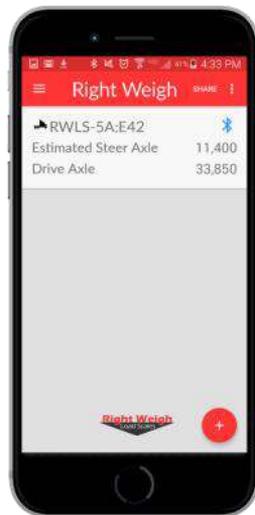


Right Weigh Load Scales

 **Bluetooth®** Wireless Technology Enabled
Exterior Digital Load Scale

with Remote Trailer Sensor
201-RTS-01(B)
201-RTS-02(B)



Installation and Operation Manual

Please read carefully before installation

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Bluetooth® Wireless Technology Enabled

Exterior Digital Load Scale

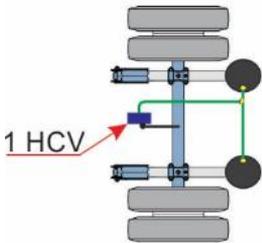
201-RTS Series

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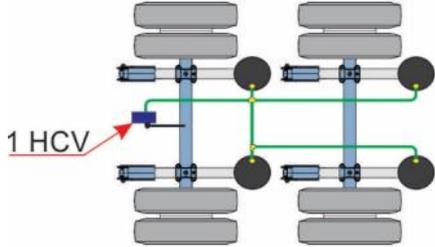
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The Right Weigh 201-RTS series digital load scale is designed to monitor a tractor's drive axle group, estimate the steer axle weight, and has the option of being connected to any Right Weigh remote trailer sensor.

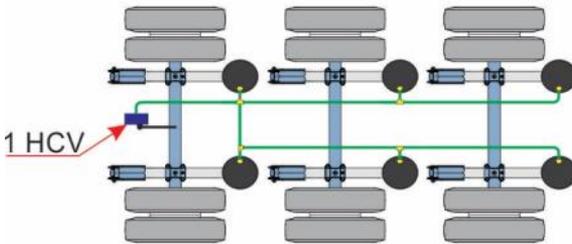
The 201-RTS-01(B) has **one** internal air pressure sensor and is designed to monitor a drive axle group containing one height Control Valve(HCV).



Single Axle Group

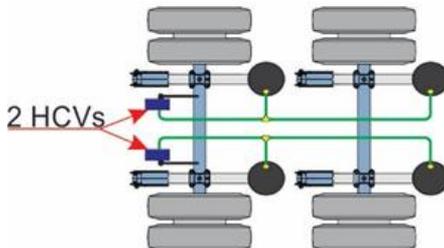


Tandem Axle Group



Tri Axle Group

The 201-RTS-02(B) has **two** internal air pressure sensors, and is designed to monitor a drive axle group containing two HCVs.



Specifications & Overview

Estimated Steer Axle:

The weight of the steers can be estimated if this scale is used to monitor the drive axle group. Refer to the Estimated Steer + Average section for more information.



Technical Specifications

Operating Temperature: -22° F to +185° F (-30° C to +85° C)

Storage Temperature: -40° F to +185° F (-40° C to +85° C)

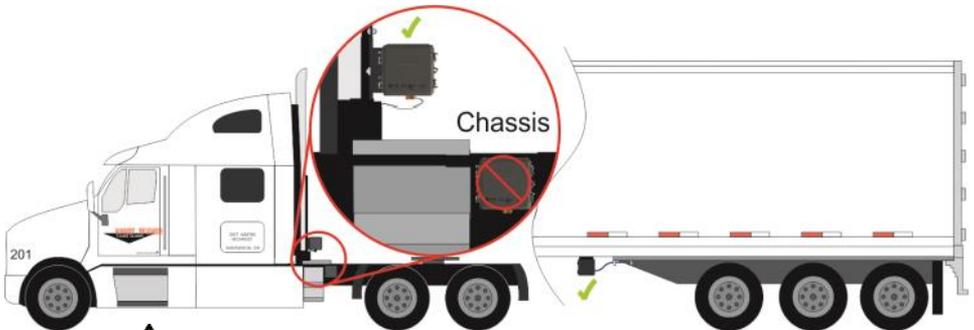
Power Requirement: 9 VDC to 32 VDC

Units: Pounds (LBS) or Kilograms (KG)

Housing: High impact polycarbonate blend

Display: 0.8" LCD sunlight readable

The 201-RTS series is designed to be mounted on the inside or outside of the truck, however the 201-RTS-01/201-RTS-02 must still be mounted in a protective enclosure if mounted outside. A protective box and mounting bracket are included with the 201-RTS-01B/201-RTS-02B. Choose a location on the vehicle to mount the scale that is easily accessible and safe from potential damage (forklift posts, tire caps, etc.).



DO NOT mount the scale directly to the chassis or any other main beam unless it is approved by the vehicle manufacturer. Doing so may void the warranty with the vehicle manufacturer.

1: Mount the supplied bracket in the chosen location and install the protective box to the bracket using the supplied hardware.



2: Dump the air from the suspension system. Locate and remove the suspension air line fitting from the top of one of the air bags connected to the Height Control Valve(HCV).



Installation and Electrical Connections

3: Insert a street tee fitting into the top of the air bag. The street tee fitting should match the thread size and type of the vehicle suspension. Reinstall the suspension air line and fitting into the street tee. For a list of recommended hardware, please see Appendix A.

Insert suspension air line and fitting into the tee fitting

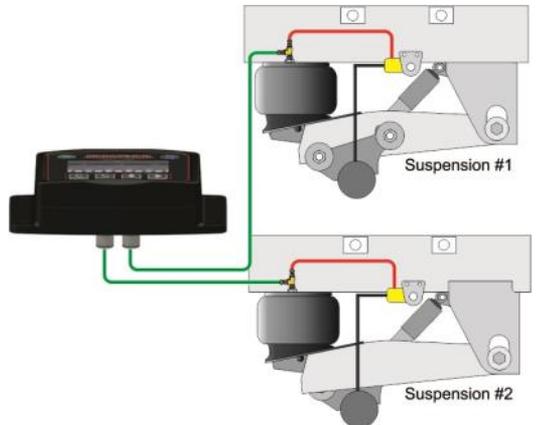


4: Install a new 1/4" air line and fitting to be used with the Right Weigh load scale into the street tee. Run the new air line from the street tee fitting to the mounting location of the scale.

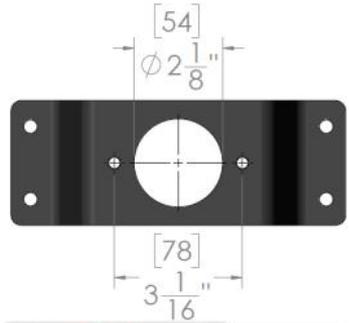
Insert new air line and fitting into the tee fitting



5: Insert the new air line into the push-to-connect fitting on the back of the gauge. Repeat steps 2 through 5 for the additional HCV if applicable. Air up the suspension and check connections for leaks.



6: Mount the remote trailer connection socket on the back of the truck where it will be accessible to the driver. A 2-1/8" (54mm) hole must be drilled to accept the socket, or a mounting bracket must be added.

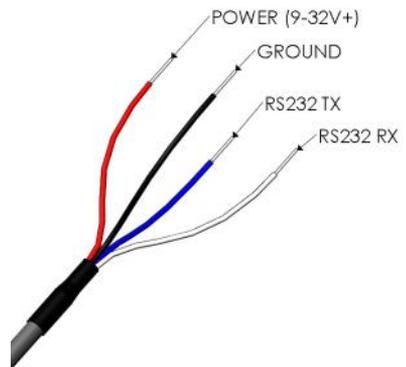


7: Route the wiring through the truck and connect the threaded 12-pin data connector to the back of the load scale.



8: The additional cable coming out of the 12-pin data connector is used to power the scale and transmit/receive vehicle data. Connect the RED wire to a **SWITCHED** positive (+) power source (**DO NOT connect directly to the battery**) and the BLACK wire to chassis ground (-). The required supply voltage must be between 9 and 32 volts DC.

9: The white and blue wires are for RS232 communications (use is optional). The BLUE wire is output from the scale (TX). The WHITE wire is input to the scale (RX). For more information about this feature, please contact us.



Electrical connections must be insulated from weather to protect scale and wiring from damage. See Appendix B

Operating Modes

The next few pages cover the operating modes that are built into the 201-RTS Series load scale. **The load scale can only be setup in one operating mode at a time. If the mode is changed, the calibration data will be reset to factory defaults, requiring re-calibration.**

Average Mode (AVG): This is the default mode of the scale. Both air inputs are averaged for monitoring one axle group with two Height Control Valves (HCV).

Estimated Steer Mode Average (S-AVG): For monitoring a drive axle group with two HCVs and also calculating an estimated steer axle weight based on the weight ratio between the drive axle group and the steer axle.

Changing Scale Modes:

1: With the scale **OFF**, hold both the UP and DOWN arrow buttons, and press the **ON/OFF** button. Release all 3 buttons. The scale will display the current mode.

2: Press the UP arrow button to cycle through the configuration modes. To confirm your selection, turn the scale off by pressing the ON/OFF button.



In the lower left of the display, a small number will be visible. This number corresponds to the axle group being displayed.

Average Mode (AVG):

1=Drive

2=Remote Trailer

1 2= Drive + Remote Trailer

Estimated Steer Mode Average (S-AVG):

1=Estimated Steer

2=Drive

3=Remote Trailer

1 2 3=Est. Steer + Drive + Remote Trailer



Use the MENU button to switch the display between the axle groups.

Remote Trailer Connection

The 201-RTS series load scale has the option of being connected to any Right Weigh remote trailer sensor. When connected to a remote trailer sensor, the load scale displays the weight of the trailer axle group based on calibration data that is saved to the remote trailer sensor itself.

Connecting to a Remote Trailer Sensor:

1: Connect one end of the supplied trailer jumper cable (EL-004-0042) to the remote trailer connection socket mounted at the back of the truck.

Remote Trailer Connection (Truck)



2: Connect the other end of the trailer jumper cable to the Right Weigh remote trailer sensor itself.

Remote Trailer Sensor



Once connected to a Right Weigh remote trailer sensor, the 201-RTS series load scale will display the weight of the trailer axle group. When disconnected from any remote trailer sensor, the display will read “0” for the trailer axle group.

 **When connected to a remote trailer sensor, trailer axle group empty and loaded weight values can be calibrated on the 201-RTS series load scale. The weight values entered by the user will be saved to the Right Weigh remote trailer sensor for ease of use in drop and hook situations.**

The 201-RTS series load scale must be calibrated both empty and loaded to work properly. The scale associates the weight you enter to the air pressure in the suspension system at the time of calibration. You will need to calibrate once while the vehicle is empty, and again while the vehicle is loaded for each axle group being monitored.

1. Empty Calibration Point

1: While the vehicle is empty, obtain a weight from a certified in-ground scale for the axle group(s) attached to the Right Weigh load scale.

2: Park on a level surface. Shift the transmission to neutral and set the parking brakes. Chock the wheels to prevent unexpected vehicle movement, then release the parking and service brakes.

3: Make sure the Height Control Valve (HCV) has fully inflated the air bags. If needed, briefly dump the air from the suspension and allow the HCV to refill the system. (This may take several minutes depending on the type of HCV.)



4: Press the ON/OFF button to turn on the Right Weigh load scale.



5: Press the MENU button to switch the display to the axle group you wish to calibrate. Press and hold the C LOW button until the "C/L" symbol appears.



6: Adjust the value using the UP and DOWN arrows so that it matches your scale ticket for the axle group.



7: To save, press and hold the C LOW button until the "C/L" symbol disappears.

8: Repeat steps 5-7 for each remaining axle group.



Weigh the entire axle group being monitored. Do not use values such as gross weight, tare weight, or just a single axle weight from a tandem etc. When entering the loaded weight value, be sure that your vehicle is as close to the maximum legal weight limit as possible.

Calibration



2. Loaded Calibration Point

1: While the vehicle is fully loaded, obtain a weight from a certified in-ground scale for the axle group(s) attached to the Right Weigh load scale.

2: Park on a level surface. Shift the transmission to neutral and set the parking brakes. Chock the wheels to prevent unexpected vehicle movement, then release the parking and service brakes.

3: Make sure the Height Control Valve (HCV) has fully inflated the air bags. If needed, briefly dump the air from the suspension and allow the HCV to refill the system. (This may take several minutes depending on the type of HCV.)



4: Press the ON/OFF button to turn on the Right Weigh load scale.



5: Press the MENU button to switch the display to the axle group you wish to calibrate. Press and hold the C HIGH button until the "C/H" symbol appears.



6: Adjust the value using the UP and DOWN arrows so that it matches your scale ticket for the axle group.



7: To save, press and hold the C HIGH button until the "C/H" symbol disappears.

8: Repeat steps 5-7 for each remaining axle group.

Once both empty and loaded calibration has been performed, the scale is ready to use! If you have any trouble entering calibration data, refer to the troubleshooting section of this manual.

In order for the gauge to provide the most accurate weight values, you must take care to position the vehicle correctly. For best results, follow these steps:

1: Park on a level surface. Shift the transmission to neutral and set the parking brakes.

2: Chock the wheels to prevent unexpected vehicle movement, then release the parking and service brakes.

3: Make sure the Height Control Valve (HCV) has fully inflated the air bags. If needed, briefly dump the air from the suspension and allow the HCV to refill the system. (This may take several minutes depending on the type of HCV.)



4: Press the ON/OFF button to turn on the Right Weigh load scale.



5: If monitoring multiple axle groups, press the MENU button to cycle the display through each axle group.

6: Adjust the suspension or the load itself until the Right Weigh load scale displays a weight value below your legal limit.



7: Press the ON/OFF button to turn off the Right Weigh load scale.

- The display will turn itself off after 60 minutes.



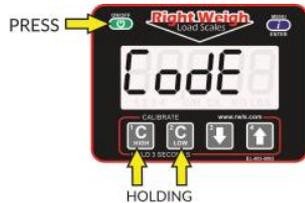
- To change the units from pounds to kilograms, hold the UP arrow button, then press the MENU button.

Security PIN Code

A security PIN code can be added to the 201-RTS series to prevent tampering with the scale. It will need to be entered to change the calibration values, or to change the PIN code. Keep a copy of the PIN code for future use. Once a PIN has been set, it can be changed, but it cannot be removed.

Setting a PIN Code

1: With the gauge **OFF**, hold both the C LOW and C HIGH buttons, then press the ON/OFF button. Release all three buttons.

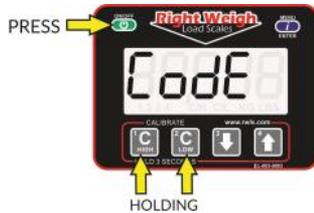


2: Press the MENU button. The display will show "00000". If the display shows "----" it means there is already a code set. Enter in a 5 digit PIN code using buttons 1, 2, 3 and 4. Press the MENU button again to save the PIN.



Changing your PIN Code

1: With the gauge **OFF**, hold both the C LOW and C HIGH buttons, then press the ON/OFF button. Release all three buttons.



2: Press the MENU button. The display will show "----". Enter the previous PIN code. If the correct code was entered, The display will show "Good".



3: Press the MENU button, and enter the new 5 digit PIN code using buttons 1, 2, 3, and 4. Press the MENU button again to save the new PIN.



As an added visual warning, the display can be set to flash when above a set weight. For example, you may choose to have the display flash any time the weight on the axle group goes above 33,500 pounds.

Setting an Overweight Warning

1: With the scale turned on, press and hold the C HIGH and C LOW buttons. After 3 seconds, the “C/H” symbol will appear.



2: The display will show the warning value. “0” is the default setting and the display will not flash the weight at any time if it is set to “0”.



3: Use the UP and DOWN arrow buttons to set the desired warning weight. Press and hold the C LOW and C HIGH buttons to save.



Setting the warning value to “0” will disable the overweight warning feature.

When connected with **Bluetooth®** wireless technology enabled Right Weigh load scales, axle group weight readings are displayed on the *Right Weigh Load Scale App*.

The basic steps to connect your Right Weigh load scale to your smart device are:

- Discover the unique name of your load scale(s)
- Setup your load scales to the desired configuration
- Sync your load scale(s) with your smart device

1. View Data, Settings and Support: Use this button to view stored weight data, go to the app settings screen, or view our support page.

2. Scale Name (Truck): The name of the connected truck-mounted scale appears here. Tap the name to set a new name for the scale. The name you set will be saved to the scale itself and the scale will be identified by that name in the future when visible to a device.

3 Axle Group Name: This name represents the axle group which the scale is monitoring and reflects the set-up mode of the scale.

4. Print: This button allows you to print weight data to Bixolon mobile printers.

5. Share: This button will open the share data view to send weight data via email or SMS.

6. Settings : This button will open the app settings screen, see page 23 for more info.

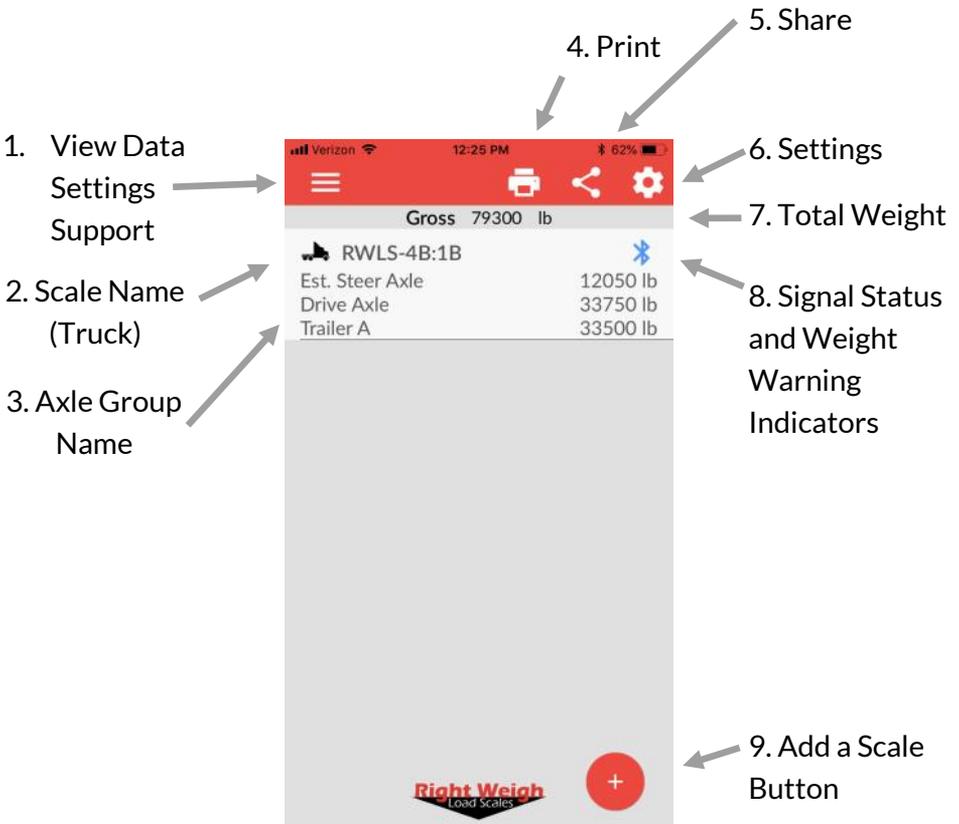
7. Total Weight: Shows vehicle's total weight

8. Signal Status: A blue icon represents that the device is connected to the scale and is receiving data. A grayed-out icon means the scale has been disconnected. Pressing the refresh button will attempt to reconnect the device to the scale.

9. Add a Scale: Press the "+ Truck" button to add a truck mounted scale to the app. Press the "+ Trailer" button to add a trailer mounted scale to the app.

Right Weigh Load Scales App Overview

App Home Screen



Unique Scale Identifier:

If this is the first time you have used the Right Weigh load scale, you will need to enter a special mode to view the scale's unique identifier. This will help identify the scale when syncing more than one scale with your smart device.

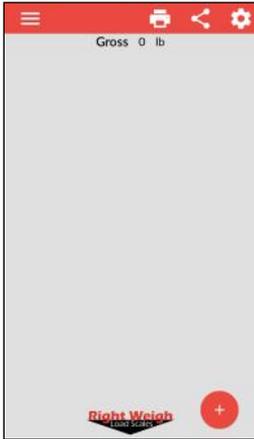
1: With the scale display off hold down the MENU button, then press the ON/OFF button. Release both buttons.



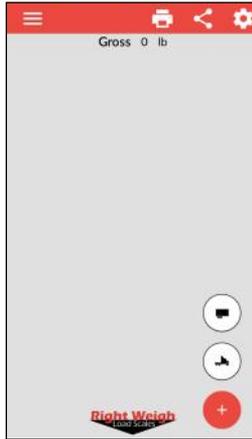
2: Press the MENU button twice to display the unique identifier.



Syncing your Device



Step 1: Press (+) from the home screen.

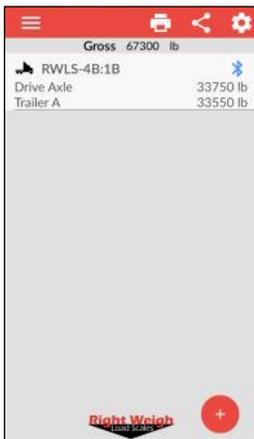


Step 2: Press the truck icon.



Step 3: Select the load scale matching the unique identifier of the scale you wish to sync with. Tap (+)

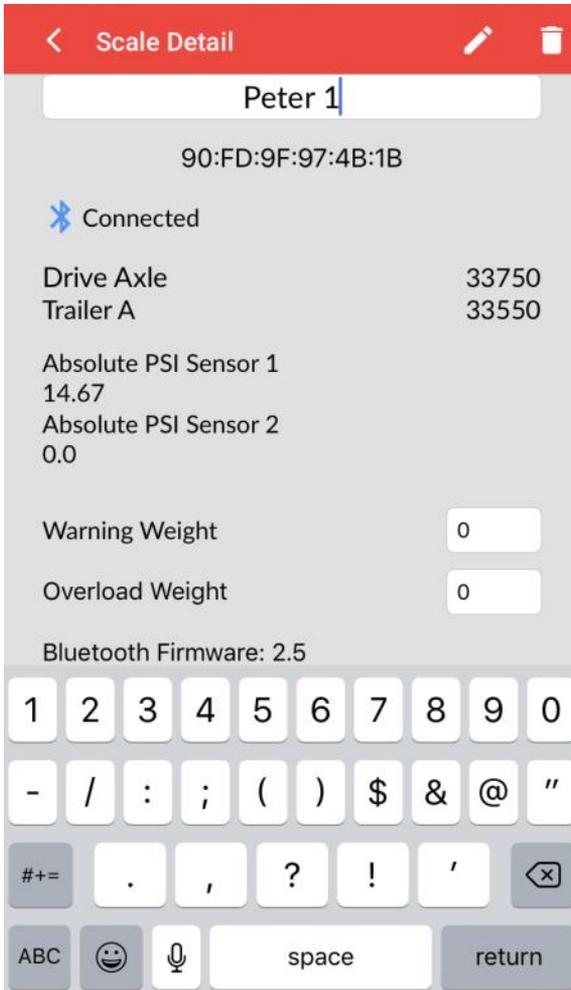
If your gauge is setup in the default **Average (AVG)** mode, you will see the drive axle and trailer axle weights displayed.

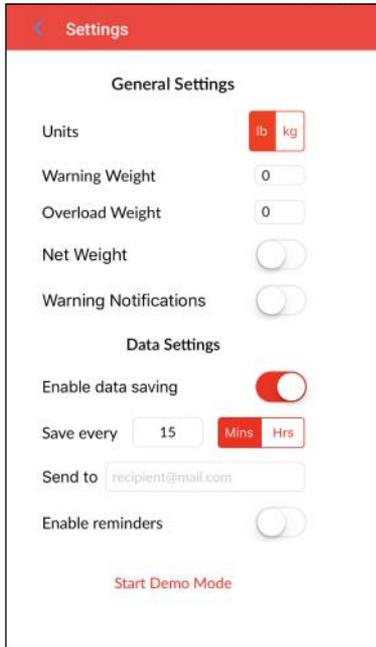


If your gauge is setup in the **Estimated Steer - Average (S-AVG)** mode, you will see the estimated steer axle, drive axle, and trailer axle weights.



To re-name a scale, first go to the Scale Details page. You can get to the Scale Details page by tapping on the scale name from the home screen of the app. From there tap the pencil icon to begin editing the current scale name. Enter the new name then press return in the keypad to save. The name you enter will be saved to the scale itself, and will replace the default name. When syncing with your scale in the future, this name will display in the app.



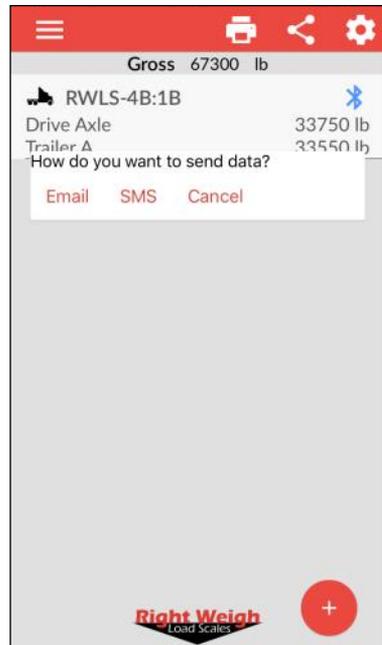


Share

To share your current loaded weight with others via e-mail or text, tap the share button in the top right corner of the home screen. The share data interface will appear. Choose e-mail or text and enter the contact information of the person you wish to send your data to and press send.

Settings

In the settings screen, you have the option to change the unit of measure (LBS or KG), set warning and overload weights, toggle the net weight feature, toggle warning notifications, and to toggle/change weight data log settings.



Erratic or inaccurate readings

<p>The vehicle is not parked on a level surface</p>	<p>Parking on sloped or banked surfaces will cause the vehicle weight distribution to shift between the axle groups.</p>
<p>The vehicle's brakes are on</p>	<p>When the vehicle brakes are set, they could apply additional pressure or torque on the suspension air bags. This will cause the suspension to have a different air pressure than what is actually needed to hold up the given weight.</p>
<p>The vehicle is parked on an uneven or rough surface</p>	<p>If one or more of the vehicle's wheels are in a pothole, that could result in additional pressure or torque on the suspension air bags. This will cause the suspension to have a different air pressure than what is actually needed to hold up the given weight.</p>
<p>The Height Control Valve (HCV) is malfunctioning or broken</p>	<p>If the HCV is not functioning correctly, the air pressure applied to the suspension system could be inconsistent and/or erratic. To test for an HCV problem, acquire a weight reading from the Right Weigh load scale and write it down (refer to scale operating instructions for proper procedure). Drive the vehicle around the block and return to the same location. Acquire a second reading from the Right Weigh load scale. If the two readings are significantly different, then the HCV might be malfunctioning.</p>
<p>There is a significant air leak in the suspension system</p>	<p>This could cause the HCV to refill the suspension at regular intervals to maintain the vehicles ride height. If there is a significant leak, the scale display will slowly decrease in value and then quickly increase in value when the HCV refills the suspension system.</p>

Troubleshooting

Scale does not power on:

Scale is not connected to a switched power source of between 9 and 32 volts	If there is a bad connection in the circuit which causes voltage to drop below 9 volts, the scale will not power on. Test the power source with a voltmeter.
Scale Connected Directly to Battery	The scale is active anytime it is connected to power, even if the display is off. To reset it, disconnect and reconnect the power source, wait 10 seconds, then try again to turn the display on.
Polarity is incorrect	The red wire must be connected to positive, and the black to negative.

Scale Display is Blinking

Current weight is above the alarm limit programed by the user	With scale on, press and hold the 1 & 2 buttons simultaneously. The display will show the alarm limit weight. To remove the alarm weight, set this number to 0 using the down arrow, and then hold 1 & 2 again until the display is cleared.
---	--

Cannot Change Calibration Data

The scale has an active user-defined security PIN.	If the scale is protected with a passcode, the PIN number must be entered before calibration data can be changed. The scale will display "CoDE" and the previously set 5 digit PIN number must be entered to change the data.
--	---

Scale will not Calibrate Low

Air Pressure in system is not changing	<p>To enter low cal mode, the 201-RTS-02B load scale must see a measurable change in air pressure from when you calibrated high.</p> <ul style="list-style-type: none">• Make sure you calibrate high while your trailer is near the legal limit, and cal low when the trailer is empty.• Be sure the air line is connected directly to an air bag and not connected to the main air supply or air brake system.
--	---

App does not detect a Bluetooth scale:

<p>The scale has been powered on too or is connected to power constantly</p>	<p>If a scale has been connected to power for an extended period of time the Bluetooth transmitter can time-out. Reset the scale by momentarily disconnecting and reconnecting the power source.</p>
<p>The scale is connected to another device.</p>	<p>Only one device may be connected to the scale at a time. Before connecting to the scale with another device you must delete/disconnect from the scale on the first device.</p>

Appendix A - Additional Parts

The following is a list of additional parts needed for air line installation. This list is just a suggestion and may not be all of the parts needed for your specific vehicle. Check with your Right Weigh dealer for optional installation kits.

- Approximately 20 to 30 feet (6 to 9 meters) or more of 1/4" rigid air line.
- Street tee fitting. The thread size should match the air bag fitting. (1/4" NPT or 3/8" NPT)
- Male straight air line fitting for 1/4" air line, with a thread size to match the street tee fitting.
- 20 or more zip ties.

1/4 Inch Air Line



Street Tee Fitting



Male Straight Fitting



20 or More Zip-Ties



It is very important that all wiring connections be made watertight. Connections which are not watertight will allow moisture to travel through the individual strands of the wires and make it's way into the scale, causing permanent damage to the electronics.

Heat shrinkable splices are included with the 201-SK installation kit.

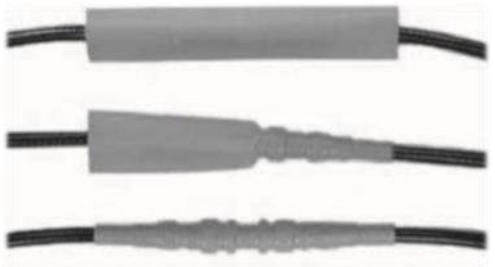
Crimp each end of the wire into the connector with a wire crimp tool (tool not provided).



With a heat gun or heat torch, heat the connector until it shrinks completely around each wire end. Make sure you do not burn the wire jacket.



After all connections have been made, heat shrink the entire group of splices so that it seals on the outer jacket of both cables



Warranty Statement

Warranty Statement

Right Weigh is committed to providing quality products that function as intended, and we always stand behind our workmanship. Our industry-leading warranty is our best effort to express this commitment. Products manufactured or sold by Right Weigh, Inc. are warranted to be free from significant defects in material and workmanship 3 years from date of purchase. During this time, and within the boundaries set forth in this warranty statement, Right Weigh, Inc. will, at its sole discretion, correct the product problem or replace the product.

This warranty shall not apply to product problems resulting from: (1) Improper application, installation, incorrect wiring, or operation outside of the approved specifications of the product. (2) Accidents, faulty suspension parts or power surges (3) Inadequate maintenance or preparation by the buyer or user (4) Abuse, misuse, or unauthorized modification. (5) Acts of God, lightning strike, floods, fire, earthquake, etc.

Right Weigh, Inc. assumes no responsibility or liability for any loss or damages resulting from use of Right Weigh, Inc. products.

In no event shall Right Weigh, Inc. be liable for direct, indirect, special, incidental or consequential damages (including loss of profits or loss of time) resulting from the performance of a Right Weigh, Inc. product. In all cases, Right Weigh, Inc. liability will be limited to the original cost of the product in question. Right Weigh, Inc. reserves the right to make improvements in design, construction, and appearance of products without notice. Right Weigh, Inc. may at its sole discretion discontinue support, warranty, or repair of products which it deems are obsolete or for which repair parts are no longer available. No employee or agent of Right Weigh, Inc. has the authority to modify the terms of this warranty in any manner whatsoever without the express written permission of Right Weigh, Inc.

Return Policy and Authorization

Before returning any product, please obtain a Return Merchandise Authorization number (RMA#) by calling Customer Service at 888-818-2058 or e-mailing rwls@rwls.com. Include the RMA# and information regarding the reason for the return with the returned product. Shipping costs for returns must be prepaid by the customer. For your protection, items must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Right Weigh, Inc. will not be responsible for damage resulting from careless or insufficient packing or loss in transit.

An RMA# must be obtained by the original purchaser before any product can be returned. Only new, unused products may be returned. Installed, used, damaged, modified or customized products can not be returned for credit. Credit will be issued to the original purchaser after evaluation by Right Weigh, Inc.

Repairs/Replacements

An RMA# must be obtained before any product can be returned. Right Weigh, Inc. will evaluate returned products at no charge. If Right Weigh, Inc. determines that the returned product is under warranty it will repair the product or parts thereof at no charge, or if unrepairable, replace it with the same or functionally equivalent product whenever possible. Right Weigh, Inc. will return the product at its expense via a shipping method (carrier to be at sole discretion of Right Weigh, Inc.) equal to or faster than the method used by the customer. Products or parts thereof not covered by warranty will be repaired or replaced at customer expense upon authorization by the customer. Right Weigh, Inc. will return the repaired product at customer expense via a shipping method (carrier to be at sole discretion of Right Weigh, Inc.) equal to or faster than the method used by the customer.

For additional support contact:

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rwls@rwls.com

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