CHS-112 Weigh Scale
Operator's Instructions
(version 2.0.0)

CAUTION

READ BEFORE INSTALLING!

NOTE: DO NOT ADD WEIGHT TO TANK UNTIL SCALE
HAS BEEN PROPERLY CALIBRATED. READ
ENTIRE INSTRUCTIONS PRIOR TO OPERATION.

Overview:

The CHS-112 is a scale display created specifically for the needs of paint truck monitoring. This scale-head can operate from 0 to 8000 pounds, and is designed to be easy to calibrate. Calibration numbers are also logged in order to provide information about calibration schedules, calibration number tampering, and corrective data for later use. Also, through its CAN communications port, this scale-head seamlessly provides data to a data logger and monitoring system, while easing installation and service compared to other scale-head options.

The CHS-112 does not conform to any particular system of units. This means that the display does not show either "lbs" or "kg" labels for weight. The units of the number entered at calibration, be it imperial units (pounds) or metric units (kilograms), are the implied units of scale readings displayed during operation.

CHS-112 Scale Wiring Guide
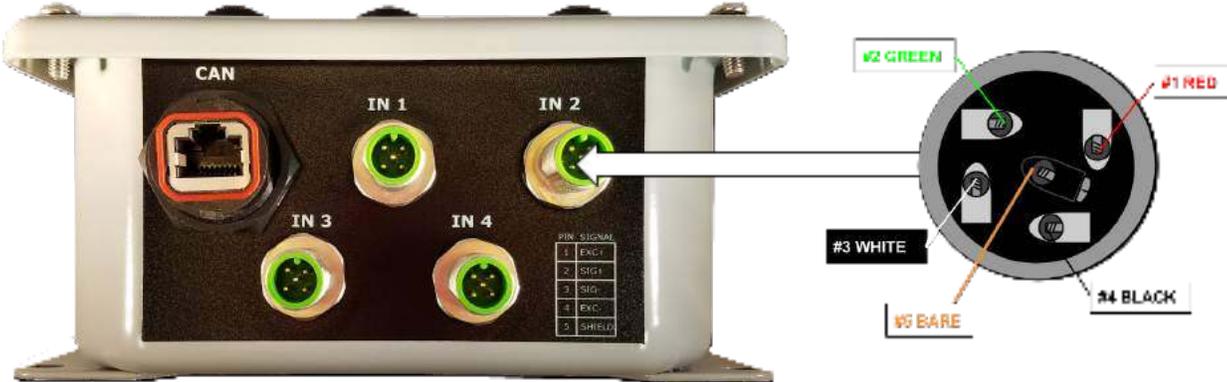
Load Cell Wiring Table for M12 Connectors:		
Signal Name	**Wire Color**	**Pin Number**
EXC+	Red	1
SIG+	Green	2
SIG-	White	3
EXC-	Black	4
SHIELD	Bare	5

Operation:

CALIBRATION:

- To calibrate the CHS-112, press and hold the SELECT button until the screen displays "CALIBRATION MENU" at the top. Use the "+" and "-" buttons to select the desired calibration method, then press SELECT.

  - **FIRST ZERO METHOD:** The first zero method is generally more accurate than the last zero method and should be used when it is possible to remove all (or most) weight from the scale. This method determines where the zero point is, and calculates a calibration value.
    - **Step 1:** Remove all weight from the scale. If all weight is not removable, it is acceptable to leave that weight on the scale, but note that the scale reading will go negative if that weight is ever removed. Press the SELECT button to continue.
    - **Step 2:** Add a known weight to the scale. Generally, the greater the weight a scale is calibrated with, the more accurate the calibration is. Press the SELECT button to continue.
    - **Step 3:** Enter the weight added to the tank. Use the "+" and "-" buttons to increase or decrease the number on the display to match the amount that was added. Then press the SELECT button, and the unit will store the new calibration and report the new weight within three seconds.
  - **LAST ZERO METHOD (or FALSE ZERO):** This method should be used when the weight cannot be removed completely from the scale, but there is enough room to add more weight onto the scale. This method uses the zero point determined from the previous first zero calibration, and calculates a new calibration value.
    - **Step 1:** Add a known weight to the scale. Then press the SELECT button to continue.
    - **Step 2:** Enter the weight added to the tank. Use the "+" and "-" buttons to increase or decrease the number on the display to match the amount that was added. Then press the SELECT button, and the unit will store the new calibration and report the new weight within three seconds.

- **ADVANCED MENU:** This menu contains several advanced functions that are intended for use by advanced users only. To exit this or any option under this menu at any point, hold the "+" and "-" buttons at the same time. Exiting via this manner will not save any altered settings.
  - **VIEW CAL NUMBER:** This option allows an operator to view and, if desired, change the current calibration number. If at any time a question about current scale reading validity arises, this number may be viewed in order to confirm scale-head operation. The calibration number is also logged to deter application rate tampering. To change the calibration number, use the "+" and "-" buttons to increase/decrease the calibration number. To save the altered number, press the SELECT button.
  - **CHANGE ZERO POINT:** This option allows an operator to adjust the point at which the scale reads "0.0". This feature should only be used to manually enter a ZERO POINT value known to be good. To change the scale to read "0.0" at a point when the tank is thought to be empty, please use the TARE function as described below.
  - **TARE:** This option allows the operator to set a "zero point" where the scale is completely empty. Next to this option in the advanced menu is the current zero point value. This number is useful to confirm correct operation, and is logged to deter application rate tampering. This function is useful, for example, if a scale has a residual amount of beads in the tank that cannot be used. To tare the tank, simply press the SELECT button.
  - **RESTORE FACTORY CAL:** This option can be used to revert back to a known good calibration number. To restore the factory calibration number press the SELECT button. This will restore the CALIBRATION number and the ZERO POINT number to those saved in the SAVE FACTORY CAL. step.
  - **SAVE FACTORY CAL:** Once a good calibration number and zero point have been established using the FIRST ZERO method, save these numbers into memory using the SAVE FACTORY CAL option.

Calibration Tips:

- If possible, the scale should be calibrated with large amounts of weight (>500 lbs) that do not fluctuate (e.g. humans) and that have a confirmed weight.
- Generally, the greater the weight a scale is calibrated with, the more accurate the calibration is.
- Allow time between calibration steps, e.g. wait for a period of time between adding weight to the tank and pressing SELECT to move to the next step. This ensures the load cell reading has stabilized.
- Do not move between steps in the calibration process while the truck has operator(s) moving on the truck. An operator dismounting the truck can create "bounce" on the truck, causing load cell reading fluctuations.
- Do not attempt to calibrate when the tank being calibrated is filled to capacity.
- Calibrate the scale unit regularly to ensure accurate logging.
- Turn off the data logger monitor while using the calibration or tare functions, and then reset footage counters in order to avoid calculation errors in logged data.
- If calibration fails repeatedly, ensure load cell connections are correct and, for trucks with multiple scales, ensure that the correct tank is being calibrated.

Troubleshooting Tips:

- To isolate a faulty load cell, disconnect one at a time. The load cell that's faulty will either cause readings to fluctuate heavily, display unrealistic values, or to not move at all. When a faulty cell is disconnected the reading will show normal, light fluctuation. In other words, disconnect cells until you see normal fluctuation. The disconnected cell is the faulty one.
- The arrow on the load cell should point toward the point of load (UP).