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 | Туре | 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.





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





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.



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 | Туре | 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).

| License Agreemen | |
|--------------------------------|--|
| Please take a moment to read | the license agreement now. If you accept the terms below, click "I |
| Agree", then "Next". Otherwise | click "Cancel". |
| Rice Lake Weighing | Systems License Agreement |
| This is a legal Agree | nent between you (either an individual or an |
| entity) and Rice Lake | Weighing Systems. If you do not agree to the |
| terms of this Agreen | ent, promptly return the disks and the |
| accompanying items | (including written materials and binders or other |
| containers) to the pla | ace you obtained them for a full refund. |

Figure 4-5. License Agreement Screen

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С

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).

| Select Installation Folder | A |
|---|---|
| The installer will install Revolution to the following folder. | |
| To install in this folder, click "Next". To install to a different folder, enter it below or click "Brown". | |
| Eolder: C\Program Files (x86))Rice Lake Weighing Systems\Revolution\ Browse | |
| Disk Cost | |
| Install Revolution for yourself, or for anyone who uses this computer: | |
| Everyone | |
|) Just me | |
| Count Parts Next | |

Figure 4-6. Select Installation Folder

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

| ∾ Confirm Installation | | | 5 |
|---------------------------------------|----------------------------|----|-----|
| he installer is ready to install Rev | rolution on your computer. | | |
| lick "Next" to start the installation | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | [] | New |

Figure 4-7. Confirm Installation Screen

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

| Revolution | | ALC: N | Contract of the owner owne |
|--------------------------------|--------|--------|---|
| Installing Revolution | | | 5 |
| Revolution is being installed. | | | |
| Please wait | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | Cancel | < Bec | k Next> |

Figure 4-8. Installing Revolution Screen

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

| Installation Complete | | | | |
|--------------------------------------|---------------------------|--------------------|---------|--|
| Revolution has been successfully ins | talled. | | | |
| Dick "Close" to exit. | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Please use Windows Update to chec | k for any critical update | es to the .NET Fra | mework. | |
| | | | | |
| | | | | |

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



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.

| dit Comm | | |
|--------------|---|----------|
| | nunications Tools View Help | |
| | 1 2 ¥ [□ 1% (2) | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | SUFIWHKE |
| | - | |
| | | |
| | | |
| To be | gin using Revolution, click New in the File Menu. | |
| | | |
| Quick | Links | |
| 🧭 <u>M</u> e | loss About Develution | |
| (Å | OTE ADOUL REVOLUTION | |
| Rite | ce Lake Weighing Systems | |
| | ice Lake Weighing Systems | |
| RI | ice Lake Weighing Systems | |
| | ice Lake Weighing Systems LWS Training Schedule | |
| | ice Lake Weighing Systems | |
| | ice Lake Weighing Systems LWS Training Schedule heck for Revolution Updates | |

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.



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



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), the 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 | 2 |
|------|---|
|------|---|

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 or your choice. Uploading the software stores all original calibration and default factory settings.

| Indicator | EZ Setup | | | |
|----------------|------------------------|-------------------------|-----------------|---|
| 2 🕞 | Setup Live Weight Data | | | |
| Indicator Info | Serial Number, 6 Digit | Scal | le Serial | Number |
| EZ Setup | 123456 | 1 | Upload | |
| | Download Configuration | Only used | Uploading I | Data |
| | | the scale | Received: | 1,659 bytes |
| | |] First sten | Elapsed: | 00:08 |
| | Zero Angle | Level sett forks are | | Cancel |
| | | forks are | | Cancel |
| | | Second a | nd final step o | of initial set-up and calibration. Using Standard Calibration |

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.



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).

| Live Weight Data | | | |
|--------------------------------|----------------------|----------------|----|
| ial Number, 6 Digit | Download | В | |
| | Download Configurati | on | |
| Download Configuration | t Standard Configu | ation | |
| | Calibration E | Pata | |
| Zero Angle | Ticket Formats | C | ,D |
| | | | |
| Calibration | Begin | Abort Close | |
| | s <u> </u> | | |
| Diagnostics | C Sending: | Error Count: 0 | |
| | Elapsed Time: | | |
| All other parameter settings a | re ne | | |

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).



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.



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



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).



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).

| | | | Co | rner Match Scale Calibra | tion | | |
|-----------|-----------|--------|-----------|---|---|--------------------------------|---------------------|
| Load Cell | Calibrate | Status | Normaliza | Corner Match Sc | ale Calibrat | ion | - Em |
| CELL#1 | Measure | | F | lace the weight over each lick 'Next when all load cel | load cell in turn and s are completed. | d click 'Measure' to calibrate | |
| CELL#2 | Measure | | | | | N | в |
| | | | | Load Cell | Calibrate | Status | Normalization Value |
| | | | | CELL#1 | Measure | Success | 0.999912 |
| | | | | CELL#2 | Measure | Success | 1 |
| | | | | | | | |

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.

| Corner Match Scale Calibration | |
|--|---|
| Corner Match Scale Calibration | bration |
| Calbration complete. | Scale Calibration |
| You have successfully calibrated the scale. Press 'Finish' to commit the calibration values, or 'Cancel' to restore the previous calibration values. | successfully calibrated the scale. Press commit the calibration values, or 'Cancel' to a previous calibration values. |
| < Back Next > Cancel Finish | < Back Next > Cancel Finish |
| Getting New Cal | ibration |

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

| | Interactive Tools Navigation View H | elp | |
|-----------|-------------------------------------|--|--|
| Indicator | EZ Setup | | |
| | Setup Live Weight Data | | |
| EZ Setup | Serial Number, 6 Digit 123456 | | |
| | Download Configuration | Only used when Carriage JBox has been replaced. Download the 6-digit serial number of forkift scale. The serial number is found on the scale carriage. | |
| | Zero Angle | First step of initial set-up and calibration. Used to set Fork Angle Level setting to zero degrees. Use an appropriate tool to ensure the forks are perfectly level pror to selecting this function. | |
| | Calibration | Second and final step of initial set-up and calibration. Using Standard Calibratio define the calibration weight value, calibrate zero and perform the individual fo span weight calibration. | |
| | Diagnostics | Using mV/v's displays individual load cell Overload/Underload conditions and cable connection errors. | |

| gnostic | | |
|---|------|--|
| ver Supply ve Communications citation I Connection or Reference erloaded Cell I Drift derloaded Cell I Noise balanced Load | * | |
| Refresh Auto Refresh fast | skow | |

Power Supply: Not Applicable to CLS M software



Slave Communications: Not applicable to CLS M software





| Diagnostic Monitor | | |
|---|-------------------------------|---|
| Diagnostic | | |
| Power Supply Shave Communications Excitation Cel Connection Zero Reference Overloaded Cel Cel Noise Unbelanced Load | No cell drift problems. | Cell drift: Not Applicable to CLS M software |
| Auto Refresh | Close | |
| | | |
| Diagnostic Monitor | | |
| Diagnostic Power Supply Slave Communications Excitation Cel Connection Zero Reference Overbaded Cel Cel Note Unbalanced Load Refresh fast slow | No underloaded cell problems. | Underload Load cell: If error occurs displays mV level of the underloaded load cell. At 5000lbs the mV rating is 1.5 |
| Diagnostic Monitor | | |
| Diagnostic Power Supply Save Communications Excitation Cel Connection Zero Reference Overbaded Cel Cel Drit Underloaded Cel Cel Noce Unbalanced Load Refresh V Auto Refresh | No cell noise problems. | Cell Noise: Not Applicable to CLS M software |
| fast slow | Close | |
| Diagnostic Monitor | | |
| Diagnostic Power Supply Slave Communicitions Excitation Cel Connection Zero Reference Overbaded Cel Cel Nrit Underbaded Cel Cel Nrit Unbelanced I cod | No unbalanced cell problems. | Unbalanced Cell: Not Applicable to CLS M software |
| | Close | |

