



Simple Precision™



KAM® WEIGHT SCALE

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An ISO 9001:2015 certified company

User Manual
WSMANUAL 0222

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INTRODUCTION

The KAM® WS Weight Scale is designed for integration with the KAM® CSS Complete Sampling System and is used to verify sample volume in KAM® SR Sample Receivers per API Chapter 8.2, ASTM 4177 and ISO 3171. Weight Scale units (generally 2) are placed inside a KAM® SRH Sample Receiver Housing, and the KAM® SR Sample Receivers are placed on top of the Weight Scale platforms.

Each Weight Scale unit communicates with the KAM® SC Sampler Controller via 4-20 mA. The 4-20 mA signal directly correlates to the current weight of the Sample Receiver and its volumetric equivalent. In this way, operators can remotely monitor for accumulated sample volume, and automatically switch to a second Sample Receiver for continued sample collection once the first receiver is full.

AVAILABLE MODELS

- 0-60 lbs (0-27 KG)** **For use with 3 and 5-gallon sample receivers**
- 0-100 lbs (0-45 KG)** **For use with 3, 5, and 10-gallon sample receivers**
- 0-200 lbs (0-91 KG)** **For use with 10, 15, and 20-gallon sample receiver**

MODELS AND SPECIFICATIONS

0-60, 0-100 lbs.

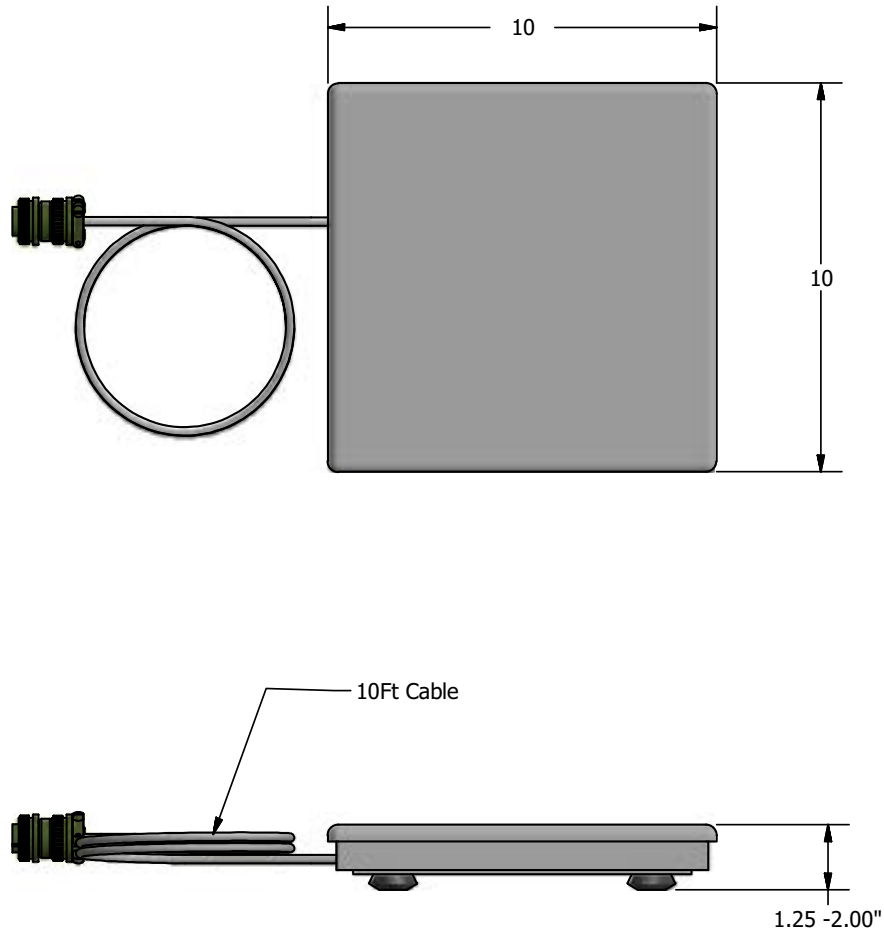
Available for use with 3 and 5-gallon sample receivers

Resolution: .02 lb (9 grams)

Dimensions: 10"W x 10"D x 1.25"H (235 MM x 235 MM x 32 MM)

Maximum weight: Recommended no more than 102 lbs (46 KG), max overload 150 lbs (68 KG)

FIG. 2-1 Scale Dimensions 0-60, 0-100 LB. Model



MODELS AND SPECIFICATIONS CONTINUED

0-100, 0-200 lbs

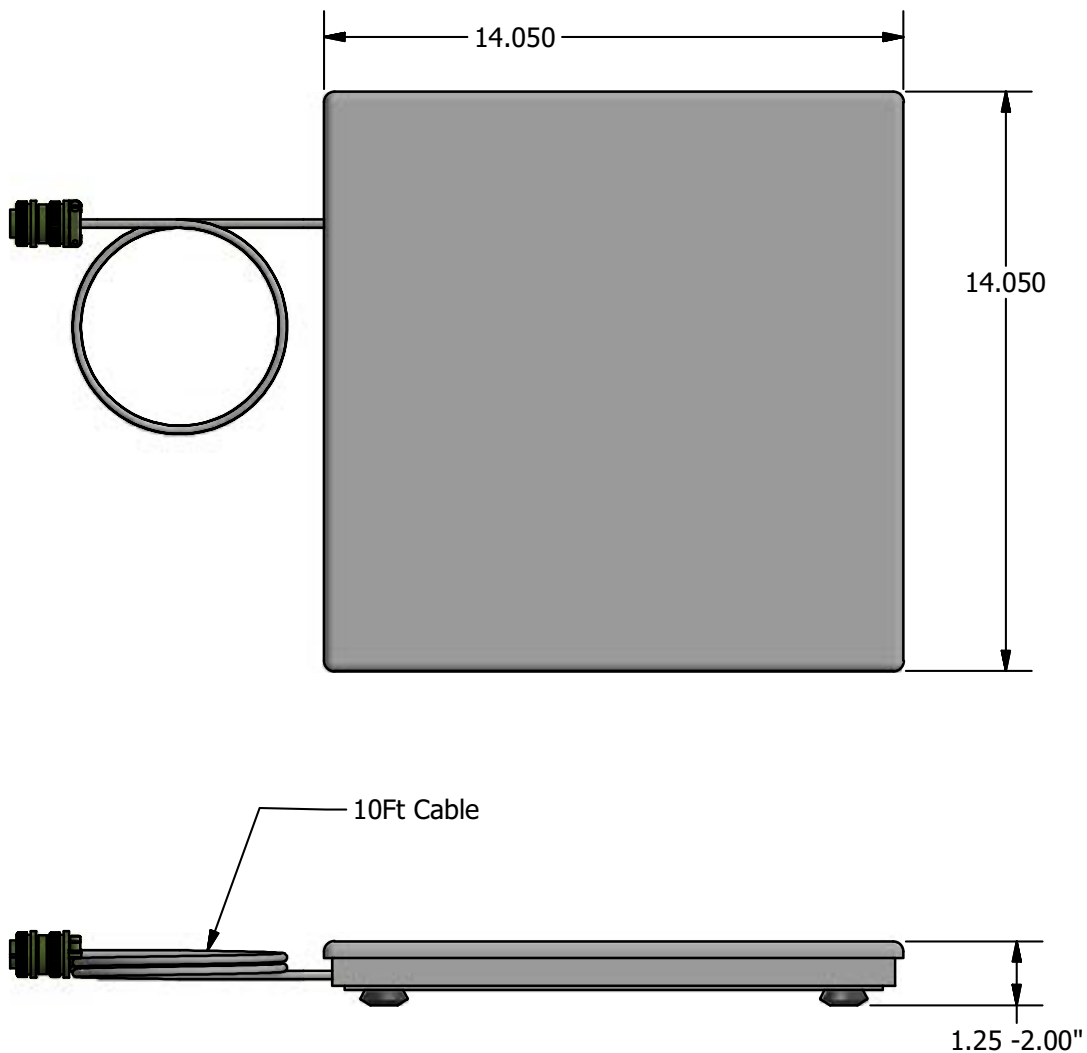
Available for use with a 10, 15 or 20-gallon sample receiver

Resolution: .1 lb (45 grams) resolution

Dimensions: 14" W x 14"D x 1.25"H (406 MM x 305 MM x 32 MM)

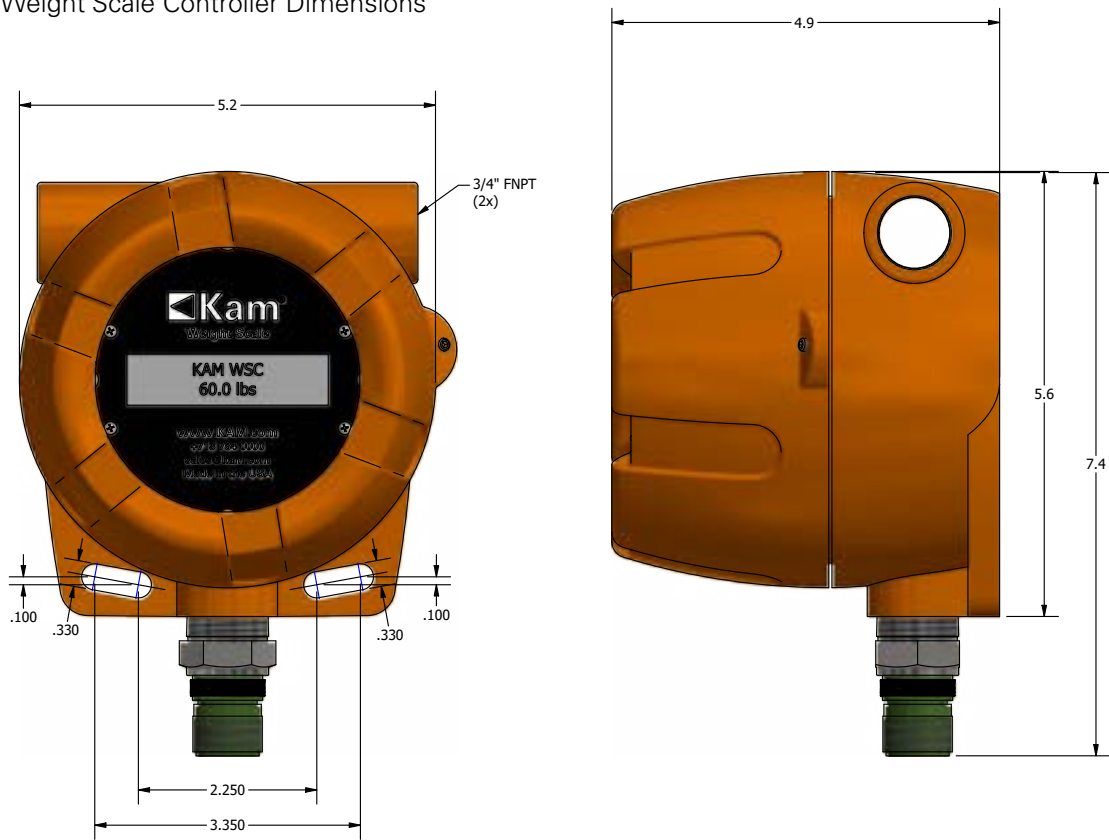
Maximum weight: Recommended no more than 206 lbs (93 KG), max overload 300 lbs (136 KG)

FIG. 2-2 Scale Dimensions 0-100, 0-200 lb. model



MODELS AND SPECIFICATIONS CONTINUED

FIG. 2-3 Weight Scale Controller Dimensions



ADDITIONAL SPECIFICATIONS

Material: Stainless steel and Aluminum

Supply Voltage: 12–24 VDC 2 Watts Max

Signal Output: 4–20 mA

Temperature Range: 0° – 150°F (-18°– 65°C)

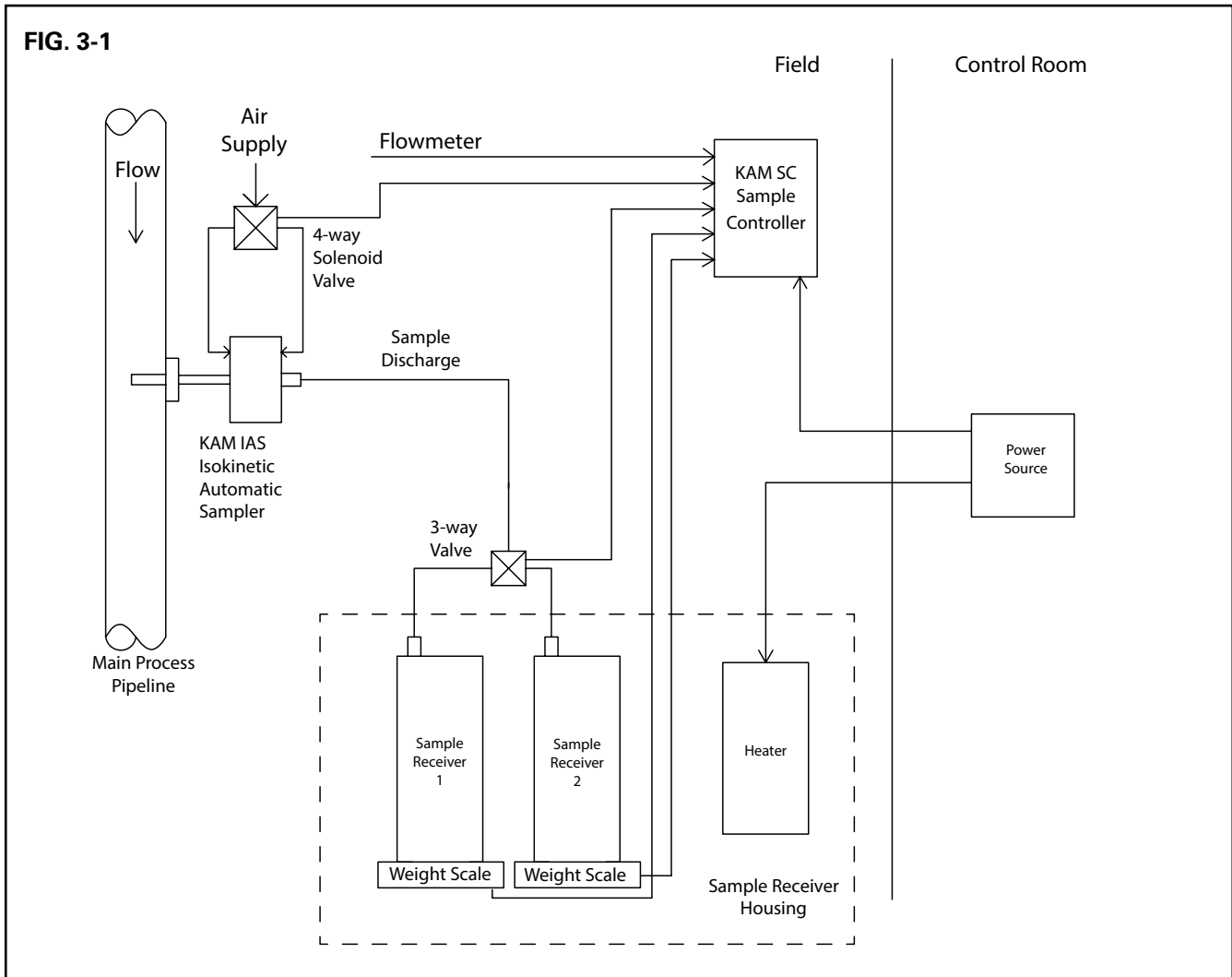
Controller Dimensions: 5.2"W x 4.9"D x 7.4"H (132MM x 124MM x 188MM)

Controller Weight: 4.7 lbs (2.13 KG)

Weight Scale is intrinsically safe. Weight Scale Controller is housed in an explosion-proof enclosure.

INSTALLATION

TYPICAL SAMPLING SYSTEM INSTALLATION



INSTALLATION CONTINUED

1. Place the Weight Scale(s) inside the Sample Receiver Housing and adjust feet (300 lb model only) by screwing them in or out (FIG. 3-2) to ensure that the scale is completely stable and does not rock.
2. Mount Weight Scale Controller(s) within 6' – 8' (2 – 2.4 M) of housing.
3. Connect the Weight Scale and the Weight Scale Controller with the supplied 10' cable using quick connects.

WARNING: The KAM® Weight Scale has mechanical stops to prevent damage from overweight receivers. **HOWEVER**, placing receivers above the maximum weight or slamming receivers down onto scale will result in damage to the scale.

WIRING

1. Remove cover from Weight Scale Controller by first loosening the set screw on the bottom of cover two to three turns with a 5/64" Allen wrench (see FIG. 3-3) and then turning cover counter clockwise.
2. Remove LCD display plate by first removing the (4) 6-32 screws. See FIG. 3-4.
3. Lift the display plate up for easier access, then disconnect the LCD cable.

FIG. 3-2

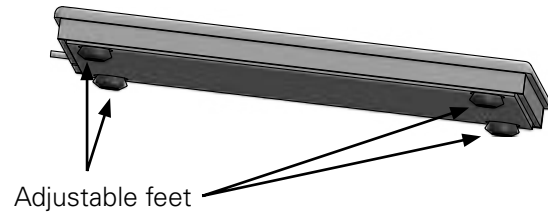


FIG. 3-3

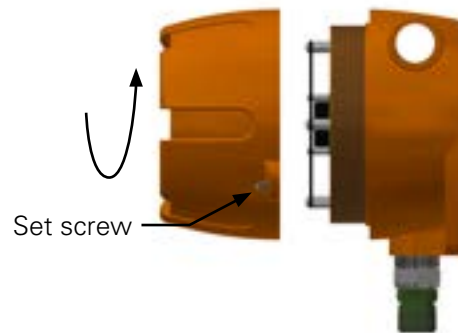
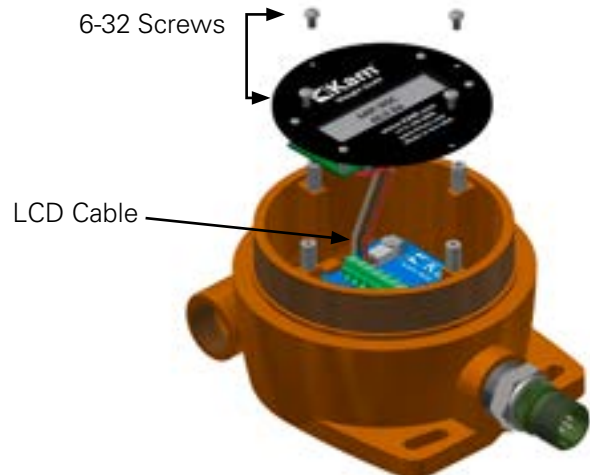


FIG. 3-4



INSTALLATION CONTINUED

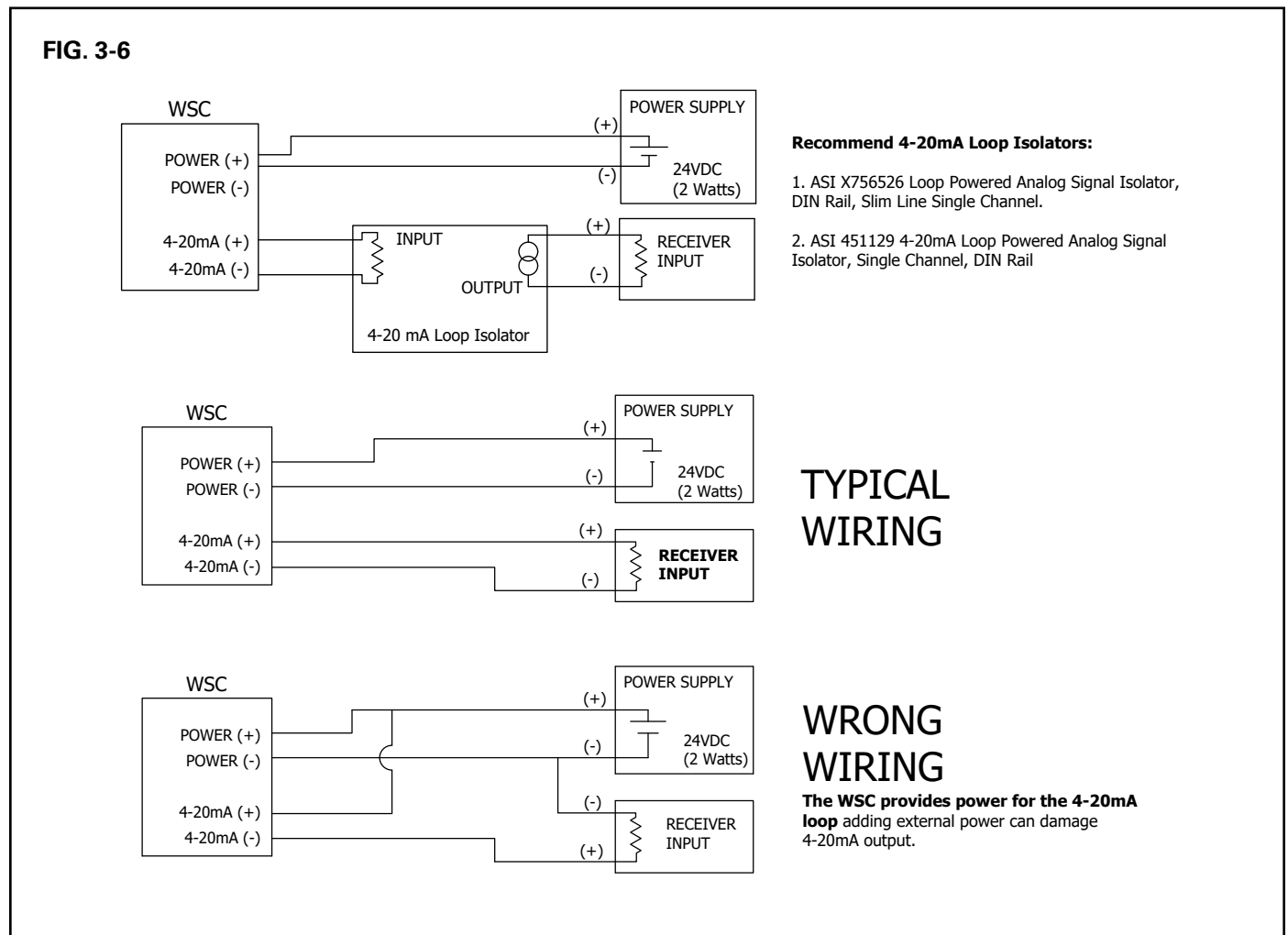
WIRING CONTINUED

4. Insert wiring through either of the 3/4" NPT openings. FIG. 3-5.
5. Connect the 12 or 24V positive wire to the "POWER +" terminal. Then connect the negative wire to the "POWER-" terminal.
6. Connect 4-20mA output wires to "LOOP+" and "LOOP-" terminals.
7. Reconnect LCD cable going to display plate and secure with (4) 6-32 screws.
8. Screw on cover and tighten set screws.
9. You can now turn on the power to the unit.



WIRING CONFIGURATIONS

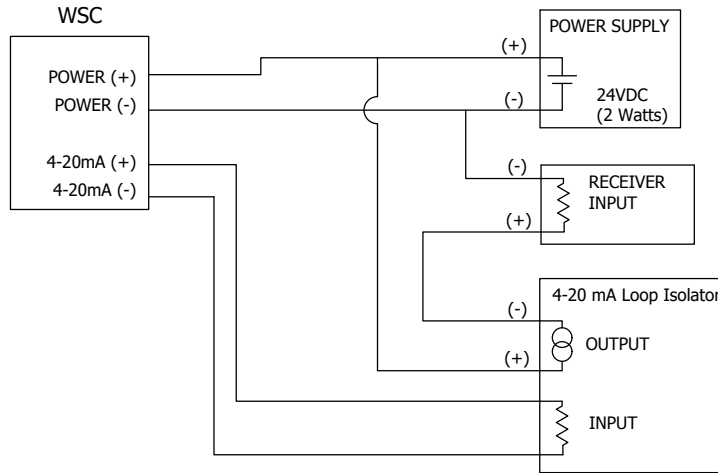
POWER SUPPLY AND OUTPUT WIRING WITH LOOP POWERED ISOLATOR (recommended)



INSTALLATION CONTINUED

POWER SUPPLY AND OUTPUT WIRING WITH EXTERNAL POWER ISOLATOR

FIG. 3-7



OPERATION

CONNECTING VIA RS232

If setting such as Range or Calibration need changes, this can be done using the provided serial cable and the RS232 port.

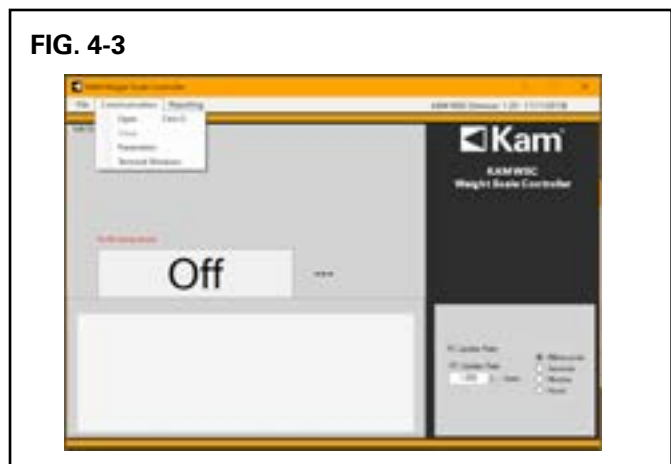
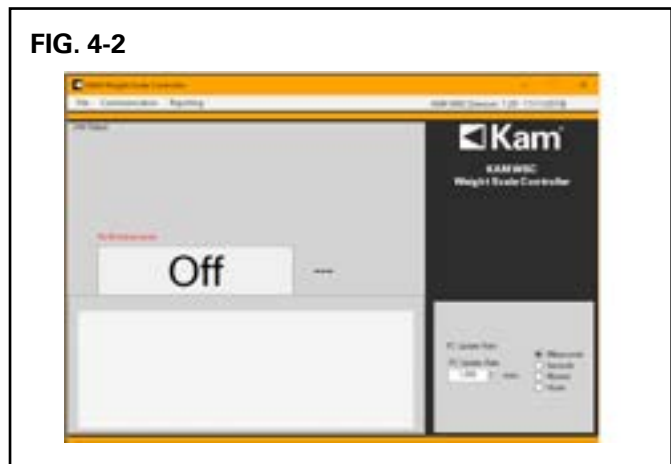
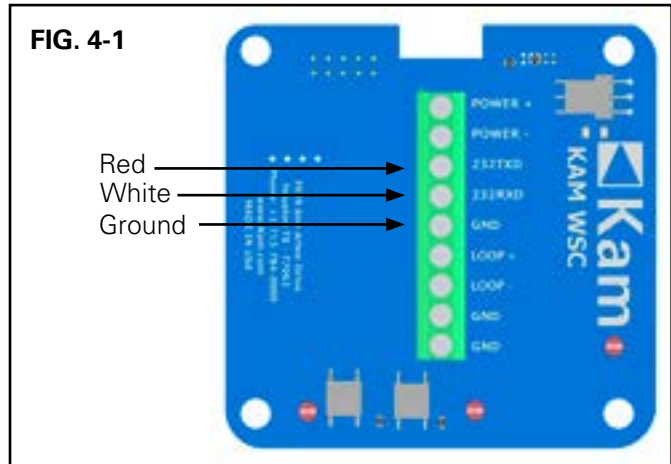
You will need a computer with a serial port or serial port converter and installed WSC software. See software installation instructions on page 14.

1. Follow steps 1-3 on page 7 of this manual to gain access to the terminal board.
2. Connect the provided RS232 cable (See FIG. 4.1):

Red to 232TXD Terminal
White to 232RXD Terminal
Black to any of the GND Terminals
3. Connect the other end of serial cable to computer serial port or serial port converter.

NOTE: In order to change settings in the controller, user must first select the communications port. While some menu options can be used without first selecting the port, in most cases it is simpler to do so prior to using the software.

4. Open WSC software on computer. The initial screen will display as seen in FIG. 4-2.
5. Click on "Communication" on the top menu bar and select "Parameters" from the drop-down menu. FIG. 4-3.



OPERATION CONTINUED

6. A pop-up window titled "Serial Port Configuration" will appear. See FIG. 4-4.
7. Under "COM Port" select the appropriate port for your computer and click OK. You do not need to do anything with the other settings. The pop-up window will disappear.
8. Go back to "Communication" on the top menu bar and select "Open" to view data. Screen will display current weight. FIG. 4-5.

FIG. 4-4

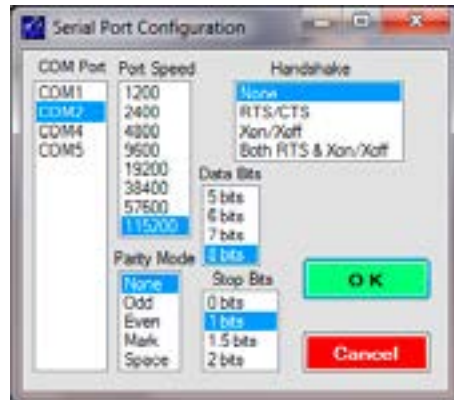
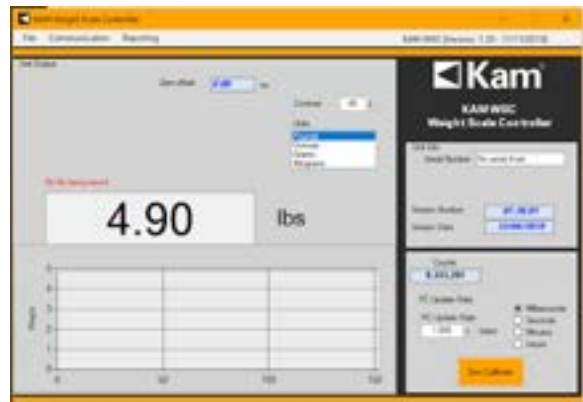


FIG. 4-5



OPERATION CONTINUED

CONTROLLER SOFTWARE MENUS

File>>Calibration - For factory use only.

File>>Enter Password – For factory use only.

File>>About - Shows software name, version, and end-user license agreement. FIG. 4-6.

File>>Exit- Quits the program.

Communication>> Open – Opens data window. See FIG. 4-5.

Communication>>Close – Closes data window

Communication>>Parameters – Allows user to select and configure serial port. See page 10-11, steps 5-7.

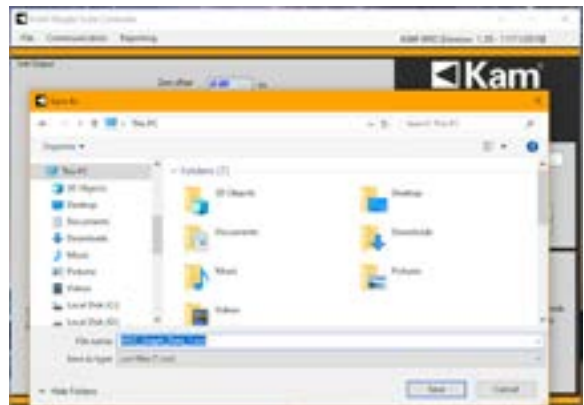
Communication>>Terminal Window – For factory use only.

Reporting>>Save Graph Data– Allows user to select a directory to save the log files created by the program. FIG. 4-7.

FIG. 4-6



FIG. 4-7



OPERATION CONTINUED

CHANGING UNITS

The Weight Scale display and software will show weight in pounds (lbs) by default.

Units can be changed either directly on the Weight Scale Controller or through the WSC software.

To change units on the Weight Scale Controller:

Follow steps 1-3 on page 7 of this manual to gain access to the terminal board and press the "Units" button. The units will change on the display. FIG. 4-8.

To change units through the software:

Once the software has been installed and the Weight Scale has been connected via RS232, go to "Communication" and click "Open" on the WSC software. Click on the desired unit under "Units". The weight readings will change to the selected unit. FIG. 4-9.

ZERO CALIBRATE

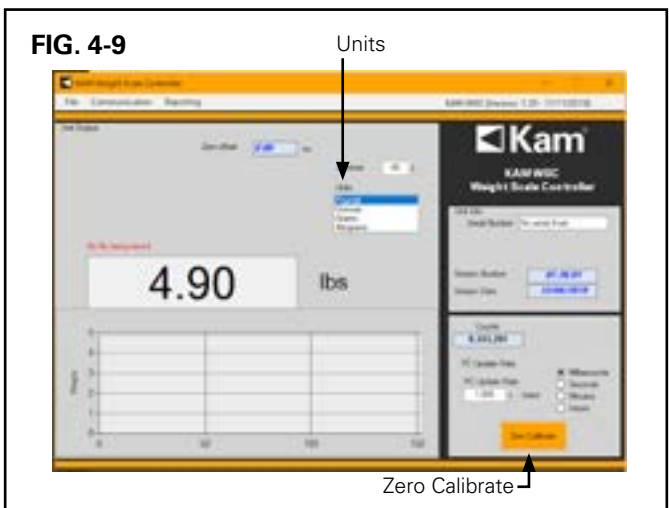
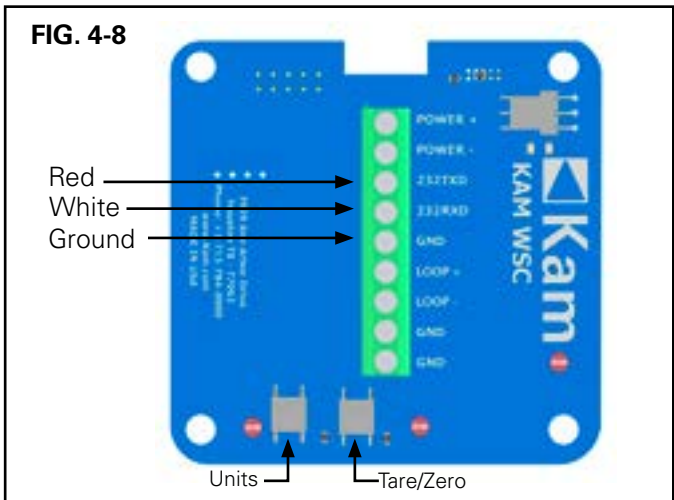
The Weight Scale can be zeroed out directly on the Weight Scale Controller or through the KAM WSC Software.

Zero Calibrate on the Weight Scale Controller:

Remove any weight from the scale. Follow steps 1-3 on p. 7 of this manual to gain access to the terminal board and press the "Tare/Zero" button. FIG. 4-8.

Zero Calibrate through the Software:

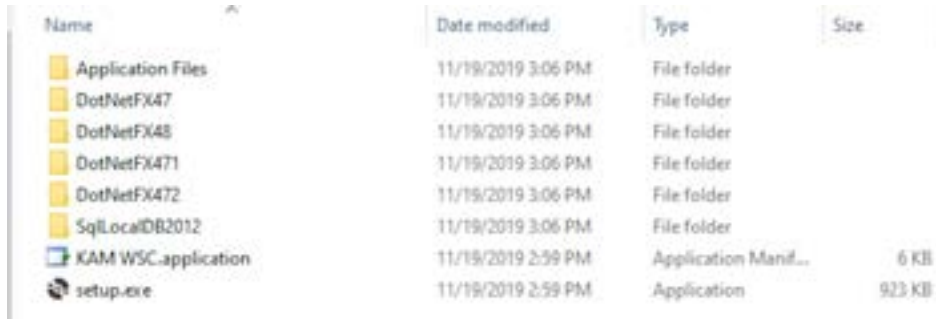
Remove any weight from the scale. Once the software has been installed and the Weight Scale has been connected via RS232, go to "Communication" and click "Open" on the WSC software. Click on the "Zero Calibrate" button. FIG. 4-9.



SOFTWARE INSTALLATION

1. Go to <https://www.kam.com/documentation/> and click on "Software" to toggle open the list of available software.
Click on "KAM WSC Software", a .zip compressed folder will start to download to your PC.
2. Right-click the folder, select "Extract All," and then follow the instructions to unzip. Once done, open the folder
3. titled WSC_PC_1_1_7 and double-click on the file "setup.exe". FIG. 5-1

FIG. 5-1



Name	Date modified	Type	Size
Application Files	11/19/2019 3:06 PM	File folder	
DotNetFX47	11/19/2019 3:06 PM	File folder	
DotNetFX48	11/19/2019 3:06 PM	File folder	
DotNetFX471	11/19/2019 3:06 PM	File folder	
DotNetFX472	11/19/2019 3:06 PM	File folder	
SqlLocalDB2012	11/19/2019 3:06 PM	File folder	
KAM WSC.application	11/19/2019 2:59 PM	Application Manif...	6 KB
setup.exe	11/19/2019 2:59 PM	Application	923 KB

4. Accept the Microsoft.Net Framework License Agreement. FIG.5-2.
5. Click "Install" when prompted by the Windows Operating System. FIG. 5-3.

FIG. 5-2

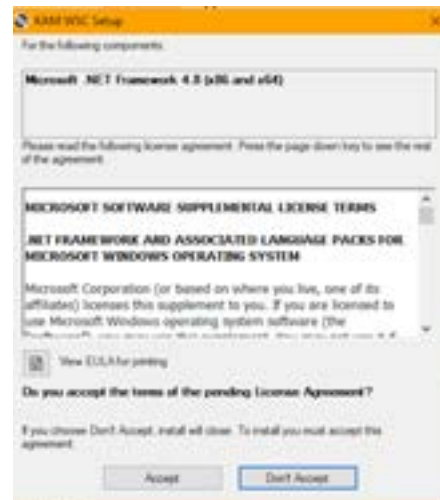


FIG. 5-3



SOFTWARE INSTALLATION continued

- 6. In newer versions of Windows (8, 10 or later), Windows Smart Screen will generate additional warnings. Please click on "More info" and then the "Run anyway" button. FIG. 5-4.
- 7. The software will now install on your computer.

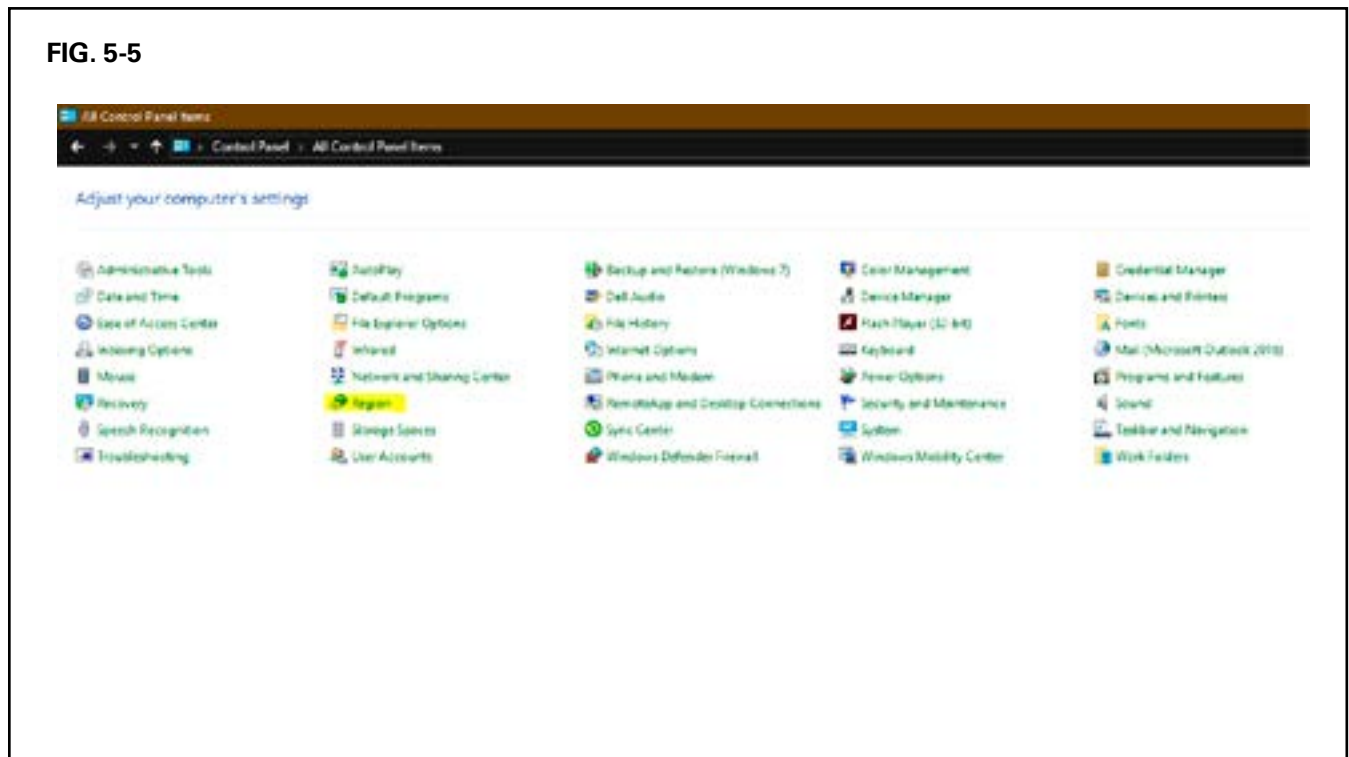


- 8. In the windows "Start Menu" search for the file "KAM_WSC" and open it. The initial window will pop up.
- 9. Go to the "Operation" section of this manual for instructions on how to use the WSC Software.

For International Users:

If your region settings in Windows are other than "English-United States", this software may not be reading the right values. In this case, please follow the steps below.

- 1. Open "Control Panel" in Windows.
- 2. Open "Region". FIG. 5-5.



SOFTWARE INSTALLATION continued

3. Open "Additional Settings". Then, make sure that the "Digit Grouping symbol" is a "," (Comma) and the "Decimal symbol" is a "." (Period). FIG. 5-6

FIG. 5-6

