on the Calibration Data Sheet with the PSI reading from the handheld.
  - Steers Weight = (Weight in Step B) – (Weight in Step C)
  - Drives Weight = (Weight in Step C) – (Weight in Step D)
  - Trailer Weight = (Weight in Step D)
  - Total Gross Vehicle Weight= Steers Weight + Drives Weight + Trailer Weight

### 3. Calibration of Lift Axles Controlled by a Regulator (note most rigs can obtain weights without placing sensors on lift axles, if you require more information please contact TruckWeight)

- a. With a loaded rig, position the trailer on the scale so that the weight of only the lift axle can be obtained.
- b. Apply air pressure to the lift axle of between 20 to 25 PSI. Record the weight on that axle from the scale and the air pressure displayed on the handheld, and this will be the empty calibration setting.
- c. Increase the pressure to between 40 to 45 PSI. Record the weight from the scale and the air pressure displayed on the handheld, and this will be the loaded calibration setting.

**NOTE: The sensors on your drive axles and/or tandem axles should be calibrated with the lift axles up.**

If the pressure reading is off by more than 0.3PSI it may indicate that the truck is not on a level surface. Calibrating on an unlevel surface will cause a reduction in the accuracy of the system.

### 4. Adjusting Calibration for Dual Leveling Valves

If you have dual leveling valves for your air suspension you must adjust the calibration information that you recorded during the calibration procedure as in the example below:

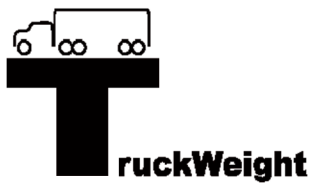
#### Example Unloaded Calibration Data:

Left Sensor Pressure Reading: 10.0 PSI

Right Sensor Pressure Reading: 15.0 PSI

Empty Weight: 10,000 Lbs

- a. Add the two pressure readings together:  
 $10.0 + 15.0 = 25.0 \text{ PSI}$  (this is the **Total Pressure**)
- b. Divide the Weight by the Total Pressure:  
 $10'000 \text{ Lbs} / 25.0 \text{ PSI} = 400 \text{ Lbs} / \text{PSI}$  (this is **Proportion** of pounds per psi)
- c. Multiply the Left Sensor Pressure Reading by the Proportion calculated in step "b" for the Left Sensor Weight:  
 $10.0 \text{ PSI} \times 400 \text{ Lbs} / \text{PSI} = 4000 \text{ Lbs}$  (**Left Sensor Weight**)



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d. Multiply the Right Sensor Pressure Reading by the Proportion calculated in step “b” for the Right Sensor Weight:

$$15.0 \text{ PSI} \times 400 \text{ Lbs} / \text{PSI} = 6000 \text{ Lbs} \quad (\text{Right Sensor Weight})$$

Therefore, your Empty Calibration information is;

Sensors	Weight	Pressur
Left	4000 pounds	10.0 psi
Right	6000 pounds	15.0 psi

Keep the original readings and the calculation for your records. Do the same steps for the Loaded Calibration Data.

## 5. Entering Calibration Data into the Display Controller:

a) Select a Sensor/Axle Group to calibrate :

- On the Main Screen, use the Right and Left buttons to move the Black Cursor underneath the Sensor/Axle Group that you want to calibrate. Move the Cursor underneath the Last Rear End Sensor/Axle Group.
- Press down and hold together the Center and Down buttons until the Screen changes to the Calibration Screen.

### Calibration Screen

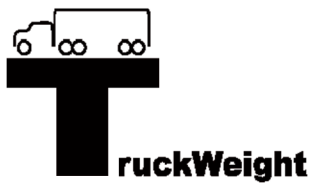


- On the Calibration Screen, from top to bottom : (Looking at the picture)  
 First Line: Serial Number of Sensor  
 Second Line: \*\*\*\*\*  
 Third Line: Full load Truck for Weight and PSI  
 Fourth Line: Unloaded Truck for Weight and PSI

b) Use the Left and Right buttons to move the Cursor onto the Third Line. Select the Full Load Truck for Weight, Check the Sensor’s Serial Number shown on the First Line is the same with the Record hold in your hand. Use the Up and Down buttons to enter the weight as per your Data recorded from Weighing Station. Check for correct entering before you press down the Center button to confirm this setting.

c) Repeat steps in paragraph a. for Calibration Screen.

d) Use the Left and Right buttons to move the Cursor onto the Third Line. Select the Full Load Truck for PSI, Check the Sensor’s Serial Number shown on the First Line is the



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same with the Record hold in your hand. Use the Up and Down buttons to enter the PSI as per your Data recorded from Weighing Station. Check for correct entering before you press down the Center button to confirm this setting.

- e) Repeat the steps from a. to d. for the Second Sensor on this Last Rear End Sensor/Axle Group for setting of Full Load Truck Weight and PSI.
- f) On the Main Screen use the Right and Left buttons to move the Cursor underneath the Second Last Rear End Sensor/Axle Group, proceed the procedures as described from paragraph a. to d. for Third and Fourth Sensors.
- g) On the Main Screen use the Right and Left buttons to move the Cursor underneath the Front Sensor/Axle Group, proceed the procedures as described from paragraph a. to d. for Last Sensors.

After all the data is inputted into the hand held the sensors are calibrated. Your gross vehicle weight is displayed in the bottom right corner of the home screen and the axel group weight is displayed on the bottom left of the home screen.

**NOTE: If you change components of your air suspension system, you may be required to perform a second calibration to retain the same high level of accuracy.**

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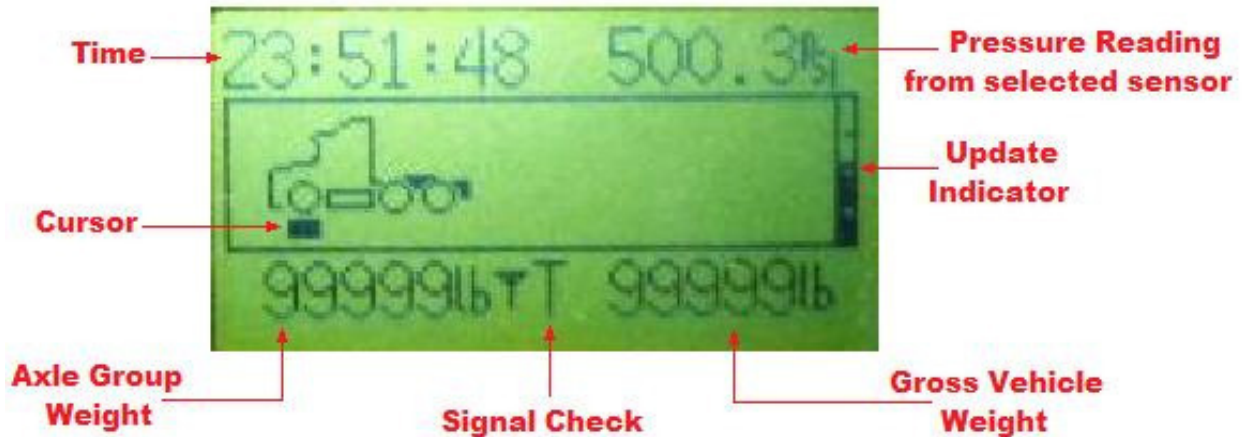
## D). OPERATING INSTRUCTIONS

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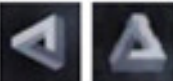
1. **Check that you are receiving a signal** from all sensors. On the Main Screen the Signal Check ("T" in the bottom center of the screen) indicates if a signal is being received by all installed sensors. If the "T" is solid the handheld is receiving all signals. If the "T" is flashing, the handheld is NOT receiving a signal from one or more of the installed sensors.
2. Make sure you are on **flat, level ground**.
3. Check that the configuration of the axles is the same as when you calibrated your TruckWeight Smart Scale system (i.e.: 5th wheel up/down, lift axle up/down, etc.)
4. **Dump and refill your airbags.**
5. Ensure that the **air brakes are released**. In event that your brakes cannot be released, have one on and one off (i.e.: Drive axle on with trailer off and then record drive axle weight. Then trailer on with drive axle off and record the trailer axle weight).
6. **Let the suspension settle** before taking a reading.
7. Review your weight on the hand held. The **gross vehicle weight** is always in the bottom right of your screen. The **axle group weight** is on the bottom left side of screen. You can switch between axle groups by using the Left and Right Buttons to move the black cursor underneath the desired axle group.

## E). HANDHELD QUICK REFERENCE



- The truck in the middle of the screen represents the rig that you have selected. The **Cursor** indicates the currently selected sensor (the handheld will display the axle group weight from the selected sensor). If the black cursor is blinking, the handheld is **NOT** currently receiving a signal from the sensor.
- The **Signal Check** (“T” in the bottom center of the screen) indicates if a signal is being received by all installed sensors. If the “T” is flashing, the handheld is **NOT** receiving a signal from one or more of the installed sensors. If the “T” is solid the handheld is receiving all signals.
- The **Update Indicator** indicates how much time remains until the next information update from the selected sensor. The weight information is normally updated once each minute, but automatically goes into “Quick-Response “mode during loading. In this mode, the weight information is updated every three seconds for fifteen minutes.
- The reading in the top right corner of the screen alternates between the **temperature** reading and the **Pressure Reading** from the currently selected sensor.

## E). HANDHELD QUICK REFERENCE

FUNCTION:	DETAILED DESCRIPTION
<b>Turn ON Handheld</b>	Press and hold <b>any button</b> until the screen comes on.
<b>Return to Main Screen</b> 	Press the <b>Center button</b>
<b>Set Time</b> 	Press and hold <b>Center and Right</b> buttons together until the screen changes. Use the Up and Down buttons to set the time. Press the center button to save selection and return to Main Screen.
<b>Select a Rig</b> 	Press and hold the <b>Center and Left</b> buttons together until the screen changes. Use the Up and Down buttons to select a rig. Press the center button to save selection and return to Main Screen.
<b>Enter Sensor Serial Numbers</b> 	On the main screen, use the Left and Right buttons to move the cursor and select the desired sensor. Press and hold the <b>Center and Up</b> buttons together until the screen changes. Use the Up and Down buttons to enter the serial number. Press the center button to save selection and return to Main Screen.
<b>Enter Calibration Data</b> 	On the main screen, use the Left and Right buttons to move the cursor and select the desired sensor. Press and hold the <b>Center and Down</b> buttons together until the screen changes. Use the Left and Right buttons to move the cursor and select the desired field. Use the Up and Down buttons to enter data in a selected field. Press the center button to save selection and return to Main Screen.
<b>Switching Between LBS &amp; KGS</b> 	On the Main Screen, press and hold the <b>Up and Down</b> buttons together until the read out changes and release to switch between Kilograms and Pounds.
<b>Deleting Sensors</b> 	On the Main Screen, press and hold the <b>Left and Up</b> buttons together until the screen changes. Use the Left and Right buttons to select the sensor that you wish to delete. Press the Down button once to hi-light the “ERASE” command. Press the Right button to confirm the deletion <b>CAUTION: This is a complete deletion of the sensor from memory and you will loose your calibration information.</b> Press the center button to return to Main Screen.



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## F). CALIBRATION DATA SHEET

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	Sensor #	Loaded Weights/ PSI	Empty Weights/ PSI
Steers <sup>6</sup>			
Drives			
Trailer axel 1			
Trailer axel 2			
Trailer axel 3			

<sup>6</sup> If you do not have a physical sensor installed on the steer axle, use the virtual sensor number 10001. When calibrating the virtual sensor you only need to enter the weights from the in ground scale and will not be required to enter a pressure reading.



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## G). FREQUENTLY ASKED QUESTIONS (FAQ)

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I can not receive a signal from one or more of my sensors. What can I do to fix the problem?

- ***Is the serial number for the sensor entered correctly?***

The serial number entered in the handheld must match the serial number on the sensor in order for a signal to be received. Refer to the Handheld Quick Reference on page 11 for instructions on entering a serial number.

- ***Have you waited long enough for the sensor to update?***

The system can take up to two minutes to update when not in quick response mode. Try waiting for the next system update.

- ***Is the serial number for the sensor entered more than once in the handheld?***

The handheld may display the correct sensor number, but the signal will not appear. Delete all entries of that sensor number from the handheld (Refer to Handheld Quick Reference on page 11). Re-enter the sensor number and it will work properly.

Note: deleting a sensor also deletes the calibration information for that sensor, so be certain to record the calibration information for that sensor prior to deleting.

- ***Are the sensors mounted inside a metal enclosure?***

Metal enclosures reduce the signal of the sensors. Remove the sensor from the enclosure and wait for 2 minutes to see if the handheld begins picking up the signal.

- ***Are the batteries properly installed?***

Rotate batteries with your thumb in the sensor, check battery orientation and check that there is nothing blocking the contacts of the batteries. If rotating the batteries does not work, try changing the batteries in Sensor with new AA lithium 1.5 Volt batteries.

- ***Do you receive a signal from the sensor when you move closer to it?***

If you are not obtaining a signal from a sensor in a particular location try changing the mounting location or you may try switching the tractor sensor with the trailer sensor.





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**My handheld will not turn on. What is the problem?**

- ***Did you hold down a key to turn the handheld on?***

Hold down each of the keys one at a time for at least 10 seconds each or until the handheld screen lights up.

- ***Are the batteries properly installed?***

Rotate batteries with your thumb in the handheld, check battery orientation and check that there is nothing blocking the contacts of the batteries. If rotating the batteries does not work, try changing the batteries in the handheld with new AA alkaline 1.5 Volt batteries.

**The weight and PSI reading from my sensor is stuck on one number. What is the problem?**

- ***Do you have a signal?***

On the Main Screen of the handheld, check for a blinking bar under the axle group on which the sensor is installed. If the bar is blinking you do not have a signal. See previous FAQ: "I can not receive a signal from one or more of my sensors."

- ***Has water in the air line caused the malfunction?***

Take the sensor off of the truck and place in a warm dry area for a minimum of 24 hours to dry out the sensor. When the sensor reading becomes unstuck reinstall the sensor. (Make certain D.O.T. tubing runs in a downward position from the sensor fitting to prevent any moisture in the air line from running into the sensor).

**The sensor weight and PSI reading at no load has changed significantly and now I do not get an accurate weight from my Smart Scale system. What should I do?**

- ***Have you changed your rig configuration?***

Changing your rig configuration in any way can change the weight distribution on the axle groups of your rig. If you have made a change to your rig configuration, then you will need to recalibrate the sensors in your Truckweight Smart Scale system.

- ***Are you taking your reading correctly?***

You must be on flat, level ground to obtain a correct weight measurement directly from your handheld. Dump and refill your airbags before getting your weight. Ensure that the air brakes are off and that you allow enough time for the suspension to settle before taking a reading.

- ***Has a back pressure built up on the atmospheric pressure port?***

On occasion some air sensors will have a slow pressure leak from the high pressure port where the air line is attached to the atmospheric port on the opposite side of the sensor.

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Remove the sensor from the truck and look at the rubber diaphragm on the back side of the sensor directly opposite the air line. If there is a pressure leak the rubber diaphragm will be bulged outward.

If the diaphragm is bulged outward, use a needle or a paper clip to poke several holes in the diaphragm. When poking the holes keep the needle as horizontal as possible to avoid poking too deeply and damaging the sensor underneath.

- ***Has water in the air line caused the malfunction?***

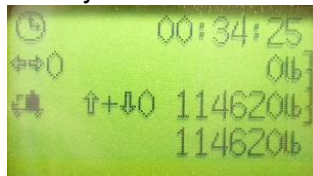
Take the sensor off of the truck and place in a warm dry area for a minimum of 24 hours to dry out the sensor. When the sensor reading returns to near zero while disconnected reinstall the sensor. (Make certain D.O.T. tubing runs in a downward position from the sensor fitting to prevent any moisture in the air line from running into the sensor).

**I have entered a screen on the handheld that I do not recognize. What is the screen for? How do I get back to the main screen?**

- ***Are you in pay loader mode?***

Truckweight is continually trying to improve and expand the functionality of its products. Currently Truckweight is working on developing a mode for pay loaders. The screen for pay loaders looks like the following picture.

Pay Loader Screen



To exit from this screen or any other screen and return to the Main Screen simply press the Center Button.

**How do I switch between kilograms and pounds?**



- On the Main Screen, press and hold the **Up and Down** buttons together until the read out changes and release to switch between Kilograms and Pounds.



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## H). IMPORTANT SAFETY NOTICES

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Always refer to and follow the safety messages and applicable service procedures provided by the manufacturer of the vehicle being serviced. Please read, understand, and follow all safety messages and instructions in this manual.

The TruckWeight handheld and sensor (also referred to as the TruckWeight wireless truck scale) are acceptable for use in Class I, Divisions 1, Groups A, B, C and D, Class II, Divisions 1, Groups E, F and G, and Class III Division 1 Hazardous Locations. Both the handheld and the sensor are ultra low-energy devices, which include energy limiting circuits and low-voltage batteries (2 X 1.5 V). Both devices feature very low power consumption (less than 18mA/54mJ/s peak).

The TruckWeight handheld units and sensors are intrinsically safe and suitable for use in explosive areas.

### WARNINGS

- **DO NOT OPERATE HANDHELD SCALE WHILE DRIVING.**
1. **Many air suspension systems maintain residual pressure in the air lines after the engine has been turned off. Please take the following precautions:**
    - Wear safety glasses, chemical resistant gloves, and protective clothing when connecting and disconnecting air lines.
    - Confirm ZERO pressure before connecting and disconnecting air lines.
  2. **Beware of the risk of unexpected vehicle movement. Please take the following precautions.**
    - Block the drive wheels before installing the sensors.
    - Ensure the parking brake is set.
    - Do not leave a running vehicle unattended. A moving vehicle can cause injury.
  3. **The engine has moving parts and there is a risk of entanglement. Please take the following precautions:**
    - Do not place tools on fenders or anywhere within the engine compartment.
    - Keep yourself, your clothing, adapters, and service hoses clear of moving parts such as fan blades, belts, and pulleys.
    - Users and bystanders should wear safety goggles when near a running engine. Moving components can cause eye injuries.
  4. **Maintain your focus on the road. Do not use the handheld unit while driving.**
  5. **Beware the risk of burns. Please take the following precautions:**
    - If at all possible, avoid working near hot truck components, and instead allow the truck to cool off before proceeding. However, if it is absolutely necessary to do so, ensure that protective gloves are worn.
    - Do not touch hot exhaust systems, manifolds, engines, radiators, etc. Hot components can cause injury or severe discomfort.



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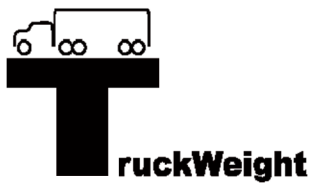
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## I). WARRANTY AND TERMS OF SALE

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All quotations and sales by Smart Scale Technologies Inc.,(Smart Scale) its subsidiaries or affiliates are subject to these terms and conditions.

1. Terms of payment are cash or equivalent; prices are CIF; and wireless truck scale prices do not include any taxes, insurance, handling, duty or other similar charges, payment of which will be the sole responsibility of customer unless otherwise specified on invoice.
2. Smart Scale may select a carrier. Truckweight responsibility for any loss or damage ends, and title passes, when Wireless Truck Scales are delivered to the carrier, to customer, or to customer's agent.
3. The Smart Scale Wireless Truck Scale is warranted against defects in material or workmanship for 2 years from the date of the original purchase. If the Wireless Truck Scale, which, because of a manufacturing mistake or malfunction, proves to be defective within the 2 year warranty period, it will be replaced Smart Scale with a handling and service charge to you, provided you have proof of purchase. Note handling and service charges may change from time to time and region to region. This warranty does not cover incidental or consequential damage to persons or property caused by use, abuse, misuse, failure to comply with installation or operating instructions, or damage caused by battery malfunction. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above warranty does not apply in those states. This warranty gives you specific legal rights and you may also have other rights, which vary state to state.
4. SmartScale SHALL HAVE NO RESPONSIBILITY FOR OVERLOAD FINES RECEIVED WHILE USING THIS WIRELESS TRUCKSCALE.
5. Wireless TruckScales are deemed accepted by customer unless customer notifies SmartScale in writing within 10 days of delivery of Wireless TruckScales hortages, damage or defect. **Nore turns may be made for any reason without obtaining a Return Authorization Number(RAN#) issued by SmartScale.** If customer refuses to accept tender or delivery of any Wireless TruckScales or returns any Wireless Truck Scales without authorization from SmartScale., such Wireless Truck Scales will be held by SmartScale awaiting customer's instruction for 20 days, after which SmartScale may deem the Wireless Truck Scales abandoned and dispose of them as it sees fit, without crediting customer's account. Refunds are not permitted.
6. SmartScale will not be liable for any failure or delay in its performance or in the delivery or shipment of Wireless TruckScales, or for any damages suffered by customer by reason of such failure or delay,when such failure or delay is caused by, or arises in connection with, any fire, flood, accident, riot, earthquake, severe weather, war, governmental interference or embargo, strike, shortage of labor, fuel, power, materials or supplies, delay in delivery by SmartScale suppliers or any other cause or causes beyond ScaleScale's reasonable control. SmartScale reserves the right to cancel without liability any order, the shipment of which is or may be delayed for more than 30 days by reason of any such cause. SmartScale reserves the right to allocate in its sole discretion among customers or potential customers, or defer or delay the shipment of, any Wireless TruckScale which is in short supply.
7. All quotations and sales are made only upon these terms and conditions and those on the invoice. The invoice and not any purchase order or other customer document (which, if



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construed to be an offer is here by rejected), will be deemed an offer or counter-offer and is a rejection of any other terms or conditions. Customer, by accepting any Wireless TruckScales, making any payments or ordering any WirelessTruckScales accepts these terms and conditions and will be deemed to have assented to these terms and conditions, notwithstanding any terms contained in any prior or later communication from customer and whether or not SmartScale will specifically or expressly object to any of customer's terms. SmartScale's failure to object to any document, communication or act of customer will not be deemed a waiver of any of these terms and conditions. Any addition or change to these terms and conditions must be specifically agreed to in writing by a duly authorized officer of SmartScale before becoming binding on SmartScale.

8. Unless specifically otherwise agreed in writing by SmartScale customer acknowledges that Wireless TruckScales sold by SmartScale are not intended for and will not be used in life support systems, human implantation, nuclear facilities or systems or any other application where Wireless TruckScale failure could lead to loss of life or catastrophic property damage. Customer will indemnify and hold SmartScale harmless from any loss, cost or damage resulting from customer's breach of the provisions of this paragraph.
9. Any or all Wireless TruckScales may be subject to export or resale restriction or regulation, and customer acknowledges that it will comply with such regulations or restrictions. Any or all Wireless TruckScales may have been imported. Country of origin information is as provided to SmartScale by its suppliers and is, where applicable, located on the Wireless TruckScales themselves or the supplier's innermost packaging thereof.
10. Except for the warranty coverage referenced in paragraph 3, above, NEITHER SMARTSCALE NOR ITS SUPPLIERS WILL HAVE ANY LIABILITY OR OBLIGATION TO CUSTOMER OR ANY OTHER PERSON FOR ANY CLAIM, LOSS, DAMAGE, OR EXPENSE CAUSED IN WHOLE OR IN PART, DIRECTLY OR INDIRECTLY, BY THE INADEQUACY OF ANY WIRELESS TRUCKSCALES FOR ANY PURPOSE, BY ANY DEFICIENCY OR DEFECT IN ANY WIRELESS TRUCKSCALE (WHETHER OR NOT COVERED BY ANY WARRANTY), BY THE USE OR PERFORMANCE OF ANY WIRELESS TRUCK SCALES OR BY ANY FAILURE OR DELAY IN TRUCKWEIGHT PERFORMANCE HEREUNDER, OR FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES, HOWEVER CAUSED, INCLUDING, WITHOUT LIMITATION, PERSONAL INJURY OR LOSS OF BUSINESS OR PROFIT, WHETHER OR NOT CUSTOMER WILL HAVE INFORMED TRUCKWEIGHT OF THE POSSIBILITY OR LIKELIHOOD OF ANY SUCH DAMAGES.
11. SmartScale may assign accounts receivable to an affiliate. In order to defray the cost of customer account administration, any credit balance or other sum owed to customer who remains unclaimed by customer for a period of eighteen months will become the property of SmartScale.
12. No order may be cancelled, rescheduled or reconfigured without SmartScale's prior written authorization and, in such event; customer will be liable for any additional costs and expenses incurred by SmartScale.
13. Prices are subject to change by Smart Scale upon customer rescheduling or reconfiguration of orders.

Prices are also subject to change in response to supplier price increases.



# Smart Scale Technologies

**Smart Scale Technologies Inc.**

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