

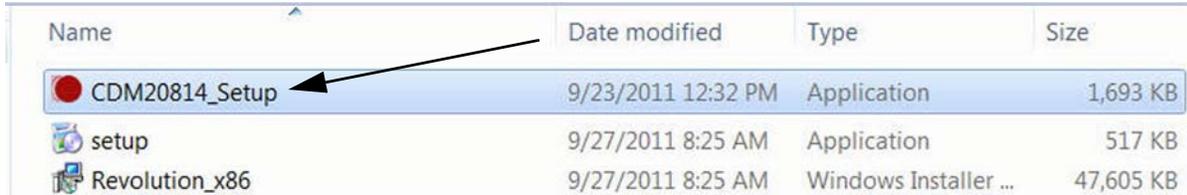
## 4.0 Revolution Interface to CLS-M

REVOLUTION is a tool to display weight, diagnostics and calibration (if required) of the CLS-M Scale using a windows based computer.

### 4.1 Load USB Driver

Place the CD for the Revolution program into the CD Drive of the laptop computer you will be using for set-up and calibration of the scale.

1. Open the Revolution Files and double click on *CMD20814\_Setup*.



Name	Date modified	Type	Size
CDM20814_Setup	9/23/2011 12:32 PM	Application	1,693 KB
setup	9/27/2011 8:25 AM	Application	517 KB
Revolution_x86	9/27/2011 8:25 AM	Windows Installer ...	47,605 KB

Figure 4-1. Download The USB Driver

2. Depending on your computer, one of the two windows below will appear.

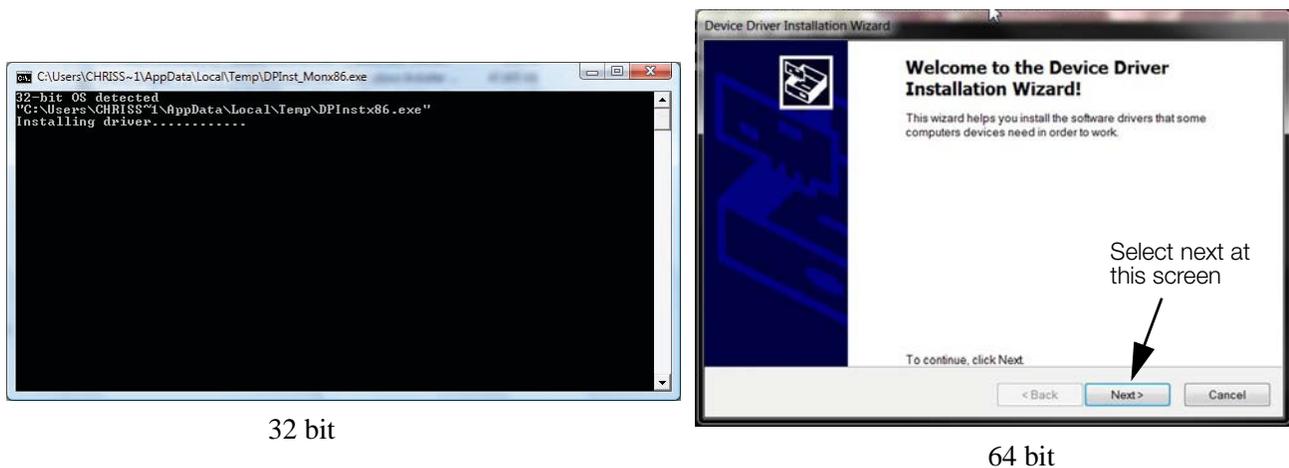


Figure 4-2. Download USB Driver Install Screens

3. The USB driver is downloaded when the 32 bit screen disappears, or when you click next and finish of the 64 bit screen.



**Note** If neither screen appears to show it downloading, double click on the file again.

## 4.2 Install Revolution on Computer with USB interface.

Place the CD for the Revolution program into the CD Drive of the laptop computer you will be using for set-up and calibration of the scale.

1. Auto-run should pop-up, select open files in Explorer.



### Note

*If Auto-run doesn't appear, go to the CD drive in windows explorer to locate the files.*

*The Revolution Program can also be downloaded from the Rice Lake Weighing Systems website at <http://www.ricelake.com/products/software>. The CLS-M module can be found in version 3.3.9 or higher.*

2. Double click on the set-up file.

Name	Date modified	Type	Size
CDM20814_Setup	9/23/2011 12:32 PM	Application	1,693 KB
setup	9/27/2011 8:25 AM	Application	517 KB
Revolution_x86	9/27/2011 8:25 AM	Windows Installer ...	47,605 KB

Figure 4-3. Setup File in Windows Explorer

3. The *Welcome to the Revolution Setup Wizard* screen pops up, click Next (Figure 4-4).

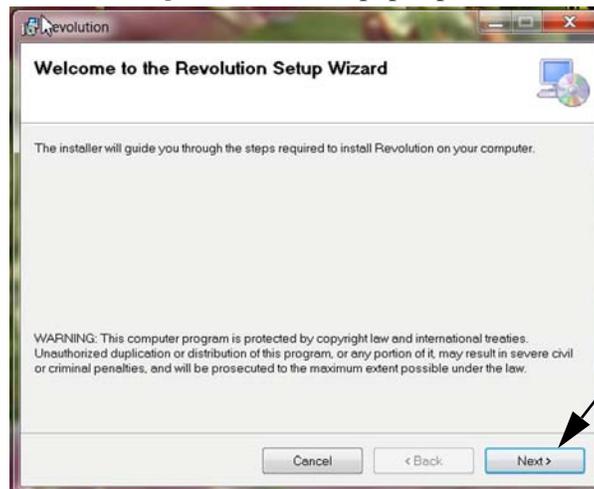


Figure 4-4. Welcome Screen

4. Then at the *License Agreement* (Figure 4-5) screen, read the agreement (A), select “Agree” (B) and click Next (C).

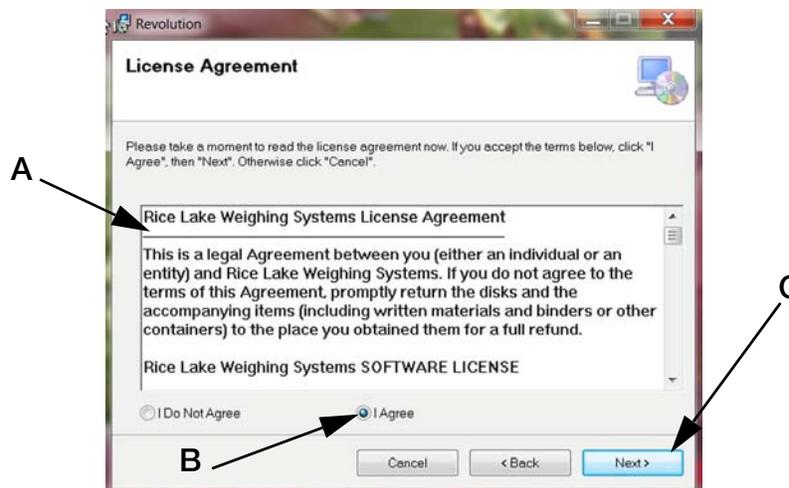


Figure 4-5. License Agreement Screen

5. Next screen is the *Select Installation Folder* (Figure 4-6), select path to save to (A) and who can use it (B). Click Next (C).

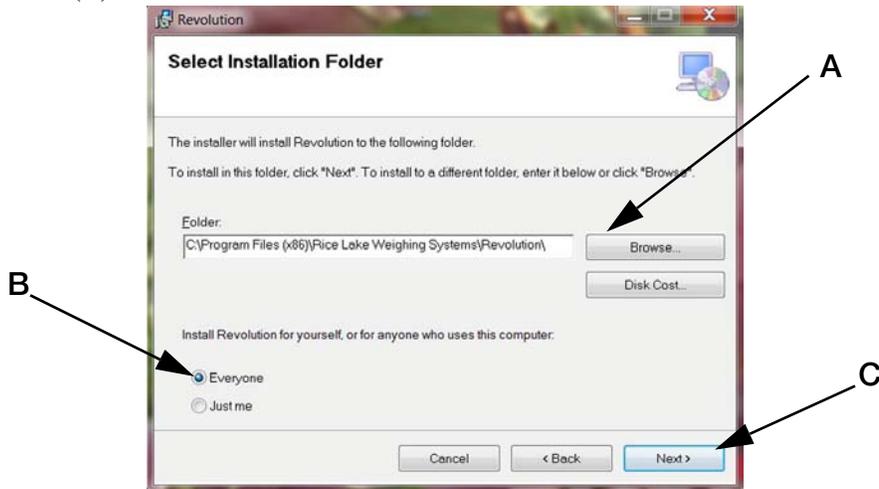


Figure 4-6. *Select Installation Folder*

6. Next is the *Confirm Installation* (Figure 4-7) screen, click Next.

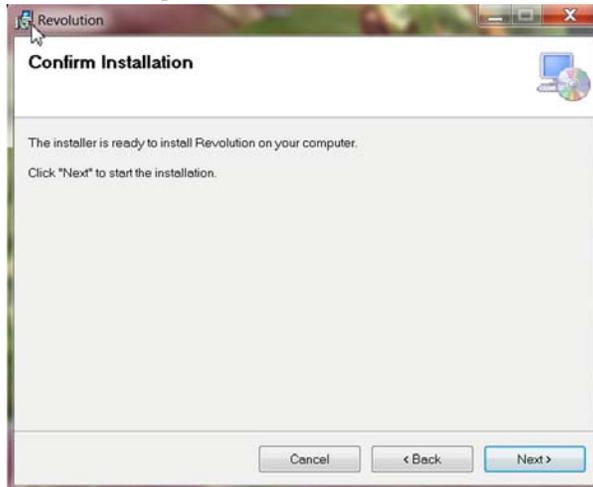


Figure 4-7. *Confirm Installation Screen*

7. The *Installing Revolution* (Figure 4-8) comes up, wait for the download to complete.

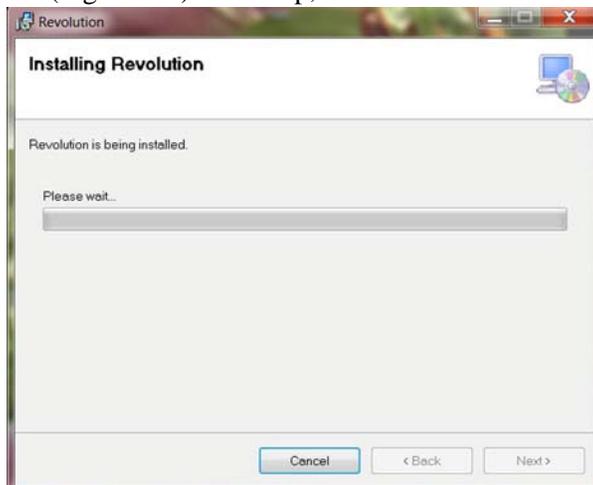


Figure 4-8. *Installing Revolution Screen*

8. When *Installation Complete* (Figure 4-9) screen pops up, click Close.

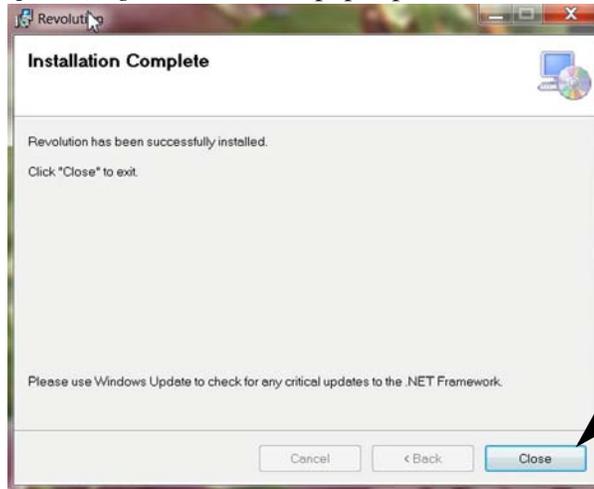


Figure 4-9. Installation Complete Screen

Revolution is now installed on the computer.

## 4.3 Connect to Computer and Use Revolution Scale Software

### 4.3.1 Connect USB Cord to the Power/Communication Box.

1. Power off power/communication box.
2. Loosen (4) screws and remove clear cover from Power/Communication Box (Fig 4-10).
3. Connect USB cable to Power/Communication Box (Fig 4-10).

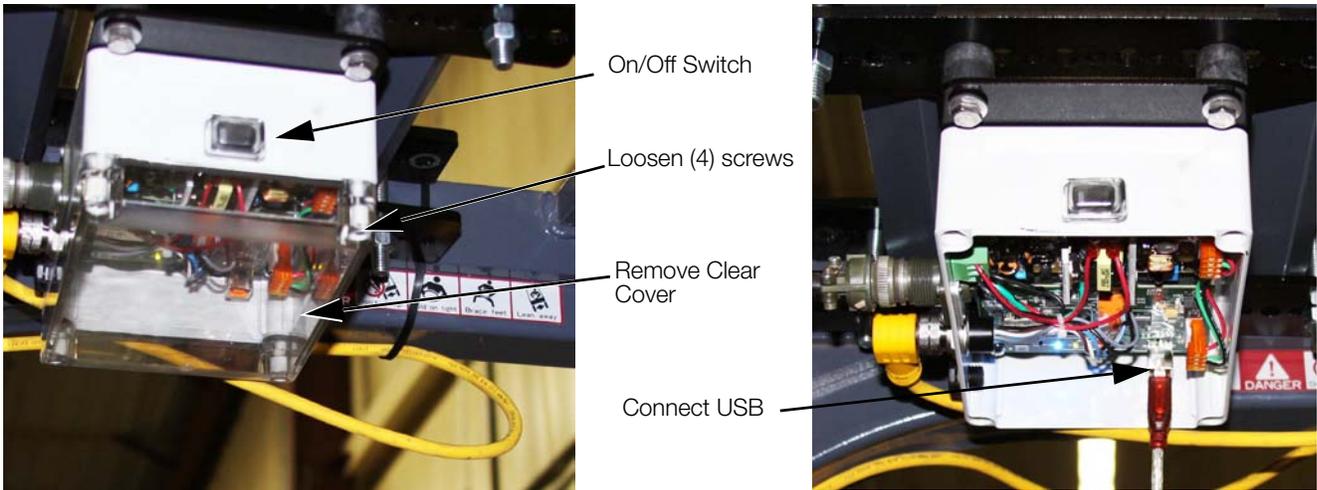


Figure 4-10. Connect USB to Power/Communication Box



#### Note

*Do not turn box on at this time, you will be instructed to later in setup.*

*Once connected to the computer and turned on a flashing red light will appear when connection is successful.*

### 4.3.2 Connect Computer to Power/Communication Box Via USB

1. Open the Revolution Program on the computer.

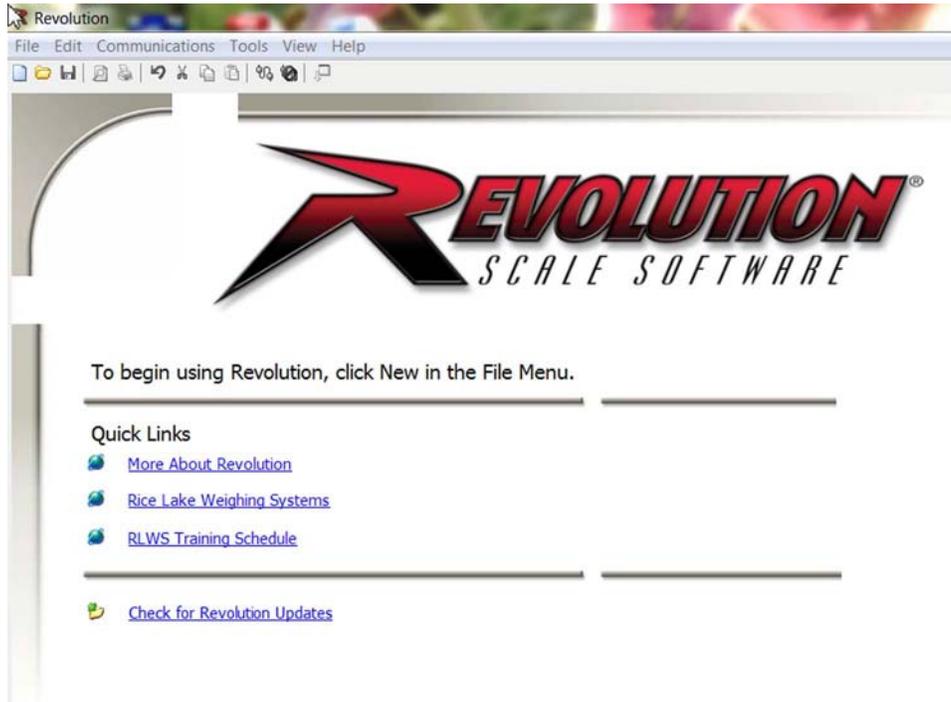


Figure 4-11. Revolution Screen at Open

2. Select File/New (Fig. 4-12 A).
3. Select CLS-M Forklift (Fig. 4-12 B)
4. Press OK (Fig. 4-12 C).

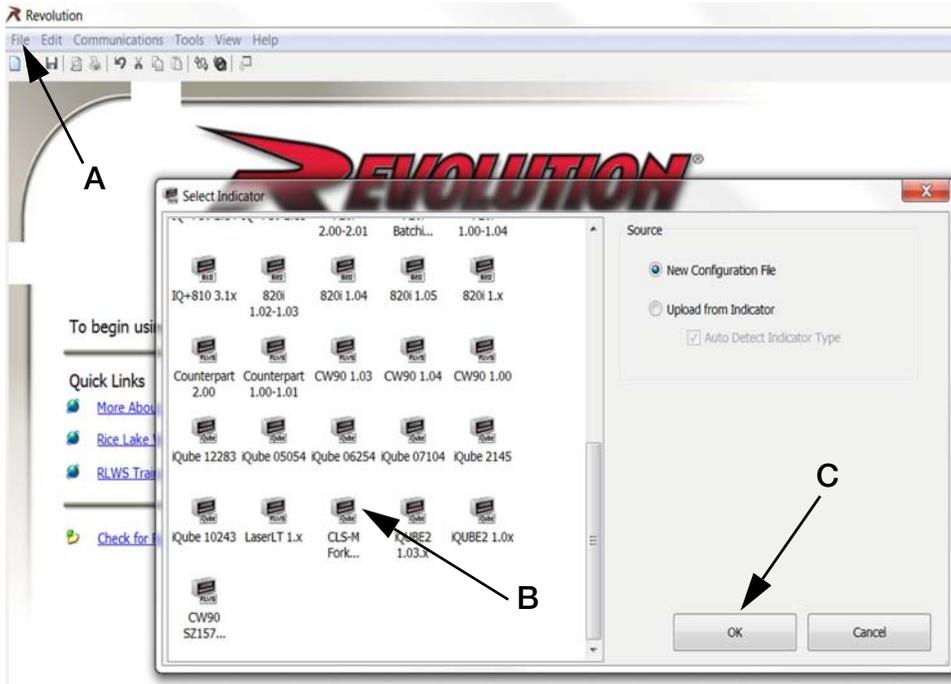


Figure 4-12. Open Revolution to CLS-M Module

5. Plug the USB cable into a USB port on the computer.
6. Turn on the Power/Communication Box (See Figure 4-10). Wait for computer to recognize the new hardware.



**Note**

Depending on what windows version you are running, a balloon will appear in the lower left hand portion of you screen indicating that new hardware was found and another will appear to let you know when it is functional.

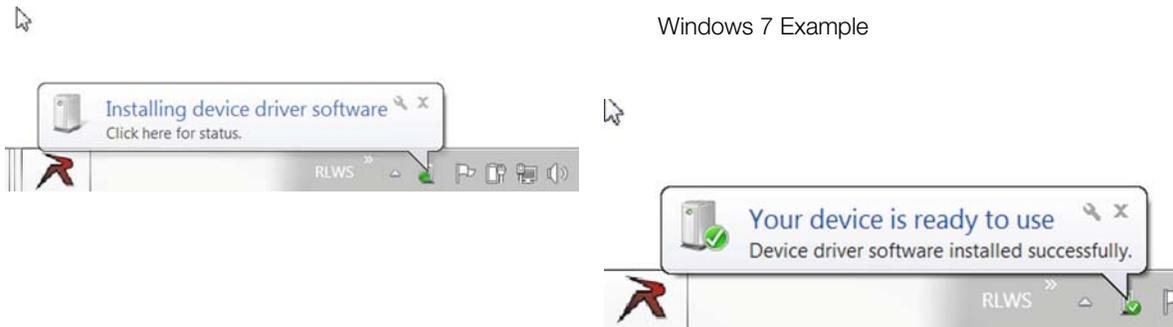


Figure 4-13. Computer recognizing New Hardware on USB Drive



**Note**

The first time you connect to the computer and use Revolution you will need to select the USB Comm Port. Before turning on the Power/Communication Box, select Tools/Options, select settings and drop down the Comm Port section. Make a note of what ports are currently available. When the USB Cable is connected, there will be a new one available, use that one for step 6.

7. Go to Tools/Options (Figure 4-14 A) and select Settings (B), then choose the PC Comm Port (C) that will be used to connect the USB cable. (See Note above)
8. Click OK (Figure 4-14 D).

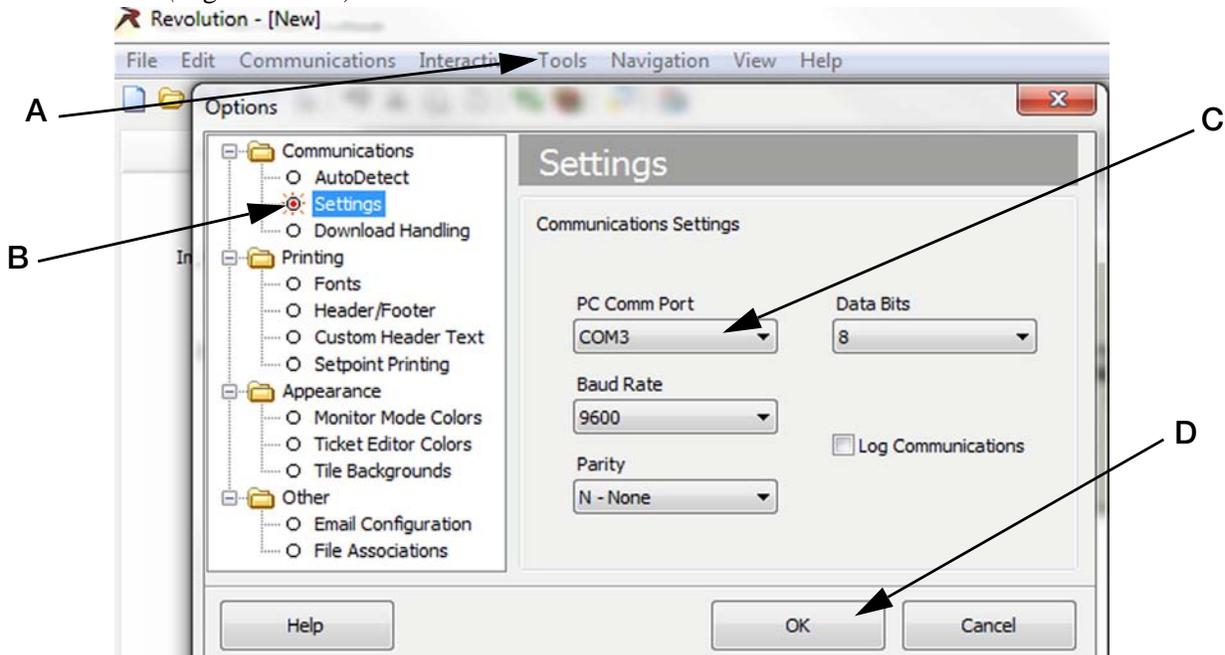


Figure 4-14. Options Screen to select Comm Port for USB

9. Select the connect icon from toolbar (Fig 4-15 A). A pop-up box comes up momentarily (Figure 4-16 A) to indicate the computer is now indicated to the box.
10. If it comes up as *Unable to Connect to Indicator* (Figure 4-16 B) verify the Comm Port is correct and that the Power/Communication Box is turned on. Then select GO (Figure 4-16 C) to connect.

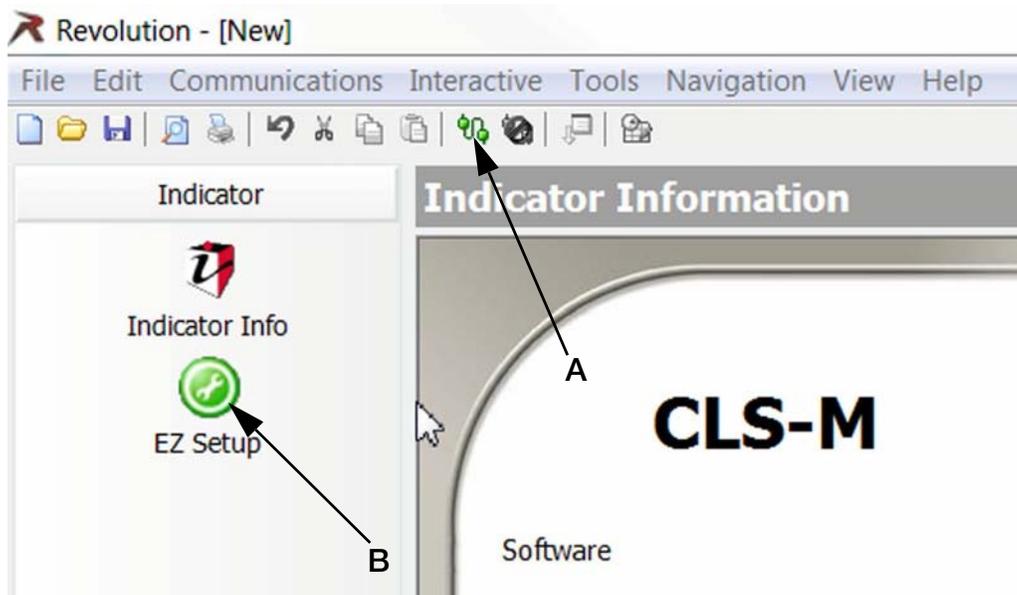


Figure 4-15. Connect Revolution to Power/Communication Box

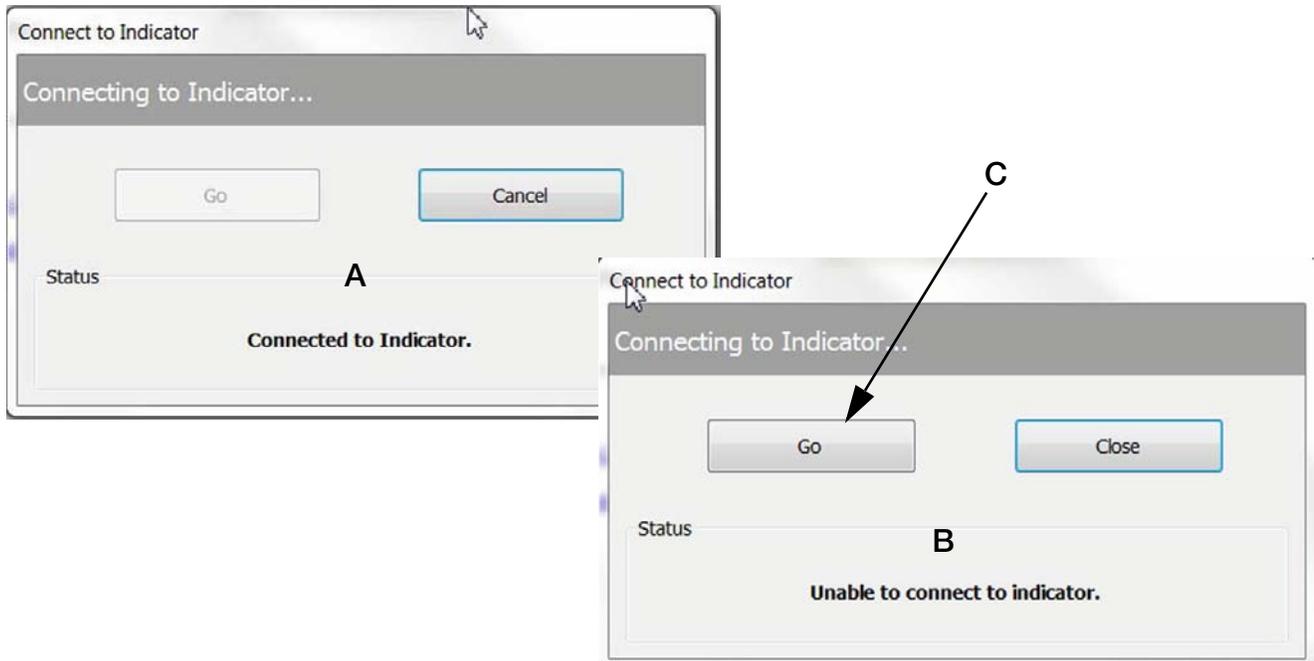


Figure 4-16. Connection Success/Failure

11. Press *EZ Setup* button (Fig 4-15 C).

## 4.4 EZ Set-up/Upload Unit Serial Number

The following screen appears with two tabs, *Setup* and *Live Weight Data*. *Set-up* (default) will be the first screen available (Fig 4-17). This screen will be used for diagnostics and calibration of scale in the following sections.



**Note** All settings have been preset at the factory for communication with the handheld device. DO NOT alter these settings, it will cause communication failure with the handheld device.

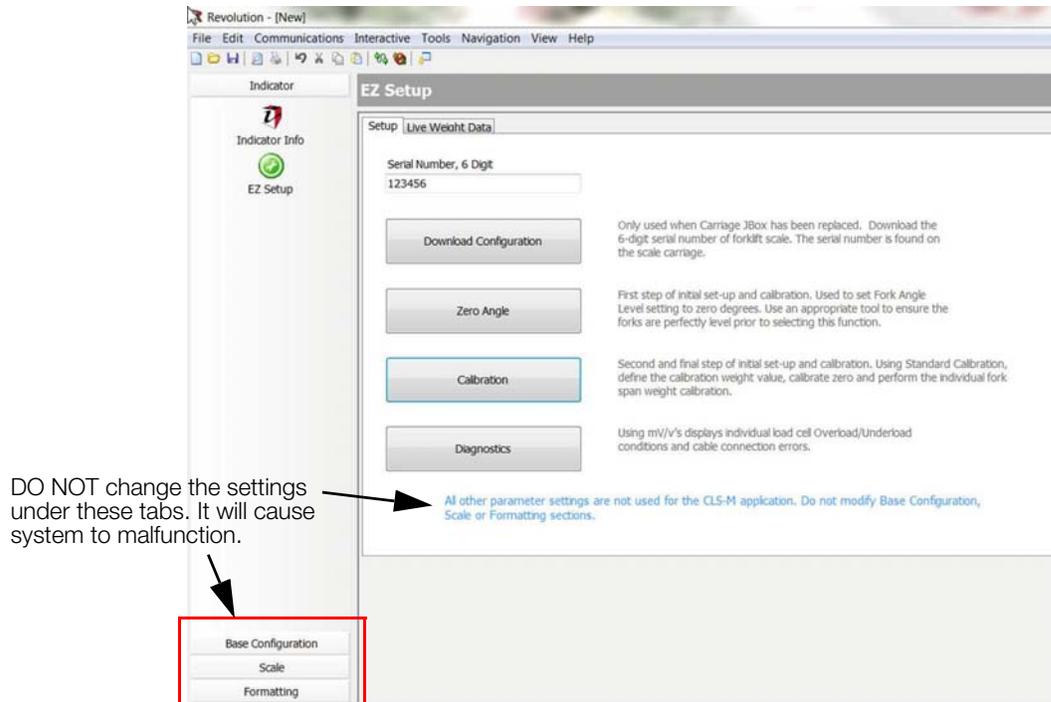


Figure 4-17. EZ Setup Screens - Setup

1. For initial use with each scale, go to Communication/Upload Configuration (Fig 4-18 A). A pop-up appears indicating it is uploading data (Fig 4-18).
2. Upon exiting Revolution software, save file as the scales serial number or a name of your choice. Uploading the software stores all original calibration and default factory settings.

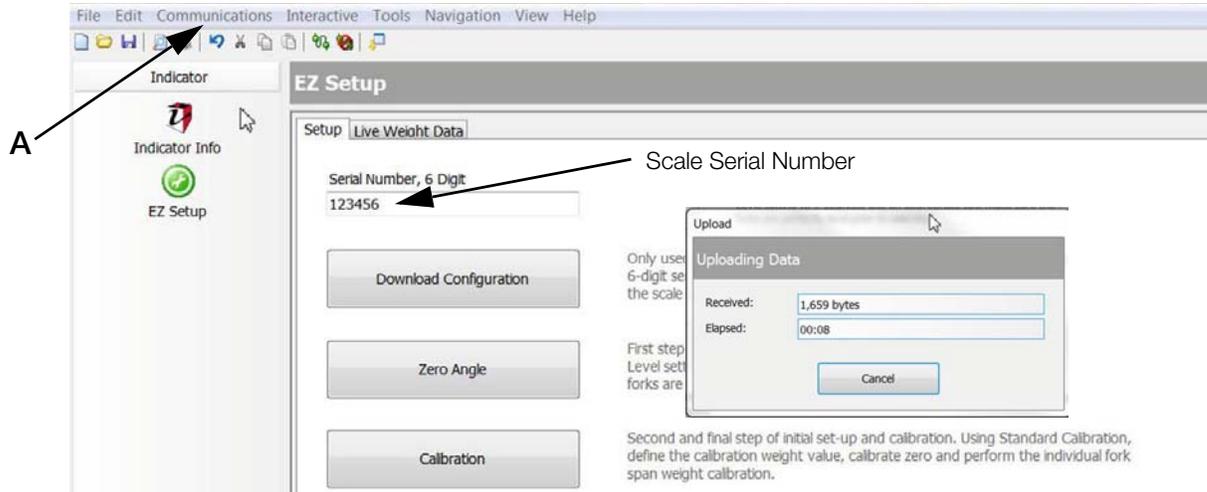


Figure 4-18. Setup Screen

*The Serial number of the Scale is pre-loaded in the J-Box at the factory, It does not need to be downloaded during installation. If J-Box is ever replaced (See Section 7.0) this procedure will need to be repeated.*



**Note**

*The Serial number of the scale is located on the right side of carriage and also under the black cover plate on the scale assembly.*

*The Serial number (a 6 digit entry) screen typically displays 0 or the last serial number downloaded.*

## 4.5 Download Serial Number to J-Box

1. Connect computer with Revolution Program to the Power/Communication Box (See Section 4.0)
2. Select Download Configuration (Figure 4-19 A).
3. Using Standard Configuration (Figure 4-19 B), select Begin (Figure 4-19 C).
4. When download is complete, select Close (Figure 4-19 D).

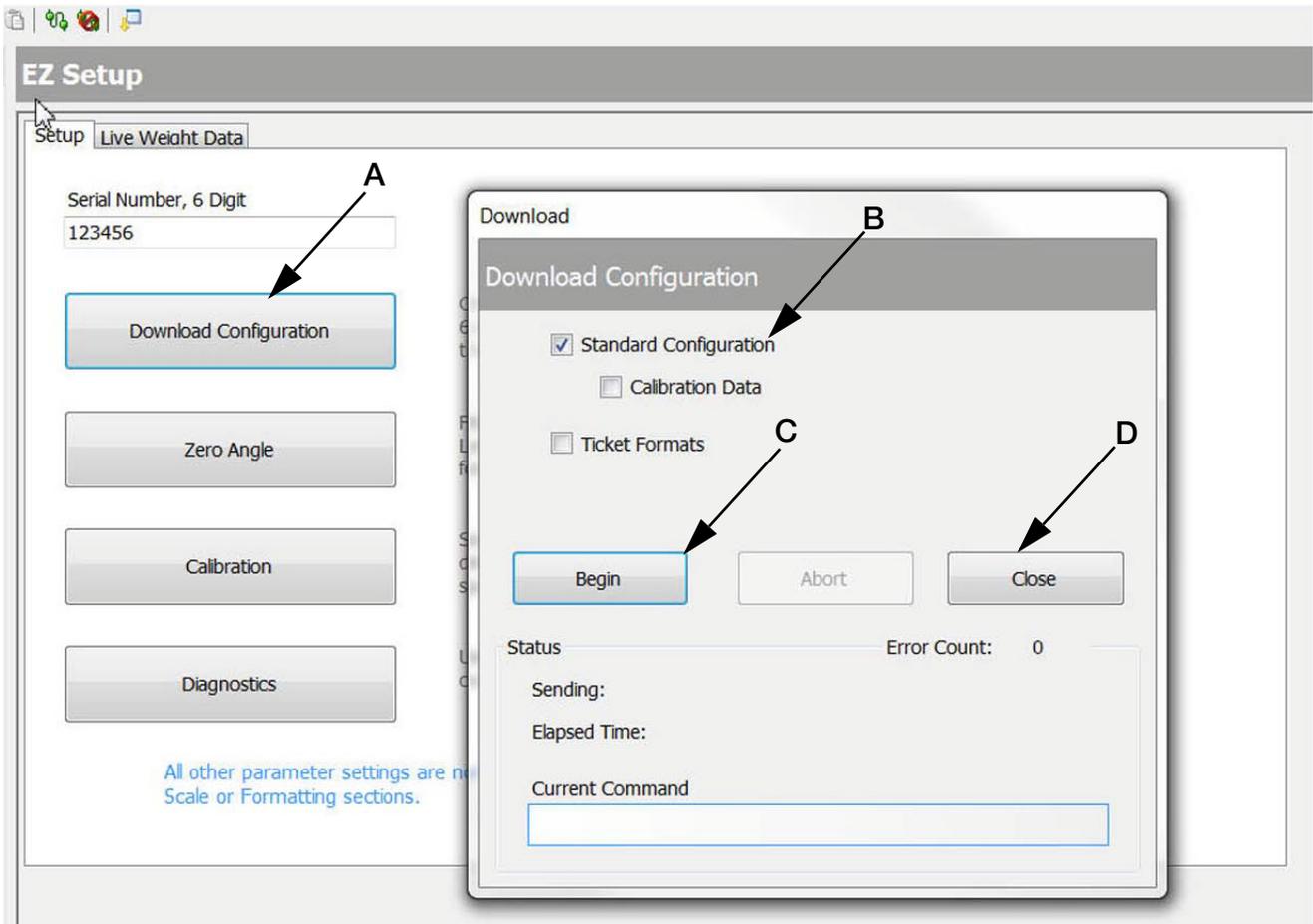


Figure 4-19. Download Configuration

## 4.6 Live Weight Data

The second tab is the *Live Weight Data* screen. This screen is used during calibration of the scale to verify the weight values. The *Live Weight Data* screen will only operate with the calibration switch in the closed position.

1. Select the *Live Weight Data* tab (Fig 4-20).



### Note

*Weight Data Packet* screen shows output format of CLS-M. Other displays include Weight, Pitch Angle, Roll Angle, Cell 1 & 2mV. (Fig 4-20). This is the information that will be sent to the customer supplied handheld device when attached through bluetooth.

To start streaming data check the auto refresh box. If not checked the Refresh button will need to be selected after each change of weight to load cell.

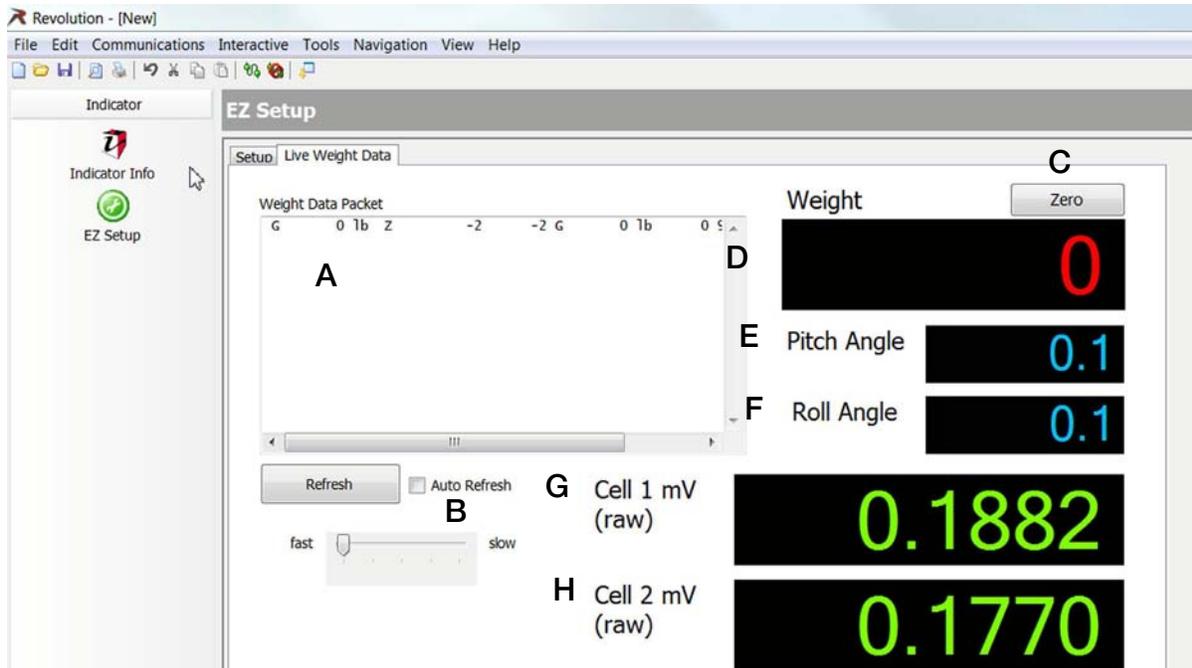


Figure 4-20. Revolution Live Weight Data screen.

- A. Weight Data Packet - output format/displays the output protocol of the CLS-M.
- B. Auto Refresh - when checked it starts continuous streaming of data in the Weight Data Packet.
- C. Zero - Used to zero the scale.
- D. Weight - displays value of weight on scale.
- E. Pitch Angle - angle of the scale in a front to back direction.
- F. Roll Angle - angle of the scale in a side to side direction.
- G. Cell 1 mV (raw) -
- H. Cell 2 mV (raw) -

## 4.7 Leveling Forklift Forks

1. Level the forks to 0° by placing a level on the forks and adjusting as required.



### Note

*Carriage J-Box will need to be in set-up mode (See Section 5.2)*

*Turn off the forklift after leveling forks, high vibration from the running engine will cause inaccurate readings.*

2. In the setup screen, press *Zero Angle* (Fig 4-21 A).
3. A pop-up appears as shown in (Fig 4-21 B), press *OK* to close pop-up box.

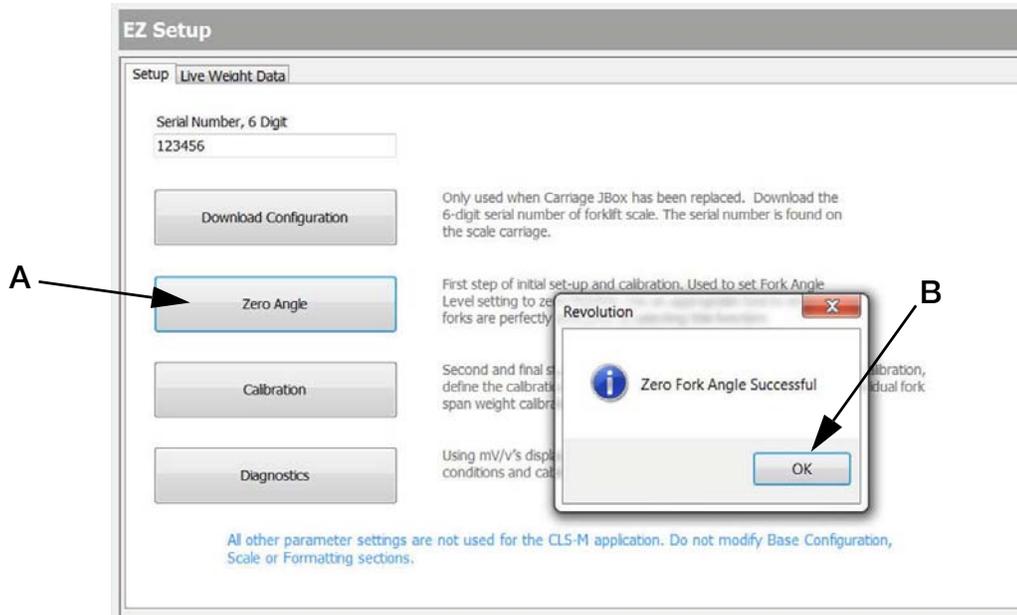


Figure 4-21. Zero Forks



### Note

*Forks should be level when testing calibration. A degree of tilt in either direction can cause errors in the use of the scale.*

## 4.8 Calibration



**Note** Carriage J-Box will need to be in set-up mode (See Section 5.2)

1. Select “Standard Calibration” (Fig 4-22 B)
2. Press *Next* (Fig 4-22 C).

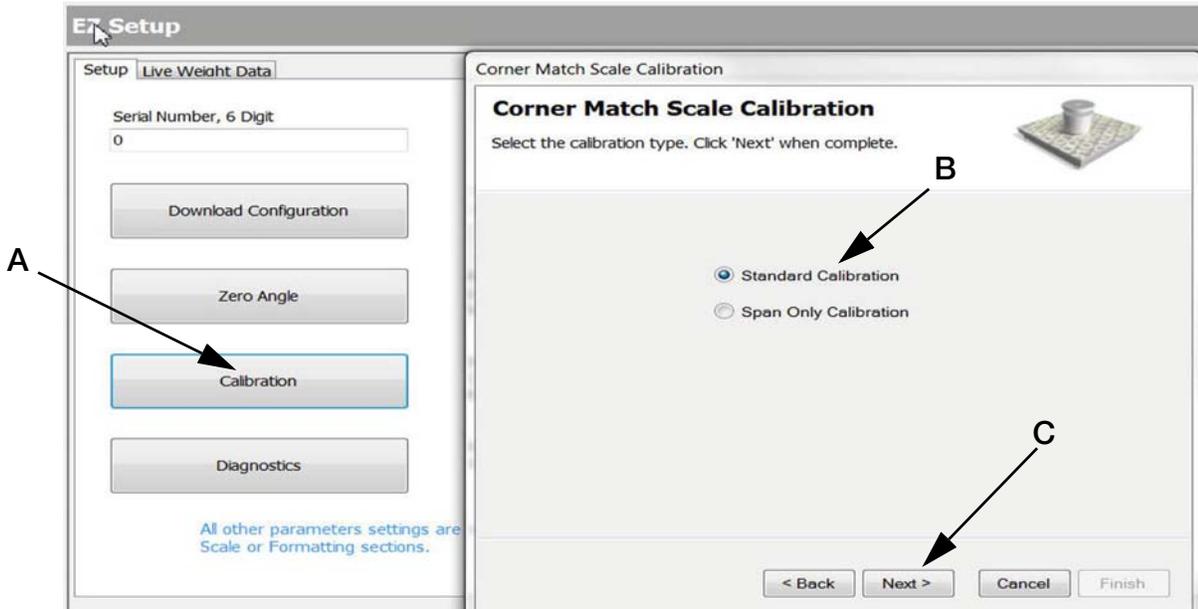


Figure 4-22. Enter Calibration

3. Enter test weight value to be used and press *Next* (Fig 4-23 A).  
“Certified Test Weight used during cell normalization” must be checked.

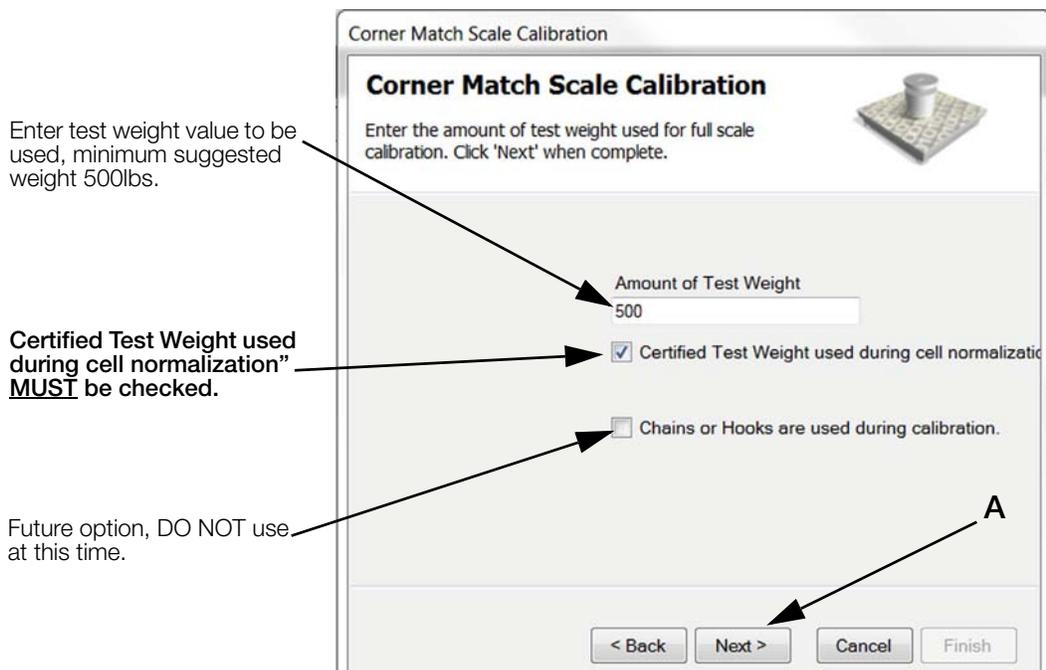


Figure 4-23. Enter Test Weight Value

4. Corner Match Scale Calibration screen appears. Press *Calibrate Zero* (Fig 4-24 A).
5. When message in the lower left corner of message box reads “Zero Calibration Complete” press *Next* (Fig 4-24 B).

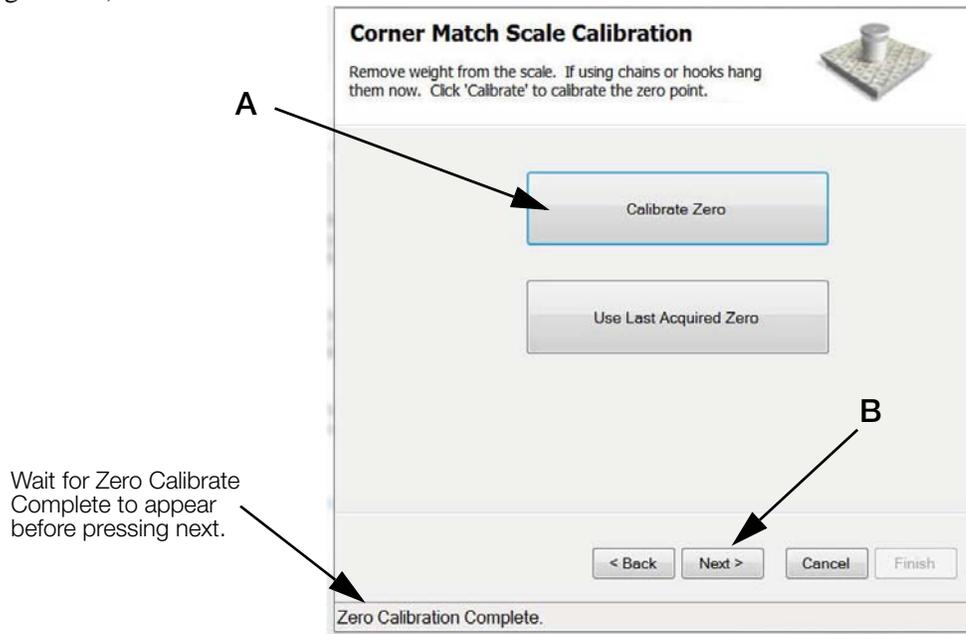


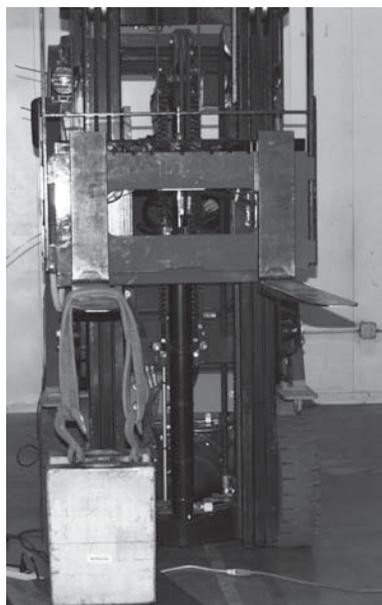
Figure 4-24. Calibrate Zero

6. Add known weight to Load Cell 1 (Left hand Load Cell, see figure 4-25).
7. Lift weight (allow it to stabilize if using hanging weight).

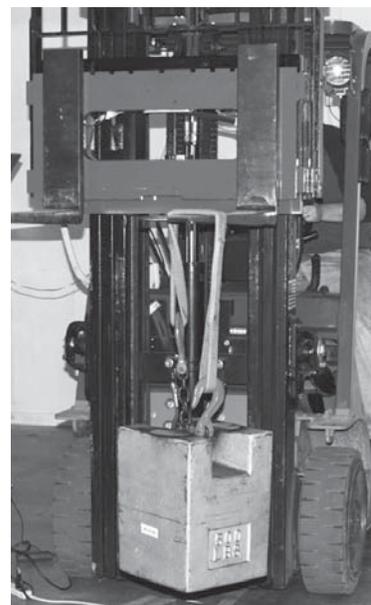


**Note**

*Always shut forklift off when calibrating, high vibration can cause inaccuracies. Make sure to calibrate forks in correct order, or the calibration will not be successful.*



Load Cell #1  
(Left Hand)



Load Cell #2  
(Right Hand)

Figure 4-25. Load Cell #1 & #2

8. Press *Measure* (Fig 4-26 A).

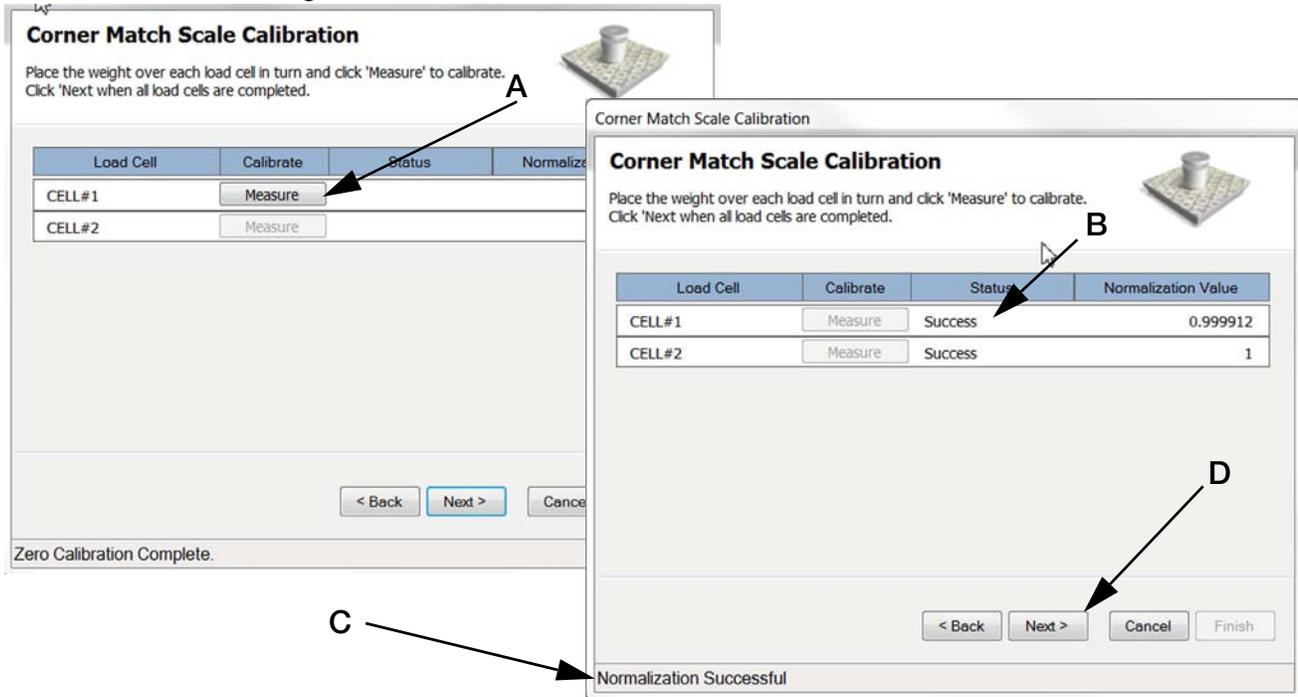


Figure 4-26. Load Cell Calibration

9. Load Cell #1 Status will read “Success” (Fig 4-26 B) and Load Cell #2 *Measure* will become available. Repeat steps 9-11 for Load Cell #2.
10. When both load cells have been calibrated (status reads Success for both Cell #1 & #2, Fig 4-26 B) and the “Normalization Successful” message appears (Fig. 4-26 C) press *Next* (Fig. 4-26 D).
11. A message that you have successfully calibrated the scale will appear (Fig 4-27 A) then press *Finish* (Fig 4-27 B).  
A message appears in the bottom of the frame “Getting New Calibration” (Fig 4-27 C). When done the pop up box will disappear and calibration is complete.

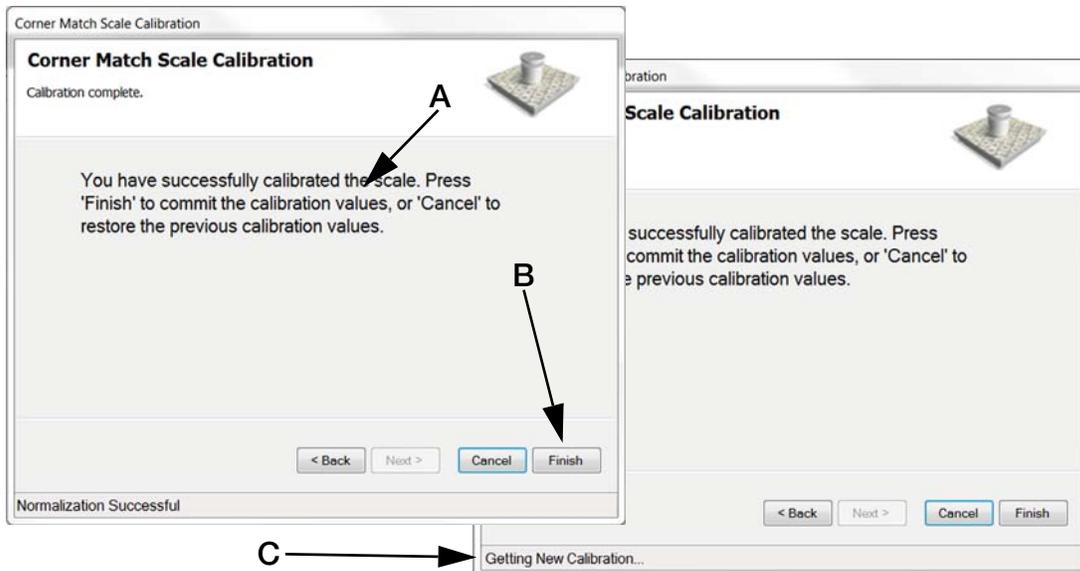


Figure 4-27. Finish Calibration

12. Place calibration switch into the closed position (Fig 5-2), toward the left hand side of j-box when standing in front of the scale (toward load cell #1).

#### 4.8.1 Reading Data In Live Weight Screen

Once calibration is complete select the *Live Weight Data* screen.

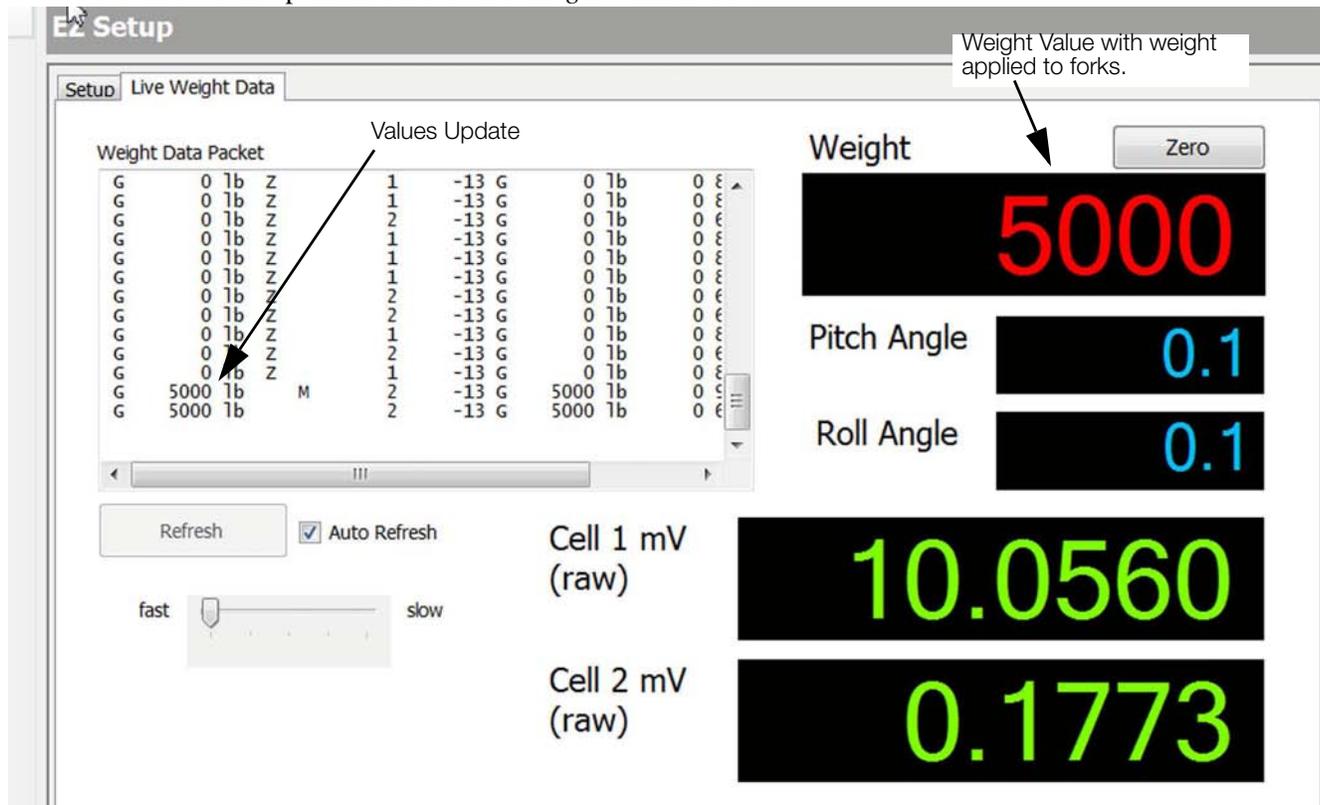


Figure 4-28. Revolution Live Weight Data screen.

1. Place calibration switch into the closed position (Fig 5-2), toward the left hand side of j-box when standing in front of the scale (toward load cell #1).
2. Test known weight amounts as specified in Section 4.3.2. When weight is on fork the value will appear in the *Weight* box and the *Weight Data Packet* values will update.
3. If scale is weighing correctly carefully disconnect USB and replace clear cover.
4. Swivel the cover plate back to the correct position and secure with screw.
5. Upon successful installation and calibration verification, seal the carriage j-box and load cell quick disconnects for Weights and Measurements approval.
6. Re-install the scale cover plate (Section 2 Fig 2-6). Scale is now ready for use.

## 4.9 Diagnostics

Diagnostics works in set-up or normal operating mode

1. On *EZ Setup* screen select *Diagnostics*



**Note** Selecting *Auto refresh* will continuously display data communications for each screen.

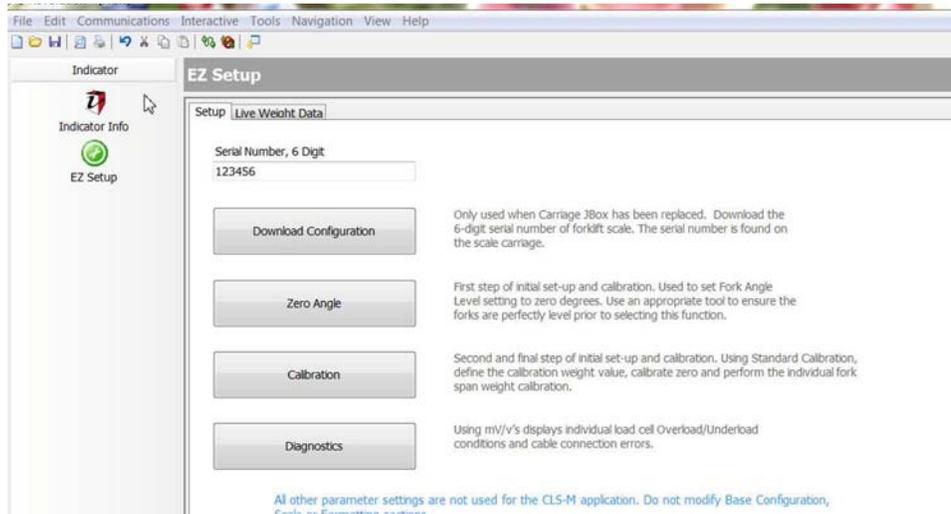
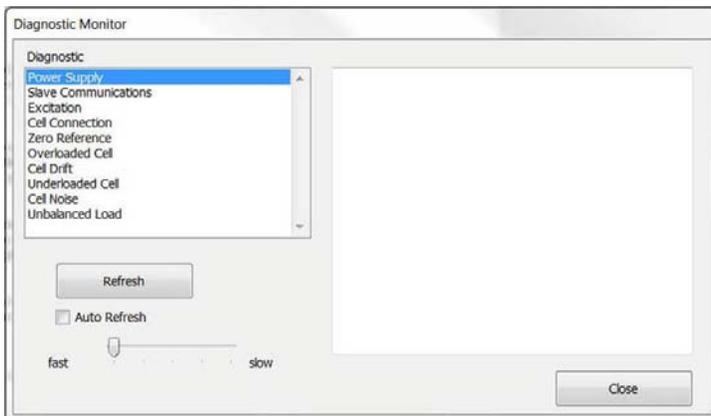


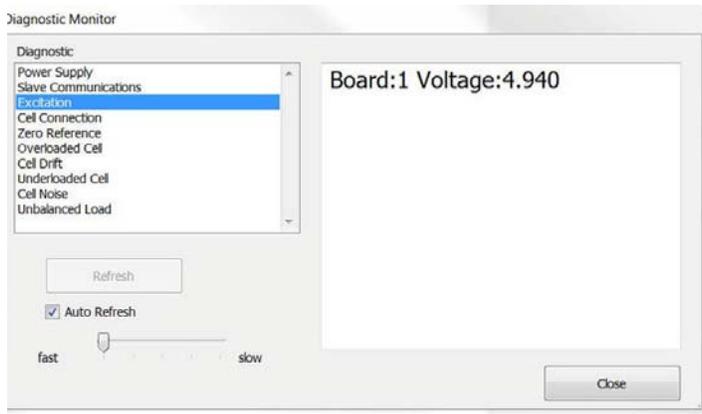
Figure 4-29. Select Diagnostics



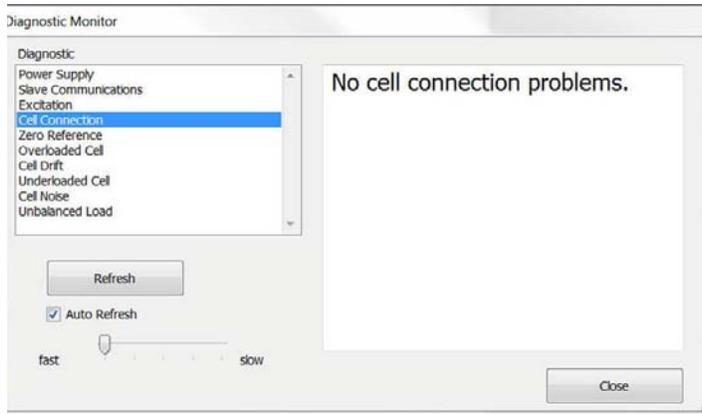
Power Supply:  
Not Applicable to CLS M software



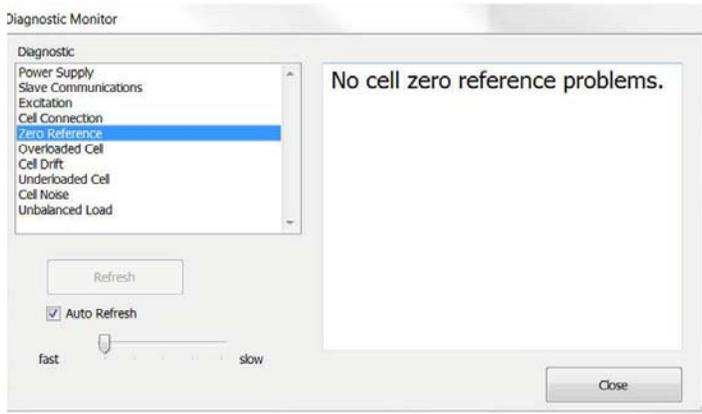
Slave Communications:  
Not applicable to CLS M software



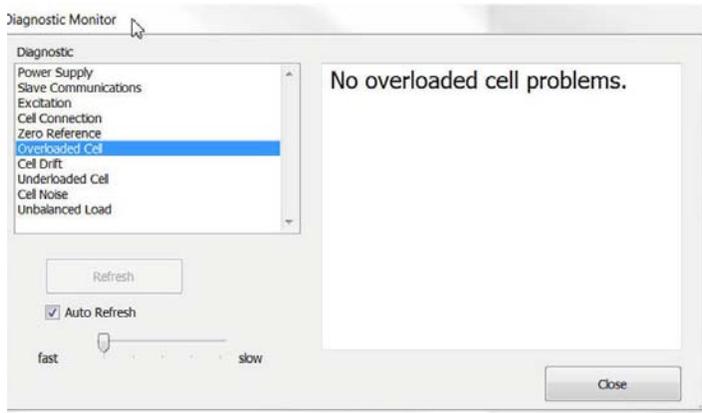
Excitation:  
Not Applicable to CLS M software



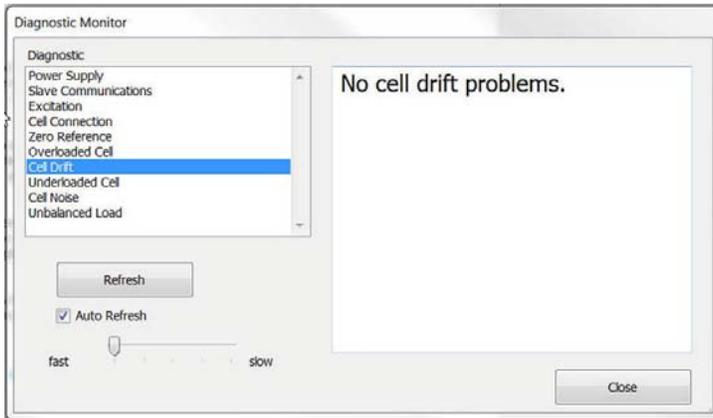
Cell Connection:  
Tests correct load cell cable connections  
Scans each load cell to display connection issues  
If one load cell connection error is found, will flash between “No cell connection problems” and Scale: SC1 Cell:1 or 2. While standing in front of the forklift cell 1 is located on the left, cell 2 on the right.



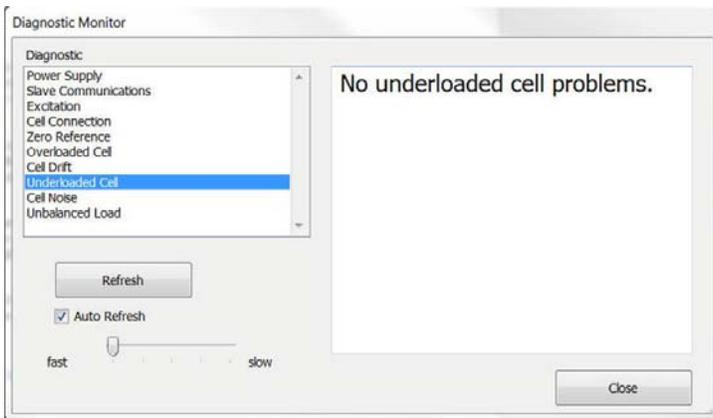
Zero Reference:  
Not Applicable to CLS M software



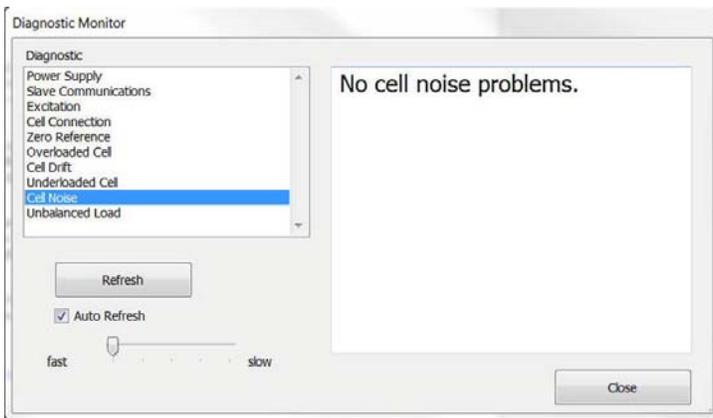
Overload Cell:  
If error occurs displays mV level of the overloaded load cell.  
At 5000lbs the mV rating is 1.5



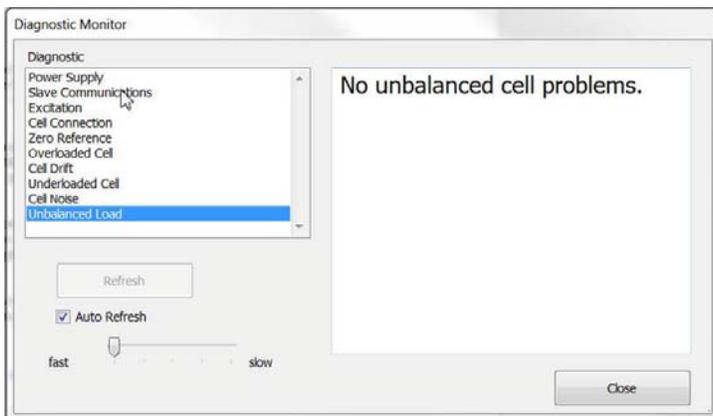
Cell drift:  
Not Applicable to CLS M software



Underload Load cell:  
If error occurs displays mV level of the underloaded load cell.  
At 5000lbs the mV rating is 1.5



Cell Noise:  
Not Applicable to CLS M software



Unbalanced Cell:  
Not Applicable to CLS M software