

# iQube<sup>2</sup>® Junction Box/1280 Enterprise

## Quick Start Guide

This document provides instructions on the configuration between the iQube<sup>2</sup> and 1280 indicator. It addresses:

- 1.0 Establish Communication Between the iQube<sup>2</sup> and the 1280.
- 2.0 Configure iQube<sup>2</sup> Load Cells.
- 3.0 Calibrate the Scale.
- 4.0 Additional Helpful Settings



Manuals can be viewed or downloaded from the Rice Lake Weighing Systems website at [www.ricelake.com/manuals](http://www.ricelake.com/manuals)

### 1.0 Establish Communication Between the iQube<sup>2</sup> and the 1280

The iQube<sup>2</sup> requires a serial connection to the 1280 indicator. It is recommended that an RS-422 connection be used. The following steps must be followed in order to initiate communication:

1. Wire and prepare the iQube<sup>2</sup> to communicate with the 1280.
2. Configure the 1280 serial port to communicate with the iQube<sup>2</sup>.
3. Add 1280 scale to read the iQube<sup>2</sup>.
4. Initiate communication between the iQube<sup>2</sup> and 1280.

#### 1.1 Wire and Prepare iQube<sup>2</sup> to Communicate with the 1280

1280 Serial Port 1	iQube <sup>2</sup> Serial Port 1
Pin 1 Ground	Pin 1 Ground
Pin 2 – B	Pin 4 – A
Pin 3 – A	Pin 5 – B

Table 1. J7 Serial Communications

Pin	Primary iQube <sup>2</sup>	Secondary iQube <sup>2</sup>
1	iQA	iQA
2	iQB	iQB
3	GND2	GND2
4	GND2	GND2

Table 2. J12 iQube<sup>2</sup> Port Primary to Secondary

Switch	Off	On
1	RS-485/RS-422	RS-232
2	2-Wire	4-Wire

Table 3. S2 Switch Settings

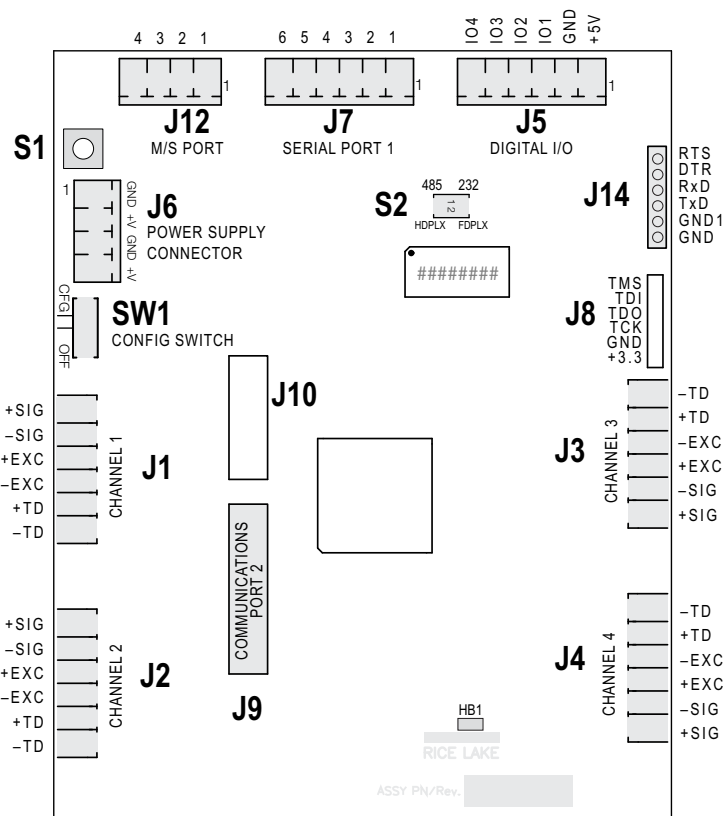


Figure 1. iQube<sup>2</sup> CPU Board

**IMPORTANT**

*The iQube<sup>2</sup> must not be in an error condition when attempting to perform configuration. The iQube<sup>2</sup> will not take a configuration if there are detected errors. You will need to clear all errors first. It is acceptable to hook up simulators to help remove any existing error conditions. Errors can be related to any of the switches or wiring.*

### 1.1.1 Switches

#### S1

The S1 is pressed to reset the iQube<sup>2</sup> to default factory settings ([Section 1.1.2](#)) and to assign board ID during Board setup ([Section 2.1 on page 7](#)).

#### SW-1

When resetting iQube<sup>2</sup> to default settings or making changes to the iQube<sup>2</sup> unit, set SW-1 to CFG. For regular operation and 1280 communication, SW-1 must be switched to OFF.

#### S2

The S2 DIP switch reads only at Power-up. To allow iQube<sup>2</sup> to operate with RS-422 serial connection to 1280, switch both S2 DIP switches to Off. Double check that SW-1 is switched to CFG. Disconnect and reconnect power supply.

### 1.1.2 Reset iQube<sup>2</sup> to Default Factory Settings

Reset the iQube<sup>2</sup> to factory default settings to restart the configuration process. To return the iQube<sup>2</sup> unit to factory default settings, switch SW-1 to CFG and hold down S1 switch until all lights turn red, then turn solid green.

### 1.1.3 Wire Load Cells

To avoid an error condition, all six load cell pins of all four connectors (J1-J4) must be connected to load cells. It is acceptable to hook up simulators to help remove any existing error conditions. To attach load cell cables to the CPU board in [Figure 1 on page 1](#):

1. Route the cables through the cord grips on the load cell connector end of the enclosure.
2. Strip 1/4" of insulation from the ends of the load cell wires.
3. Install wires into the connectors as shown in [Table 4](#).
4. Use cable ties and mounts to secure the load cell cables to the enclosure, when connections are complete.

**WARNING**

*Pins 5 and 6 provide connections for load cells that provide TEDS (Transducer Electronic Data Sheet) information.*

*Do not connect sense wires to the TD terminals.*

Pins	Function
1	+SIG
2	-SIG
3	+EXC
4	-EXC
5	+TD (TEDS)
6	-TD (TEDS)

Table 4. Load Cell Connectors (J1-J4) Pin Assignments

### 1.1.4 Configure and Wire Multiple iQube<sup>2</sup> Units

For control of a multi-board system, one board is assigned as the primary unit and the J12 connector (M/S port) is used to provide communication between the primary and up to three secondary units (See [Figure 1 on page 1](#)).

[Figure 2](#) shows the primary-to-secondary wiring for multiple iQube<sup>2</sup> boards. Successive secondary units are wired in parallel (A to A, B to B, GND to GND) to the J12 connector of each iQube<sup>2</sup> board.



**The M/S port provides RS-485 communications at approximately 450 KBPS. This port is reserved for communication between iQube<sup>2</sup> boards. No other devices should be connected to this port**

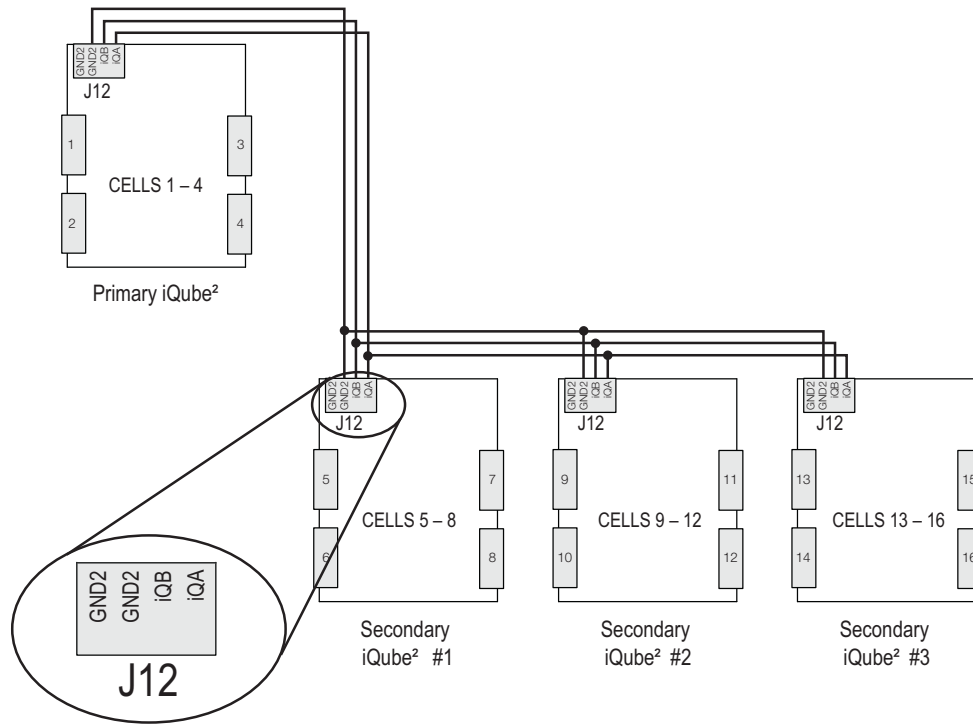


Figure 2. Primary-to-Secondary Communications Wiring



**The cell numbering for secondary units follows the sequence of the load cell connector designations, with connectors J1–J4 of the first secondary unit assigned cells 5–8, as shown in [Table 5](#)**

Load Cell Connector	Primary Cell Numbers	Secondary #1 Cell Numbers	Secondary #2 Cell Numbers	Secondary #3 Cell Numbers
J1	1	5	9	13
J2	2	6	10	14
J3	3	7	11	15
J4	4	8	12	16

Table 5. Cell Numbering for Multiple-Board System

### 1.1.5 Wire Serial RS-422 Connection between iQube<sup>2</sup> and 1280




Wire a connection from the 1280 serial port 1 to the J7 serial port pin. See [Table 1](#) and [Figure 1 on page 1](#).

## 1.2 Configure 1280 Serial Port to Communicate with the iQube<sup>2</sup>

### IMPORTANT

*If using the built-in truck program for the 1280, or any other custom program, the COD file and REV files to that program must be loaded into the 1280 indicator prior to configuring the iQube<sup>2</sup>. Loading these files wipes out all iQube<sup>2</sup> settings.*

Use the following steps to configure the 1280 serial port to communicate with the iQube<sup>2</sup>:

1. Press  on the weigh mode screen. The **Main Menu** displays.
2. Press  Configuration for access to the Configuration menu.
3. Press  to enter the **Communication** menu.



### Note

*Serial Port 1 is the default displayed menu choice. If the iQube<sup>2</sup> is connected to a different serial port, select the Serial Port 1 drop down menu then select the connected port from that drop down menu. The selected port's configuration settings will be displayed to the right.*

4. Press **Input Type** then select iQube<sup>2</sup>.
5. Press .

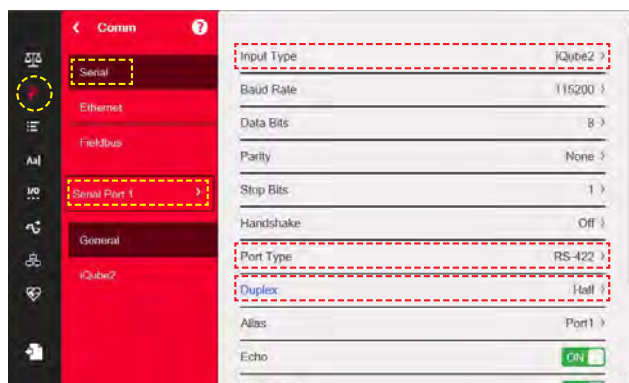


Figure 3. 1280 Serial iQube<sup>2</sup> Setup Menu

6. Press **Port Type** then select RS-422.
7. Press .




### Note

*If using the built-in truck program for the 1280, adjust the baud rate to 115200. The truck program default is set to 9600 which is incompatible with the iQube<sup>2</sup>.*

### 1.3 Add 1280 Scale to Read iQube<sup>2</sup>

The scales menu allows the setup of parameters for the type of scale being used. Use the following steps to set up these parameters.

1. Enter the configuration menu as in Steps 1 and 2 of [Section 1.2 on page 4](#).
2. Press  to enter the **Scales** menu.



**Note** *Scale 1 is the default displayed menu choice. If the iQube<sup>2</sup> is to be used as a different scale number, select the Scale 1 drop down menu then select the desired from that drop down menu. The selected scale's configuration settings will be displayed to the right.*

3. Press **Format**.
4. Press the edit scale icon . The **Scale Kind** menu displays.

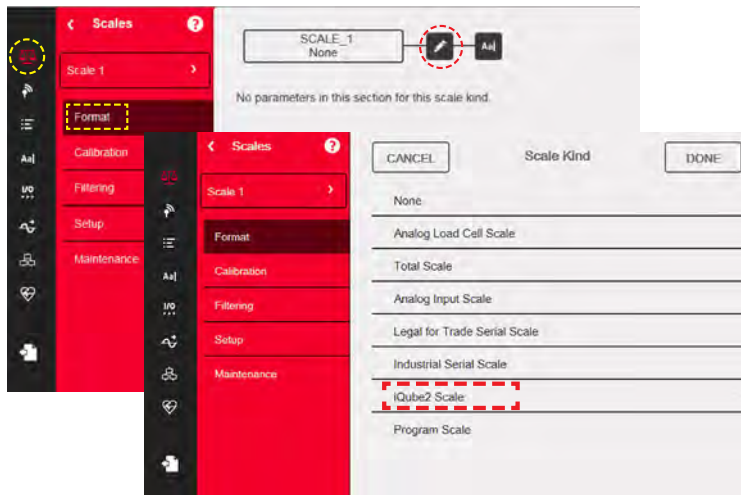


Figure 4. Scale Kind Menu

5. Select **iQube<sup>2</sup> Scale** to set as the scale kind.
6. Select the Scale Hardware type.



**Note** *The default Scale Hardware type reads as "Connection: Port 1: Scale 1". This refers to the connected serial port and specified scale. This selection will vary if the iQube<sup>2</sup> is connected to a different serial port or specified as a different scale.*



7. Press . iQube<sup>2</sup> is set as Scale 1.
8. Press  again. iQube<sup>2</sup> setup menu displays.



Figure 5. Scale 1 iQube<sup>2</sup> Setup Menu

See the 1280 Technical Manual (PN 167659) for more information on scale setup.



**Settings can be made to the iQube<sup>2</sup> independently of setting it as the scale kind. The 1280 must be set to the iQube<sup>2</sup> scale kind for the indicator to read weight from the iQube<sup>2</sup>.**

## 1.4 Initiate Communication Between iQube<sup>2</sup> and 1280

1. Select **iQube<sup>2</sup> Setup**. **iQube<sup>2</sup> Setup** prompt displays.

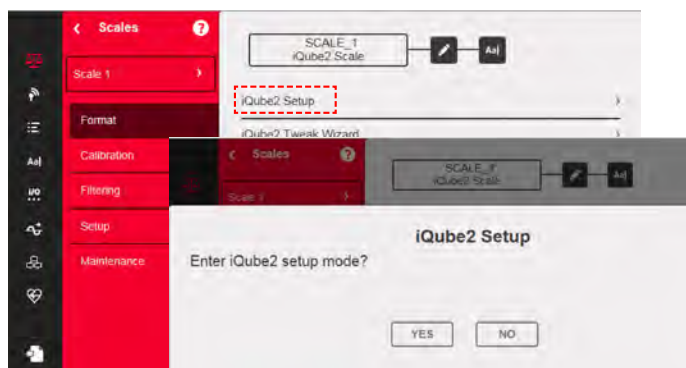


Figure 6. Scale 1 configured to iQube<sup>2</sup>

2. Press **YES** to enter setup. The **iQube<sup>2</sup> Setup** menu displays.
3. Select **Test iQube<sup>2</sup> Connection**.
4. Press **OK**.
5. If iQube<sup>2</sup> connection is successful, **Successfully connected to iQube2 with serial number XXXXXX** displays.

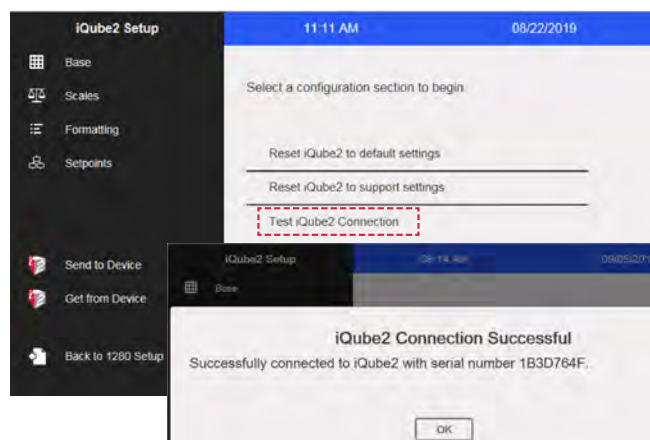


Figure 7. Test iQube<sup>2</sup> Connection

### IMPORTANT

Configuration cannot continue until iQube<sup>2</sup> is connected. If the connection is not successful, return to [Section 1.1 on page 1](#), double check all wiring and switches, reset the iQube<sup>2</sup> to factory default settings, power cycle the iQube<sup>2</sup> and begin setup again.

## 2.0 Configure iQube<sup>2</sup> Load Cells

The following configuration steps must be done prior to calibrating the scales.


1. Set Board Assignments.
2. Set Load Cell Assignments.
3. Set Load Cell Capacity.
4. Send settings to iQube<sup>2</sup>.

### 2.1 Set Board Assignments

Follow the steps below to set the board IDs and addresses when connecting more than one iQube<sup>2</sup>. If only one iQube<sup>2</sup> is being used, proceed to [Section 2.2 on page 8](#).



**All lights on all of the iQube<sup>2</sup> flash during the auto assign procedure. Load cell numbers are assigned in the order which the S1 buttons are pressed. The first press assigns load cells 5-8; the second, 9-12. The last press of S1 assigns load cells 1-4. Lights will turn green as the iQube<sup>2</sup> load cells are assigned.**

1. Within iQube<sup>2</sup> setup, press . Display defaults to **Board Assignment**.
2. Press **Start Auto Assign Procedure**. As the iQube<sup>2</sup> goes through auto assign, **In Progress** displays.

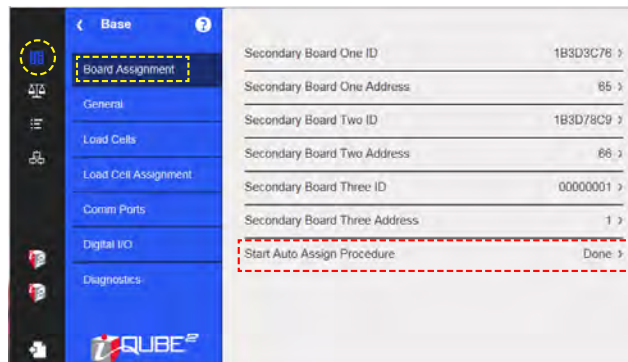


Figure 8. Board Assignment Display

3. Refer to [Figure 9](#) and press S1 (located on the CPU board - [Figure 1 on page 1](#)) to assign the load cells in the order that is shown. They must be assigned in that order.

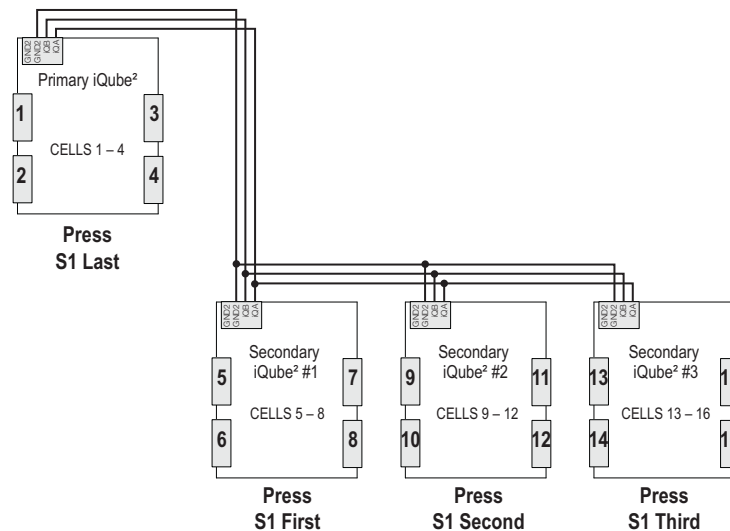


Figure 9. iQube<sup>2</sup> Board and Load Cell Assignments

## 2.2 Set Load Cell Assignments

To manually adjust the position of a load cell in the iQube<sup>2</sup> without repeating the Auto Assign procedure, use **Load Cell Assignments**.



1. Select  to display the Base menu.
2. Select **Load Cell Assignments**.



Figure 10. Load Cell Assignment Display

- Press **Assign** for each load cell in scale to assign the cell to the iQube<sup>2</sup>.
- Press **Up** or **Down** to move the position of the load cell within the load cell layout.
- Press **Remove** to remove the load cell from the load cell assignment.

## 2.3 Set Load Cell Capacity

1. Select **Load Cells**.
2. Select **Capacity** and enter the load cell capacity using the numeric keypad.
3. Press  after capacity is set.
4. Press **Apply to All Load Cells**.

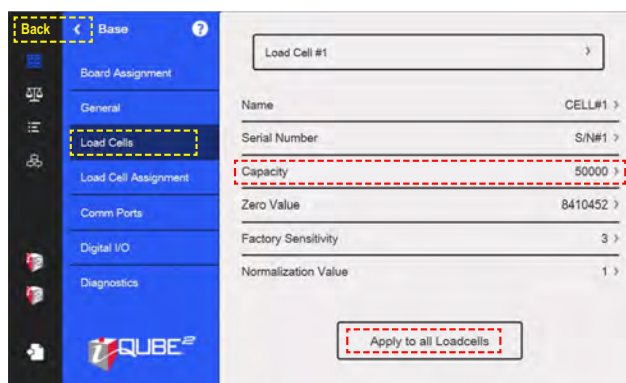


Figure 11. Load Cell Display

5. Press **Back** to return to main setup menu.

## 2.4 Send Settings to iQube<sup>2</sup>

Configuration settings must be sent to the iQube<sup>2</sup> once the load cell parameters are set within the 1280 (See iQube<sup>2</sup> Technical Manual [PN 106113] for more information on individual settings).

1. Select **Send to Device**. **Send Configuration to Device** dialog box displays.

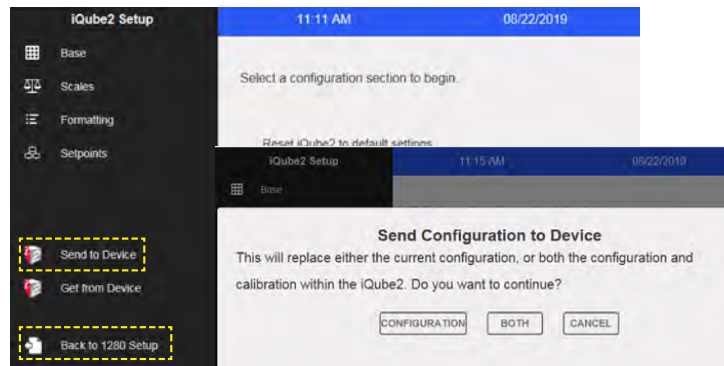


Figure 12. Send Configuration to Device


2. Select **Configuration**. Configuration is sent to iQube<sup>2</sup>.
3. Select **Back to 1280 Setup**.

## 3.0 Calibrate the Scale

Each calibration completely overwrites any previous calibration settings. There are two ways to calibrate the scale:

- Calibrate the scale by section match in 1280 Calibration Wizard
- Calibrate the scale by corner match in 1280 Calibration Wizard

### 3.1 Calibrate the Scale by Section Match in 1280 Calibration Wizard

1. Enter the configuration menu and Select . The **Scales** menu displays.
2. Select **Calibration** and press **Calibrate Scale**. **iQube<sup>2</sup> Scale Calibration** menu displays.
3. Select **Section Match** and press **Next**.

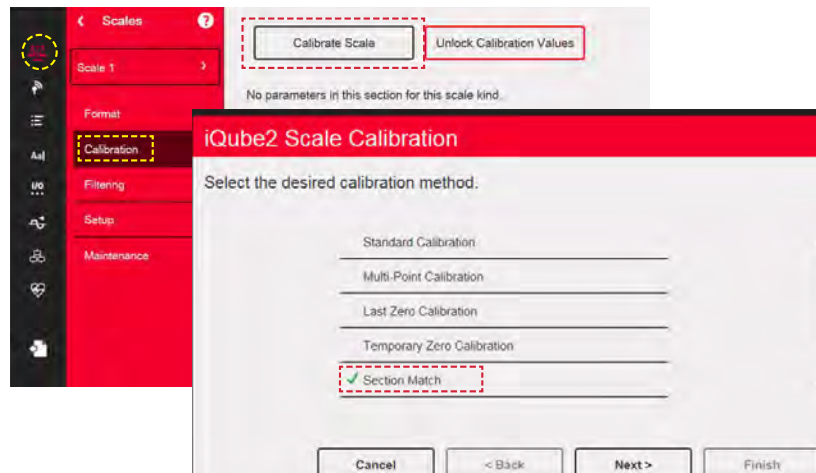


Figure 13. iQube<sup>2</sup> Scale Calibration Menu

4. Select **Chains/Hooks are NOT used during calibration** and press **Next**.
5. Remove all test weights from the scale. Press **Calibrate Zero** to capture the zero calibration data. **Zero Calibration Complete** displays when the indicator has captured zero.

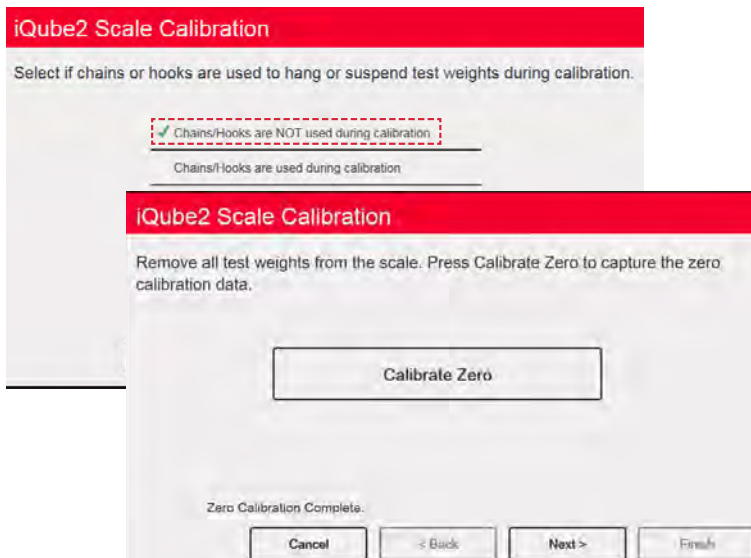


Figure 14. Calibrate Zero

6. Press **Next**.
7. Enter the calibration weight for the test weight that will be used and press **DONE**. Press **Next**.
8. Put the calibration weight over current section.
9. Press **Calibrate Section**. Section calibrates and the wizard proceeds to next section of the scale.

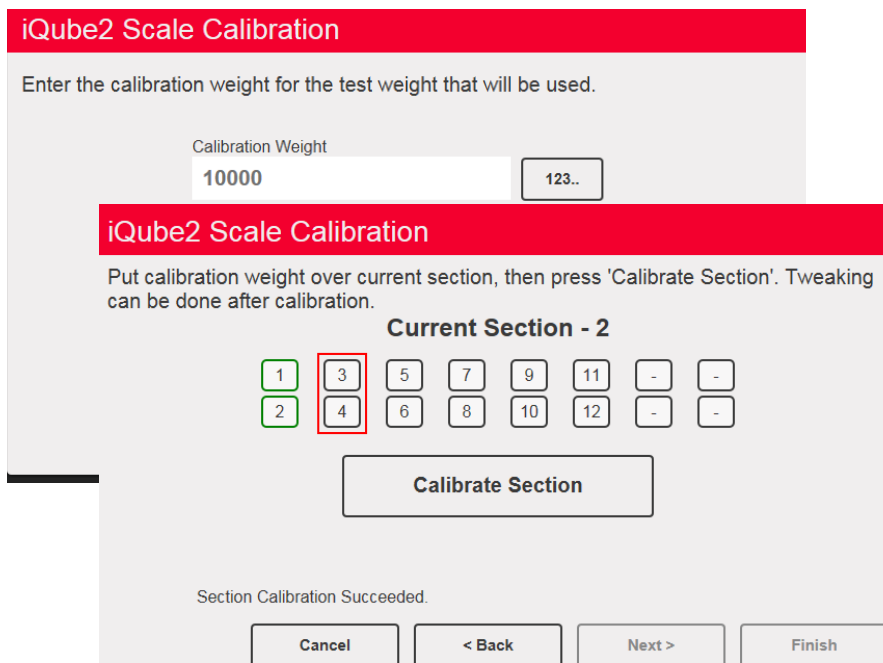



Figure 15. Scale Calibration

10. Repeat Steps 8 and 9 until all sections are calibrated. Press **Next**.
11. Select **Finish to Return to the Scale Setup**.

### 3.2 Calibrate the Scale by Corner Match in 1280 Calibration Wizard

1. Enter the configuration menu and Select . The **Scales** menu displays.
2. Select **Calibration** and select **Calibrate Scale**. **iQube<sup>2</sup> Scale Calibration** menu displays.
3. Scroll down in the menu to select **Corner Match** and press **Next**.

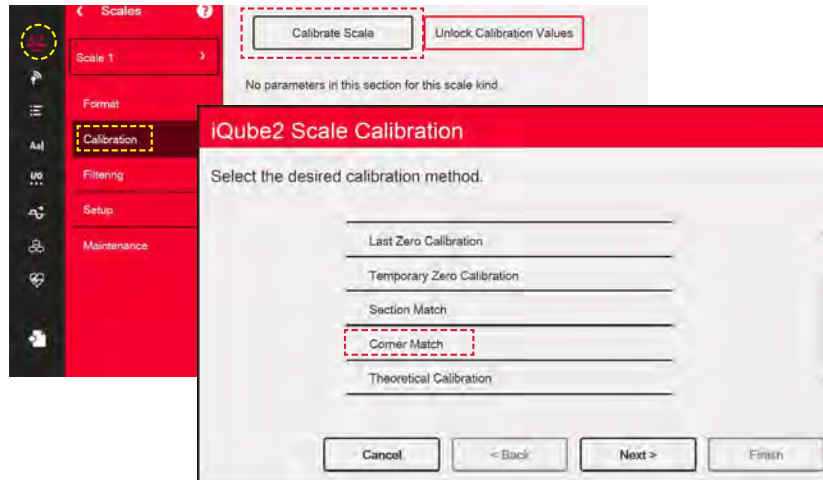


Figure 16. iQube<sup>2</sup> Scale Calibration Menu

4. Select **Chains/Hooks are NOT used during calibration**. Press **Next**.
5. Remove all test weights from the scale. Press **Calibrate Zero** to capture the zero calibration data. **Zero Calibration Complete** displays when the indicator has captured zero.

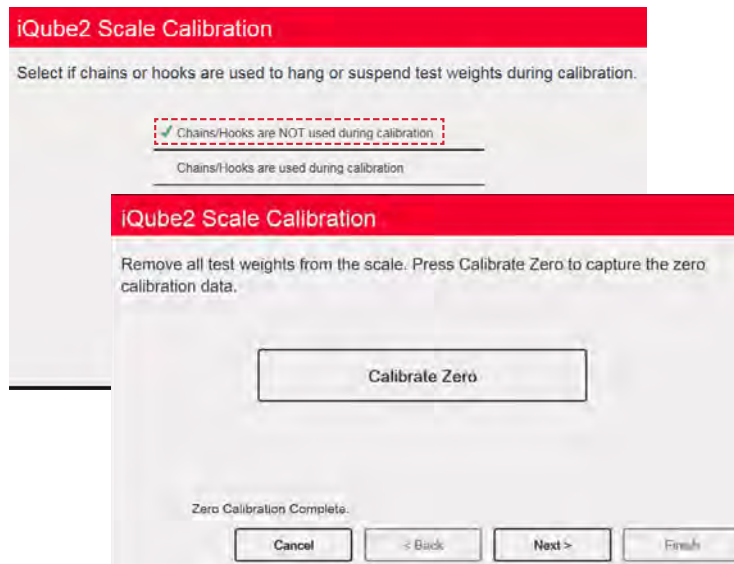


Figure 17. Calibrate Zero

6. Press **Next**.

7. Enter the calibration weight for the test weight that will be used. Press **Next**.
8. Put calibration weight over corresponding corner. Press **Calibrate Corner**. Corner calibrates and wizard proceeds to next section.

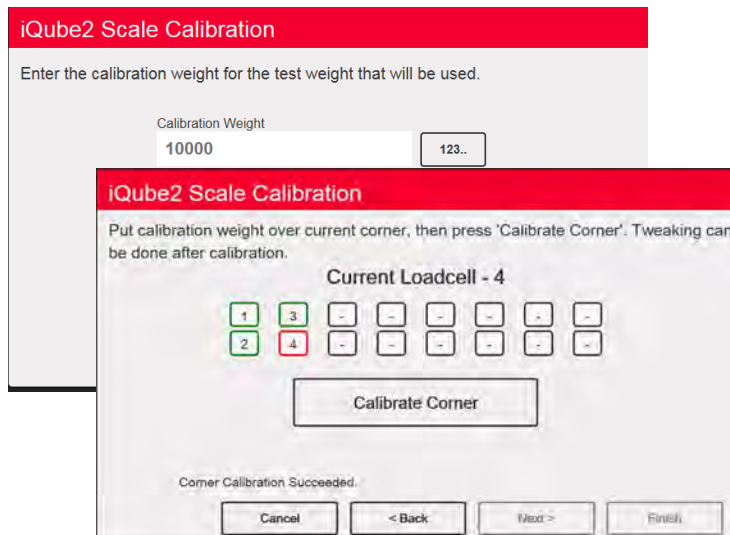


Figure 18. Scale Calibration

9. Repeat Step 8 until all sections are calibrated. Press **Next**.
10. Select Finish to **Return to the scale Setup**.

### 3.3 Send Settings to iQube<sup>2</sup>


1. Select . The **Scales** menu displays.
2. Select **Format**.
3. Select **iQube<sup>2</sup>**. **iQube<sup>2</sup> Setup** prompt displays.

Figure 19. Scale 1 Configured to iQube<sup>2</sup>

4. Select **Send to Device**. **Send Configuration to Device** dialog box displays.

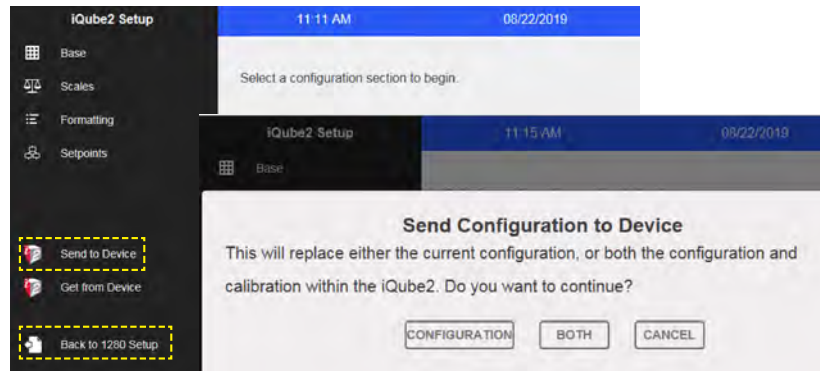


Figure 20. Send Configuration to Device

5. Press **Both**. Configuration and calibration will send to iQube<sup>2</sup>.
6. Select **Back to 1280 Setup**.
7. Select **Save and Exit**. 1280 user mode will display.




Figure 21. Send Configuration to Device

## 4.0 Additional Helpful Settings

### 4.1 Add Diagnostics Soft Key

The diagnostics soft key is a shortcut created for the weigh mode screen that, when pressed, displays the diagnostics page of the configuration menu. To add the diagnostics Soft key:

1. Enter the configuration menu and Select . **Softkeys** displays.
2. Select add softkey icon to create new softkey.

3. Scroll down to select **Diagnostics**.

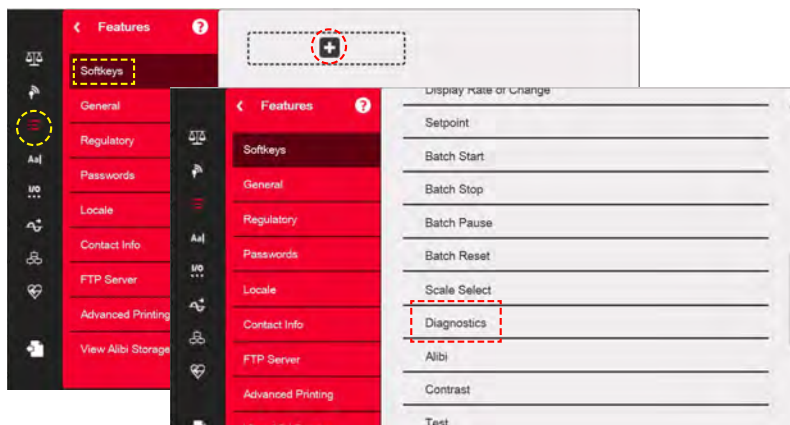


Figure 22. Softkey Menu

4. Scroll up to select **Done**.
5. Select **Save and Exit**.

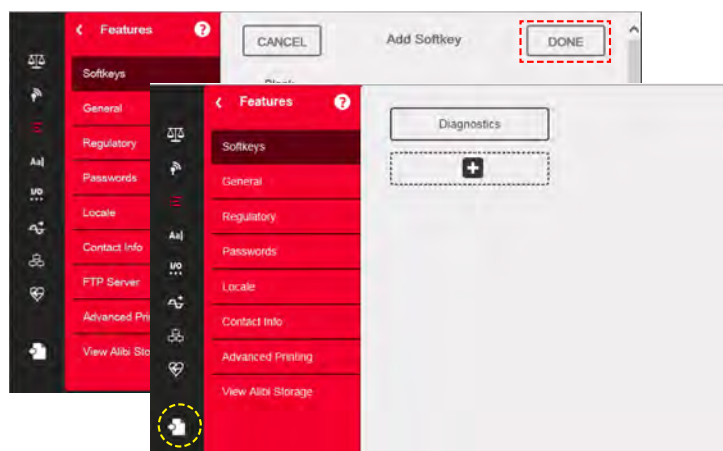


Figure 23. Save and Exit Softkey Menu

## 4.2 Adjust Default iQube<sup>2</sup> Warm up Time

The iQube<sup>2</sup> is set by default to warm up for six minutes before it can be used. It can be helpful to reset that parameter if the iQube<sup>2</sup> will be power cycled during maintenance. To adjust the warmup time of the iQube<sup>2</sup>:




1. Enter the configuration menu and Select . The **Scales** menu displays.
2. Select **iQube<sup>2</sup> Setup**. **iQube<sup>2</sup> Setup** prompt displays.

Figure 24. Scale 1 Configured to iQube<sup>2</sup>

3. Press **YES** to enter setup. **iQube<sup>2</sup> Setup** menu displays.
4. Select  to display the Base menu.
5. Select **General** Tab.
6. Select **Warmup Delay (Minutes)**.
7. Enter desired warmup time.
8. Press .
9. Send Settings to iQube<sup>2</sup>. (See [Section 2.4 on page 9](#))

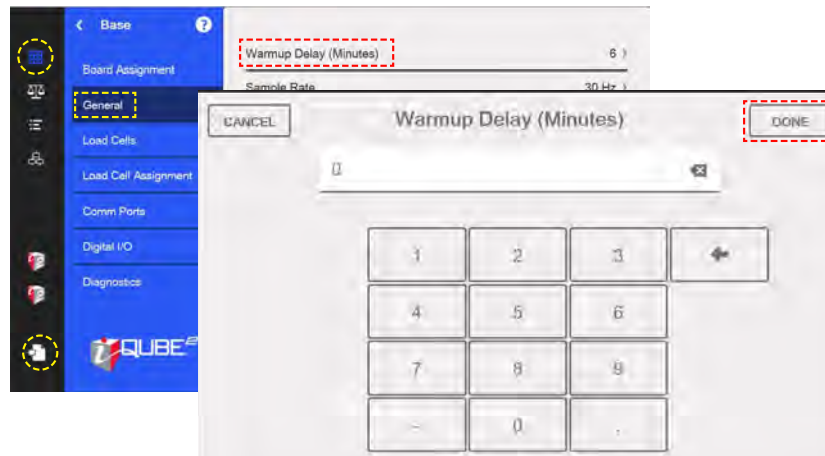
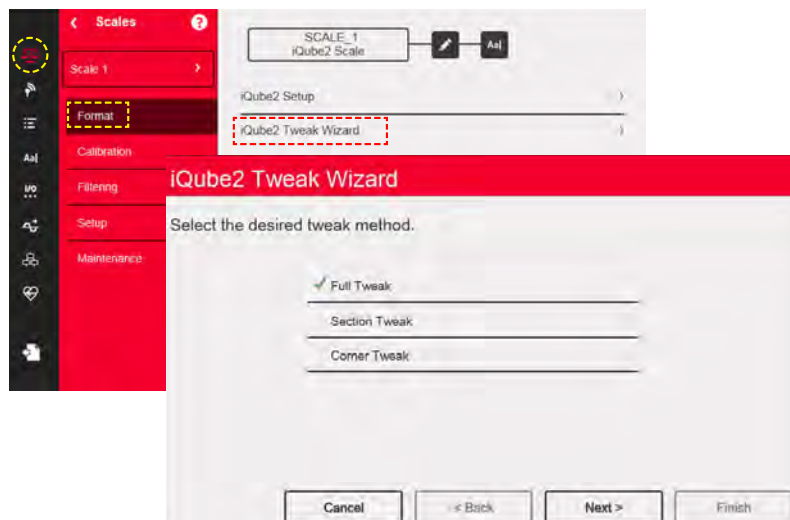


Figure 25. Warmup Delay

### 4.3 Tweak Wizard

Tweak Wizard enables the load cells to be tweaked as a full scale, by section, or by corner. Follow the directions in the Tweak Wizard to tweak the load cells.

1. Enter the configuration menu and Select . The **Scales** menu displays.
2. Select **iQube<sup>2</sup> Tweak Wizard**. Prompt displays to select desired tweak method.
3. Follow directions in the Tweak Wizard.

Figure 26. iQube<sup>2</sup> Tweak Wizard

**iQube2 Tweak Wizard**

Input desired total weight, then press Tweak. Current Weight must be at least 100 Grads.

Calibration Weight  
2500

123.. 123.. ↗ Press to enter calibration weight for tweak

**Calibrate Full Tweak**

Current Weight: 2500

Tweak Successful

Cancel < Back Next > Finish

Figure 27. Full Tweak Wizard

**iQube2 Tweak Wizard**

Select Section, then use the Adjust Buttons to adjust to desired weight. Scale Weight must be over 100 Grads and Section Weight cannot be 0.

**Section Selection**

1	3	-	-	-	-	-	-
2	4	-	-	-	-	-	-

Scale Weight - 2480  
Section Weight - 2480  
Calibration Weight - 2500

Adjust Up  
Adjust Down  
Set Calibration Weight  
Adjust to Calibration Weight

Tweak Successful

Cancel < Back Next > Finish

Figure 28. Section Tweak Wizard

**iQube2 Tweak Wizard**

Select Loadcell, then use the Adjust Buttons to adjust to desired weight. Scale Weight must be over 100 Grads and Loadcell Weight cannot be 0.

**Loadcell Selection**

1	3	-	-	-	-	-	-
2	4	-	-	-	-	-	-

Scale Weight - 2540  
Corner Weight - 2540  
Calibration Weight - 2500

Adjust Up  
Adjust Down  
Set Calibration Weight  
Adjust to Calibration Weight

Tweak Successful

Cancel < Back Next > Finish

Figure 29. Corner Tweak Wizard



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