

MotoWeigh® IMW

In-Motion Checkweigher with 1280 Enterprise™ Series Indicator

Technical Manual



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Revision History

This section tracks and describes manual revisions for awareness of major updates.

Revision	Date	Description
A	April 2, 2020	Initial manual release with product launch; software version 1.00
B	May 8, 2023	Weighing type conveyor mode content added to Operation chapter and Application menu; updates to product overrun; PLC New Data Time added to Product Detection menu, as well as new inputs for communication from 1280 to PLC; software version 1.06
C	January 8, 2025	New data stream ports added
D	September 23, 2025	Updated Auto Zero definition; software version 1.09

Table i. Revision Letter History



Technical training seminars are available through Rice Lake Weighing Systems. Course descriptions and dates can be viewed at www.ricelake.com/training or obtained by calling 715-234-9171 and asking for the training department.

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1.0 Introduction

The MotoWeigh® IMW in-motion checkweigher with the 1280 Enterprise™ Series Indicator is a continuous process weighing instrument used for check weighing and data collection.

Configuration and calibration of the indicator is managed using the indicator front panel keys, through a web browser, or using EDP commands. See the 1280 Enterprise Series Technical Manual (PN 167659) for more information about configuration of the indicator.

This manual is intended for use by service technicians responsible for installing and servicing MotoWeigh IMW checkweighers with 1280 Enterprise indicators that have the MotoWeigh software installed.



Manuals are available from Rice Lake Weighing Systems at www.ricelake.com/manuals

Warranty information is available at www.ricelake.com/warranties

1.1 Safety

Safety Definitions:



DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.



WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Includes hazards that are exposed when guards are removed.



CAUTION: Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.



IMPORTANT: Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

General Safety



Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.



WARNING: Failure to heed could result in serious injury or death.

All procedures that require work inside the indicator enclosure must be performed by qualified service personnel only.

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without the system completely assembled.

Do not use for purposes other than weight taking.

Do not place fingers into slots or possible pinch points.

Do not use this product if any of the components are cracked.

Do not exceed the rated specification of the unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Do not submerge.

There is a risk of explosion if battery is replaced by an incorrect type.

Ethernet port is not intended for use on telecom network circuits that are subject to lightning or power faults.

If opening the unit, ensure the power cord is disconnected from the outlet.

Extreme water pressure should be avoided around the electronic components, even with equipment that is wash down rated.

1.2 Overview

The system is primarily composed of the following components.

- A scale merged with a conveyor and drive mechanism
- One or more optional photo eyes that can be used to detect product
- One or more optional divert levers that can be used to divert product
- A 1280 Enterprise Series Indicator linked and programmed to average the weight signal



NOTE: The images below are for illustrative purposes only. Component locations vary by application.

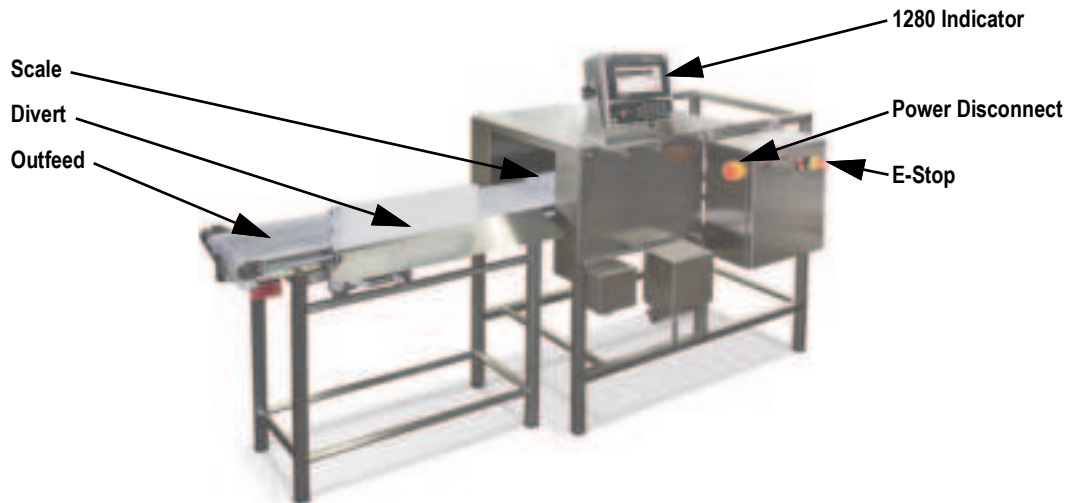


Figure 1-1. MotoWeigh IMW System with 1280 Indicator

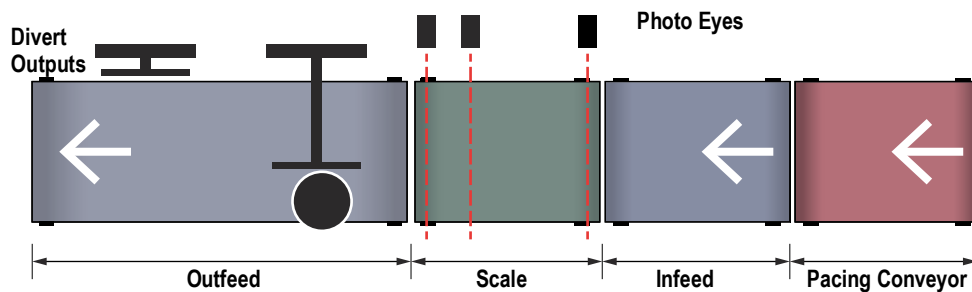


Figure 1-2. MotoWeigh IMW Conveyor Illustration



Figure 1-3. 1280 Indicator with Stack Light and Alarm

1.3 Registration Information

The 1280 indicator requires a registration password to be entered any time that the MotoWeigh program is re-loaded into the indicator. The following screen displays until a correct password is entered.



Figure 1-4. MotoWeigh IMW Registration Screen

If the 1280 is power cycled before the correct password is entered, the password will be reset and a new password will be required. When calling to register the MotoWeigh, have the serial number of the unit available for verification. See the 1280 Enterprise Series Technical Manual (PN 167659) for more information about loading the MotoWeigh program.

2.0 Installation

Use the following steps to install and set up the MotoWeigh IMW system.

2.1 Unpacking the Crate

The shipping carton contains the MotoWeigh IMW components. After unpacking, inspect the unit to ensure all components are included and undamaged. If any parts were damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately.

2.2 Quick Setup

Use the following checklist when setting up the MotoWeigh IMW Checkweigher System. Take into consideration the environmental factors, the working direction of the system, and any applicable existing system when installing the system.



WARNING: Do not run the MotoWeigh without all the guards, guides and shields in place.

Installation

- ___ When placing the conveyors, ensure all are aligned with 1/4" spacing between transfers.
- ___ Ensure all conveyors and the weighing platform are level.
- ___ Ensure the feet are properly installed and anchored to the floor using a minimum of two anchors per conveyor in opposite corners.
- ___ After leveling, be sure to set the jam nuts on the feet to hold in position and keep from moving.

Control Panel Wiring

- ___ Run motor cable from the infeed/outfeed conveyors to the appropriate terminals on the control panel (if applicable).
- ___ Wire peripheral devices (scanners, printers, metal detection) into the control panel (if applicable).
- ___ Connect the system power per electrical drawings (included).



NOTE: Motor overloads and VFD are factory configured prior to shipping.
Always refer to supplied electrical drawings.

Setting up the Scale

- ___ Adjust the overload stop bolts. See [Section 2.3 on page 11](#).
- ___ Calibrate the system. See the 1280 Enterprise Series Technical Manual (PN 167659) for more information about calibrating the system for weight.

Component Tests

- ___ Enter the DIO test screen and test the peripheral inputs and outputs. See [Section 4.7 on page 24](#).
- ___ When system conveyors begin running, verify that the conveyors are turning in the right direction. If conveyors are running opposite direction, disconnect power from system and swap the two phases of the motor.
- ___ Adjust the VFD for the desired conveyor speed.

Product Setup

- ___ Adjust application parameters from the setup menu to specific application needs. See [Section 4.4 on page 21](#).
- ___ Enter the products database from the setup menu and add a new product.
- ___ Enter in all product data per [Section 4.8 on page 24](#).
- ___ Save product and verify by selecting product on the main screen.

System Test

- ___ Weigh product statically and record weight.
- ___ Press the Start Button on the main menu to start operation. See [Section 3.1 on page 12](#).
- ___ Send the product across the weighing platform.
- ___ Send diagnostic data command and observe the diagnostic data being sent to the laptop. See [Section 5.0 on page 27](#).
- ___ Based on the diagnostic data sent, make necessary adjustments to the product/system parameters and re-run product to verify. See [Section 5.0 on page 27](#).
- ___ The in-motion calculated weight must be within tolerance of the static weight of the product. Observe the time required to reach the diverter and adjust the diverter values in the products database if needed. See [Section 3.6.3 on page 18](#).

2.3 Overload Stop Bolt Adjustment

The MotoWeigh IMW is equipped with a self-contained protection system to prevent the load cell from being loaded above the rated capacity.

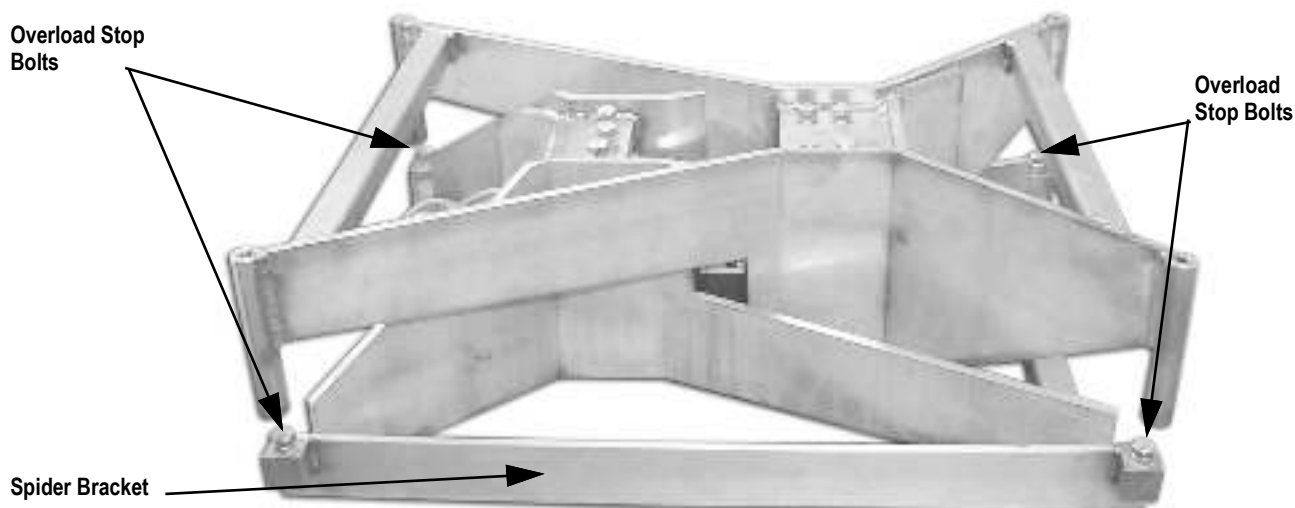


Figure 2-1. Overload Stop Bolt Locations

Use the following steps to adjust the overload stop bolts.

1. Set the scale capacity of the indicator to 110% of rated capacity. Capacity is listed on the tag on the scale. Refer to 1280 Enterprise Series Technical Manual (PN 167659) for more information on 1280 calibration settings. Return to weigh mode.
2. Loosen all of the overload stop bolt jam nuts and lower the stop bolt all the way.

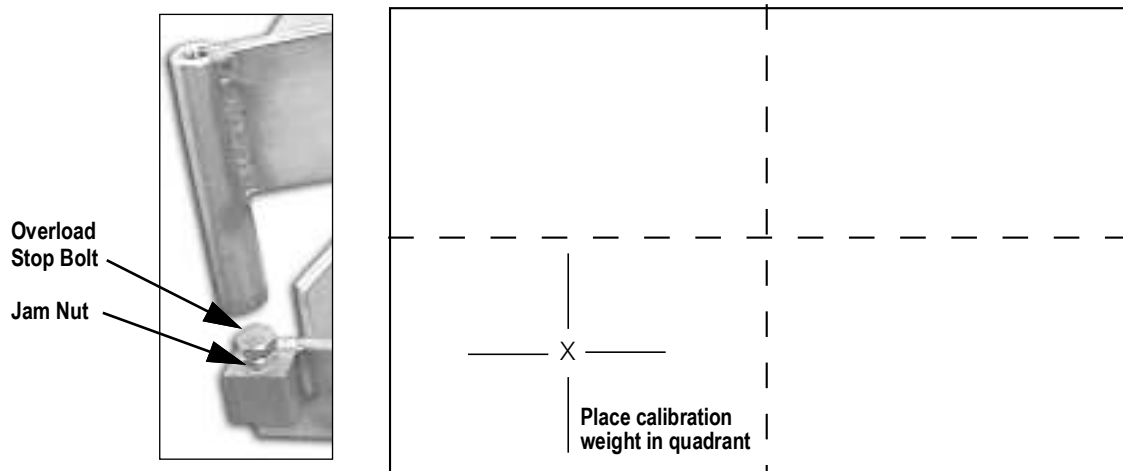


Figure 2-2. Scale Platform

3. Place a calibration weight of 105% of rated scale capacity at the farthest outside corner of one quadrant of the scale platform. The 1280 indicator should display a reading above the rated capacity.
4. Adjust the overload stop bolt under the applied weight so that it contacts the overload stop block on the bottom of the frame and the indicator reads slightly less than the applied weight.
5. Tighten the overload stop bolt jam nut.
6. Repeat steps 3-5 for each of the remaining quadrants of the scale.
7. Return the scale capacity to rated capacity in the indicator calibration menu. Capacity is listed on the tag on the scale.
8. Place the calibration weight in each of the quadrants and center to verify that the scale reads correctly.

3.0 Operation

When equipped with a 1280 Enterprise Series Indicator, the MotoWeigh IMW Checkweigher uses a graphic user interface to navigate parameters and settings. For information on configuring the MotoWeigh IMW before operation, see [Section 4.0 on page 20](#). See the 1280 technical manual (PN 167659) for more system configuration information.

3.1 Home Screen

The weigh mode home screen of the MotoWeigh IMW software displays the following screen:

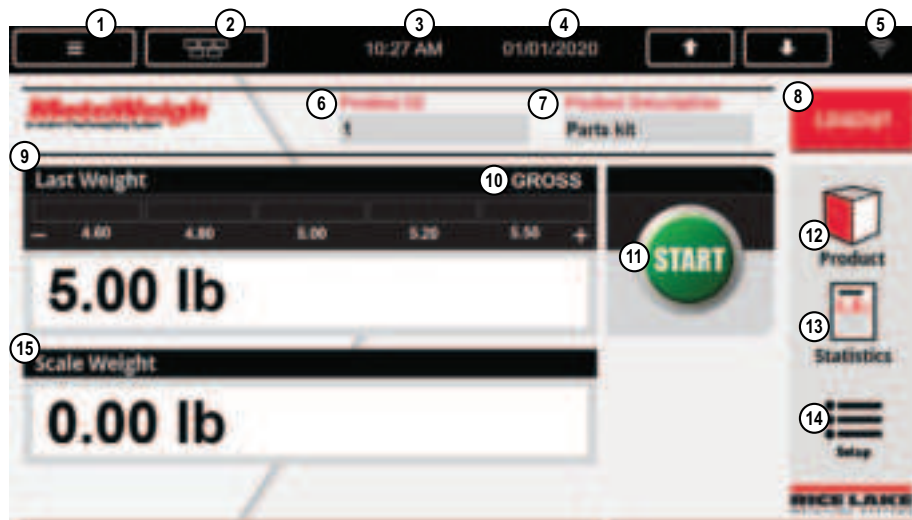


Figure 3-1. MotoWeigh IMW Weigh Mode Home Screen

Item No.	Description
Status Bar	
1	Menu Key – press to enter 1280 scale setup menus; See the 1280 technical manual (PN 167659) for more information
2	Virtual Keypad – press to enter; Zero , Tare , Gross/Net , Print and Units keys are identical to the physical keys located on the front panel
3	Current Time – press to set the time
4	Current Date – press to set the date
5	Wi-Fi Symbol - indicates Wi-Fi signal strength; when faded, Wi-Fi is not connected or out of range; press on the symbol to display the Network Information Screen which includes information on Wired Ethernet, Wi-Fi, Wi-Fi Direct and Bluetooth®; allows restart all network connections
Weight Display Area	
6	Product ID – displays ID of product currently being weighed
7	Product Description – displays Description of product currently being weighed
8	Login/Logout – log in to and log out of user profile, see Section 3.2 on page 13
9	Last Weight – displays weight and zone of last product while conveyor is in motion
10	Gross/Net – current weighing mode
11	Start/Stop – press Start to begin the conveyor; the product is detected and weighed; press Stop to stop the conveyor
12	Product – press Product to select product to be weighed from product list, see Section 3.3 on page 13
13	Statistics – press Statistics to display statistics and real-time trending graph, see Section 3.7 on page 19
14	Setup – press Setup to open MotoWeigh setup menu, see Section 4.0 on page 20
15	Scale Weight – displays live weight on scale (only shows when system is stopped)

Table 3-1. Weight Mode Home Screen Display

3.2 Login

1. Press .
2. Enter a valid User ID (from User Database [Section 4.9 on page 26](#)) and Password (tied with the User ID).



NOTE: Login does not apply when Conveyor Mode is the selected weighing type.

3.3 Select Product

1. Press  to display all products in Product Database.
2. Touch desired product to select a product to be weighed. Touching Page Up/Down may be required to locate the desired product.



NOTE: Select Product does not apply when Conveyor Mode is the selected weighing type.

3.4 Start Process

System can be started using one of the following three ways:

- Press  in the home screen.
- Remote start through Digital I/O input.
- PLC startup

After any of these actions, the conveyor output turns on.



NOTE: If the E-Stop input is deactivated (E-Stop pressed in) an error message will display.

Start Process does not apply when Conveyor Mode is the selected weighing type, but the E-Stop still applies.

3.5 Weighing Types

There are three weighing types that can be used. Each of the modes can be used with either 5- or 3-weight zones.



NOTE: Weighing type and number of zones are set in the Application Menu. See [Section 4.4 on page 21](#).

- Weight Based – [Section 3.5.1](#)
 - Threshold Weight is set in the Product Database menu ([Section 4.8 on page 24](#))
- Single Photo Eye – [Section 3.5.2 on page 14](#) explains how the single photo eye weighing type works
 - Minimum Detection Time, Sample Delay and Sample Time are all set by product in the Product Database menu ([Section 4.8 on page 24](#))
- Multiple Photo Eye – [Section 3.5.3 on page 15](#) explains how the multiple photo eye weighing type works
 - Flicker Time is set in the Product Database menu ([Section 4.8 on page 24](#))
- Conveyor Mode – [Section 3.5.4 on page 15](#)
 - Flicker Time and Conveyor Auto Start are set in the Application menu ([Section 4.4 on page 21](#)) and the Flicker Time parameter in the Product Database menu is not used

3.5.1 Weight Based Weighing Type

1. System waits until the Threshold Weight is exceeded.
2. When threshold is exceeded, the stable weight is captured.
3. Weight zone is determined ([Section 3.6 on page 16](#)) and action is taken based on zone ([Section 3.6.3 on page 18](#)).

3.5.2 Single Photo Eye Weighing Type

The following explains the process that the single photo eye weighing type uses to gather data. See [Section 5.0 on page 27](#) for more information on adjusting any of these settings.

1. The leading edge of the product activates the Start Data Collection photo eye.
2. The trailing edge of the product passes the Start Data Collection photo eye, deactivating the photo eye.



NOTE: The duration of the activation time must be larger than the Minimum Detection time.

3. The **Sample Delay** time is started.
4. When the delay expires, the **Sample Time** is started and weight samples begin to be collected.
5. When the **Sample Time** ends, the indicator stops collecting samples and all of the collected samples are averaged to derive the final weight.
6. Weight zone is determined ([Section 3.6 on page 16](#)) and action is taken based on zone ([Section 3.6.3 on page 18](#)).
7. If the Start Data Collection photo eye is sensed at any point during sampling, the Overrun/Photo Eye Alarm output turns on for the **Photo Eye Alarm Time**. Photo Eye Alarm Time is set in the Product Detection Menu ([Section 4.5 on page 22](#)).

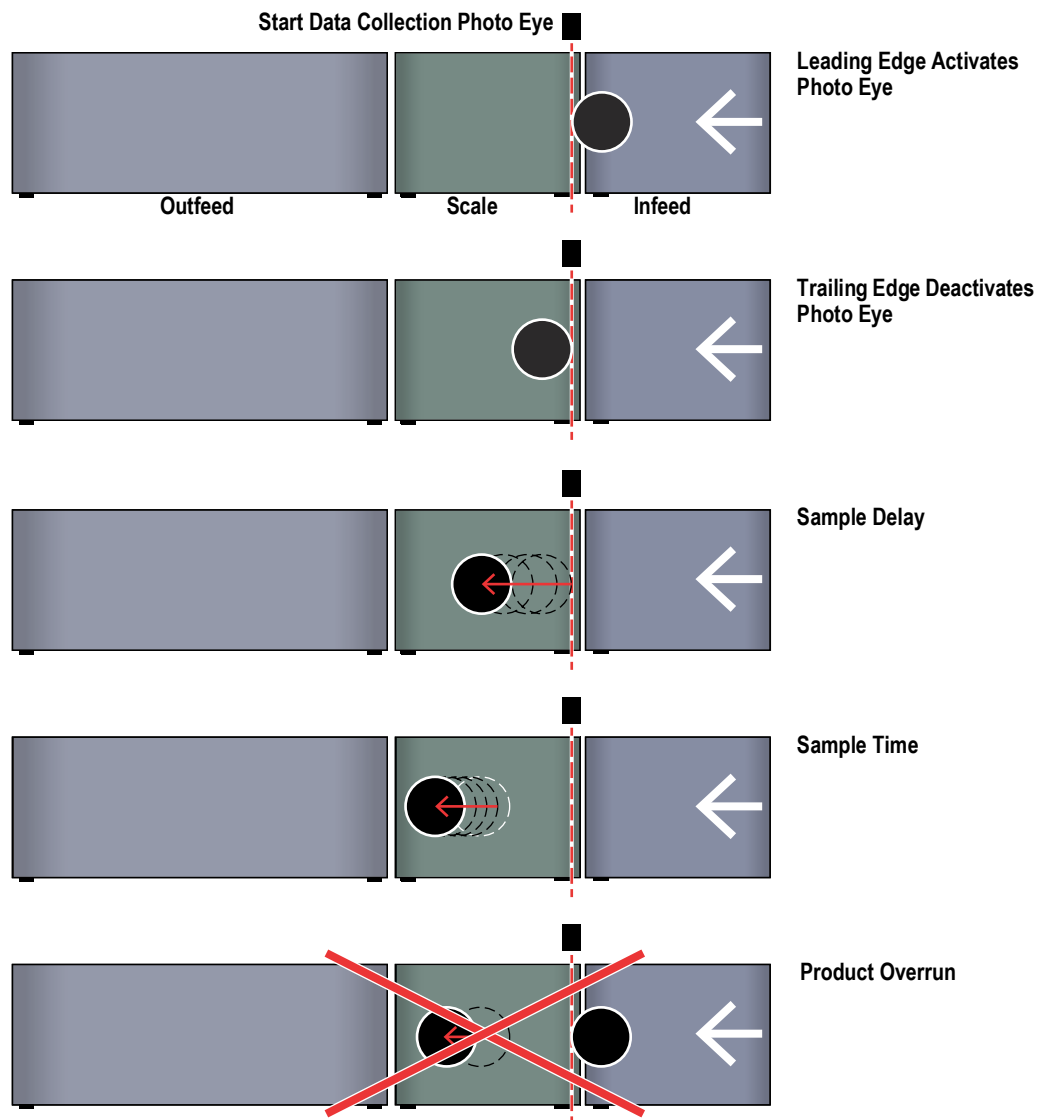


Figure 3-2. Single Photo Eye Weighing Type

3.5.3 Multiple Photo Eye Weighing Type

The following explains the process that the multiple photo eye weighing type uses to gather data. See [Section 5.0 on page 27](#) for more information on adjusting any of these settings. The conveyor mode weighing type ([Section 3.5.4](#)) uses the same process as the multiple photo eye to gather data, except for the difference called out in [Step 4](#).

1. The leading edge of the product activates the Overrun Photo Eye.
2. The leading edge of the product activates the Start Data Collection photo eye and weight samples begin to be collected.
3. The leading edge of the product activates the Stop Data Collection photo eye and the weight collection stops. The samples are averaged to derive final weight.
4. Weight zone is determined ([Section 3.6 on page 16](#)) and action is taken based on zone ([Section 3.6.3 on page 18](#)).

For Conveyor Mode: Weight is captured, displayed and sent out data port. Data string is referenced in the Setup menu.

5. If the Overrun Photo Eye is sensed at any point during the sampling, the Overrun/Photo Eye Alarm output will turn on for the **Photo Eye/Overrun Time**, and the Overrun action will take place as configured (Stop or Off).



NOTE: After a photo eye is activated, its input is ignored for the Flicker time before it will recognize input as a new product.

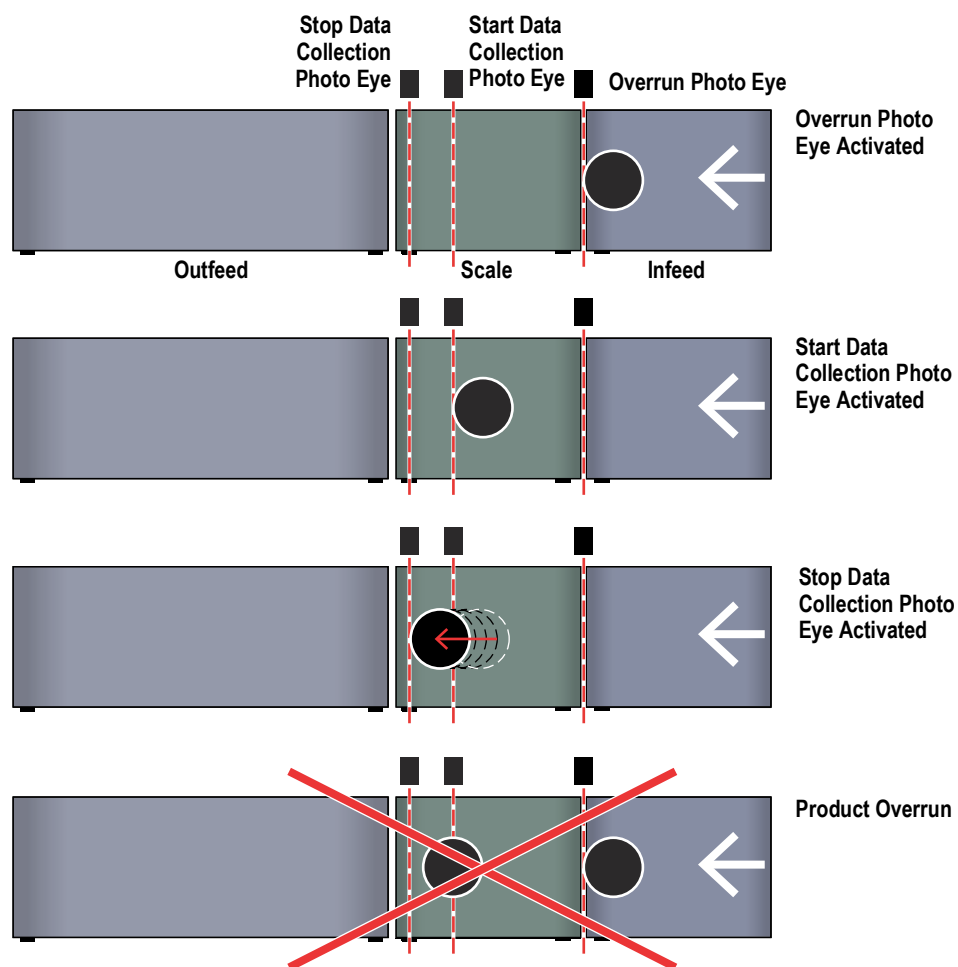


Figure 3-3. Multiple Photo Eye Weighing Type

3.5.4 Conveyor Mode Type

The conveyor mode weighing type uses the multiple photo eye process ([Section 3.5.3](#)) to gather data, and doesn't involve user interaction. In conveyor mode the weight is simply collected based on the photo eye events and no product is selected. Flicker Time becomes available in the Application menu ([Section 4.4 on page 21](#)) when conveyor mode is the selected weighing type.

3.6 Determine Zone Type and Actions

Once a product is weighed, the MotoWeigh takes the following actions:

1. Determines weigh zone according to parameters set in Product Setup. See [Section 4.8 on page 24](#).

 **NOTE:** The MotoWeigh has two zone modes for categorizing weight; three-zone mode ([Section 3.6.1](#)) and five-zone mode ([Section 3.6.2 on page 17](#)).

2. Diverts the product according to the zone action defined in product setup. See [Section 3.6.3 on page 18](#).
3. Turns on Zone Output. Zone output stays on depending on Zone Output Config
 - LATCH - stays on until either next product is weighed or the E-stop is pressed
 - PULSE - Turns on Zone output, then turns off after Zone Output Time seconds
4. Updates the statistics database with collected weight and zone data.
5. Sends out data string ([Section 4.6 on page 23](#)) out the configured port (either Port 1 or TCP Client 1. See [Figure 4-1 on page 20](#)).

 **NOTE:** The zone mode is set in the Application menu ([Section 4.4 on page 21](#)); the weight parameters and divert actions are set in the product database ([Section 4.8 on page 24](#)); Zone Output Configuration and Zone Output Time are set in Product Detection ([Section 4.5 on page 22](#));

3.6.1 Three Zone Mode

Three-zone mode allows for a product to be defined within, over, or under the a target weight range. There are 3 parameters set in the product database to define those zones.

 **NOTE:** Target, Over and Under weights are set in the product database ([Section 4.8 on page 24](#))

- TO1 Weight (Target Over 1 Weight)
- Target Weight
- TU1 Weight (Target Under 1 Weight)

These target weights define the 3 zones.

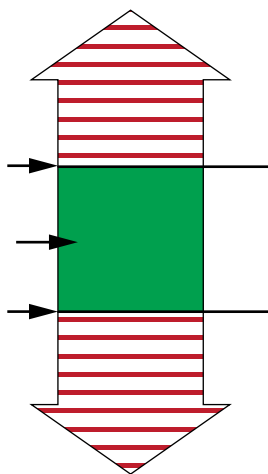


Figure 3-4. Three-Zone Mode

Zone	Value
Over Tolerance Zone	Captured Weight > TO1
Target Zone	TO1 > Captured Weight > TU1
Under Tolerance Zone	TU1 > Captured Weight

Table 3-2. Value of Three-Zone Mode Zones

3.6.2 Five Zone Mode

Five-zone mode allows for a product to be defined within a target weight range. It also creates two over weight and two under weight zones. There are 5 parameters set in the product database to define those zones.



NOTE: Target, Over and Under weights are set in the product database ([Section 4.8 on page 24](#))

- TO2 Weight (Target Over 2 Weight)
- TO1 Weight (Target Over 1 Weight)
- Target Weight
- TU1 Weight (Target Under 1 Weight)
- TU2 Weight (Target Under 2 Weight)

These target weights define the 5 zones.

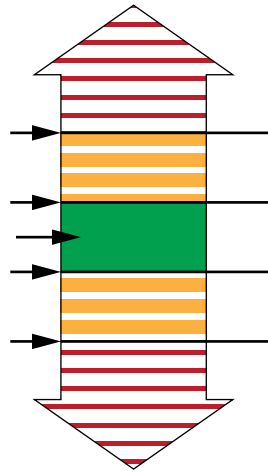


Figure 3-5. Five-Zone Mode

Zone	Value
Over Tolerance Zone 2	Captured Weight > TO2
Over Tolerance Zone 1	TO2 > Captured Weight > TO1
Target Zone	TO1 > Captured Weight > TU1
Under Tolerance Zone 1	TU1 > Captured Weight > TU2
Under Tolerance Zone 2	TU2 > Captured Weight

Table 3-3. Value of Three-Zone Mode Zones

3.6.3 Divert Action

Once the zone is defined, MotoWeigh will take the divert action that has been specified for that zone in product database. See [Section 4.8 on page 24](#). Each zone can be set to Divert 1, Divert 2, OFF, or STOP. Those actions are described below.

DIVERT 1

1. **Divert 1 Delay** starts.
2. **Divert 1 Delay** Expires.
3. The Divert 1 output turns on for the **Divert 1 On Time**.

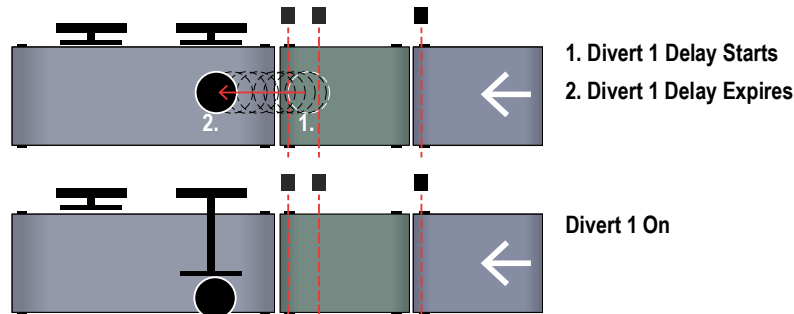


Figure 3-6. Divert 1

DIVERT 2

1. **Divert 2 Delay** starts.
2. **Divert 2 Delay** expires.
3. The Divert 2 output turns on for **Divert 2 On Time**.

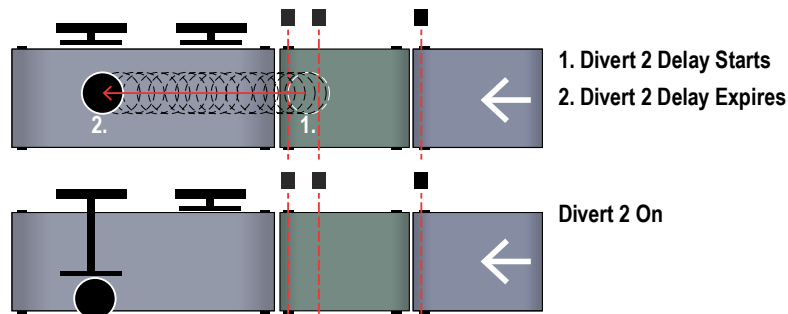


Figure 3-7. Divert 2

OFF

No divert output is enabled. Product continues along conveyor.

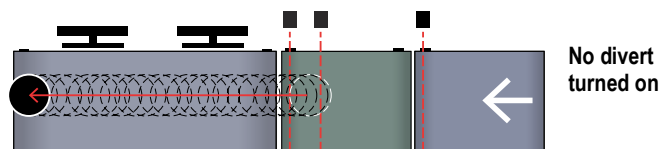


Figure 3-8. Divert Off

STOP

1. **Stop Delay** starts.
2. **Stop delay** expires.
3. System stops and requires the user to press  to resume.

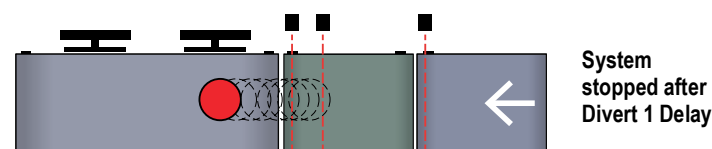


Figure 3-9. Divert Stop

3.7 Statistics

Press  from main screen to see a live running graph of the last 200 rolling averaged weights.

Along with the graph, the following values are displayed:

- Last weight
- Last accepted weight
- Product rate
- Average weight
- Standard deviation
- Defect count



Figure 3-10. Statistics Screen

4.0 Configuration

When equipped with a 1280 Enterprise Series Indicator, the MotoWeigh IMW uses a graphic user interface to navigate parameters and settings. See [Section 8.1 on page 43](#) and the 1280 technical manual (PN 167659) for more system configuration information.

4.1 Setup Menu

1. Press Setup in the weigh mode display. See [Figure 4-1](#).
2. Enter password if prompted. Press Done.



NOTE: There is no password until one is specified by the user. A Password is strongly recommended.

3. Setup menu will display.

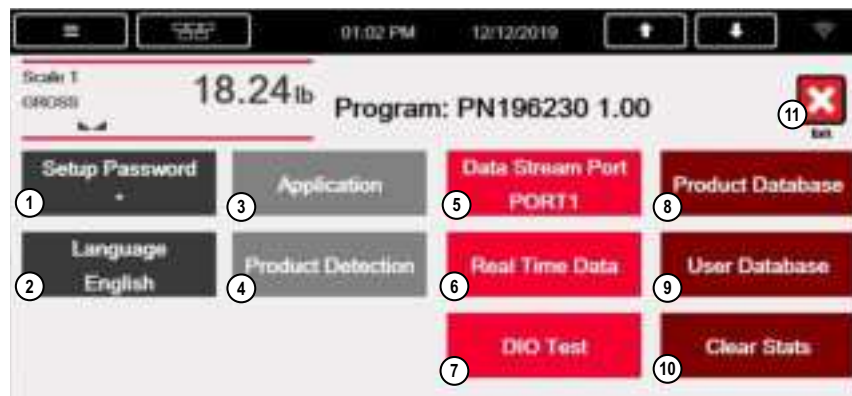


Figure 4-1. Setup Menu

Item No.	Description
1	Setup Password – changing the password that is required for entry into the Setup menu. Setting the password to nothing will cause the system to not prompt for a password when the Setup touch widget is pressed, see Section 4.2
2	Language – allows user to select what language the program strings will be in, see Section 4.3 on page 21
3	Application – hardware setup, see Section 4.4 on page 21
4	Product Detection – set timing of product detection, see Section 4.5 on page 22
5	Data Stream Port – toggles between which connection to send the configured Real Time Data out, see Section 4.6 on page 23 • PORT1, PORT2, PORT13, PORT14, PORT15, PORT16 – Serial Ports • TCPC1, TCPC2, TCPC3 – TCP Clients • UDPS – Stream Server
6	Real Time Data – Brings up all the tokens to configure the data stream out; CONDEC format is the default, see Section 4.6 on page 23
7	DIO Test – show status of Inputs and Outputs, see Section 4.7 on page 24
8	Product Database – create, edit and delete product profiles; see Section 4.8 on page 24
9	User Database – create, edit and delete user profiles, see Section 4.9 on page 26
10	Clear Stats – clear statistics Database (Prompt displays to confirm)
11	Exit

Table 4-1. Setup Menu Parameters

4.2 Setup Password

This parameter changes the password that is required for entry into the Setup menu. Setting the password to nothing will cause the system to not prompt for a password when the Setup touch widget is pressed.

1. Press Setup Password to create a password to protect the Setup menu.
2. Enter desired password. Press Done.
3. Re-enter desired password. Press Done.

4.3 Language



NOTE: Language database must be populated for text to display.

Field	Type	Description
ID	Integer	Id for string location
Lang	String	Default language displayed
Lang1	String	Secondary language displayed

Table 4-2. Language Options

4.4 Application Menu

The basic system settings are set in the Application menu and affect available menu options in the Product Database.

Weighing Type = Multiple Photo Eye Example		Weighing Type = Conveyor Mode Example	

Figure 4-2. Application Menu



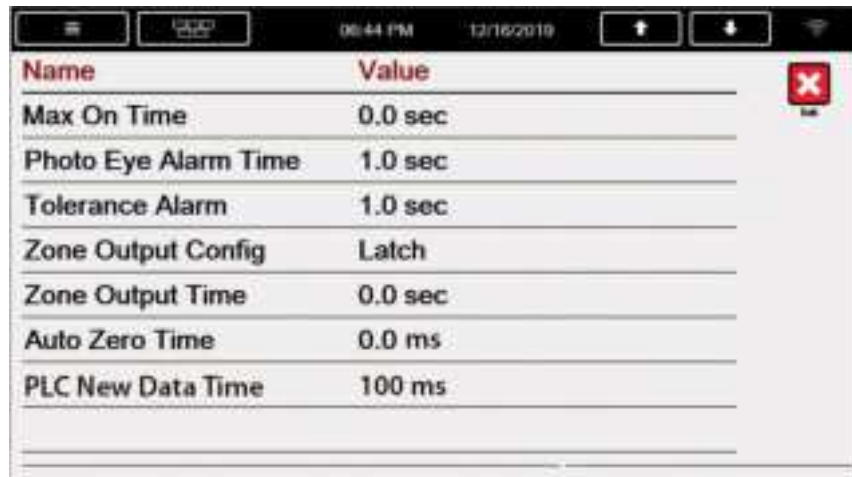
NOTE: Single Photo Eye and Weight Based weight types have the same Application menu options as Multiple Photo Eye.

Press each parameter to toggle through options.

Name	Default	Value Options
Weighing Type	Multiple Photo Eye	Toggles between the following options - Multiple Photo Eye - Weight Based - Single Photo Eye - Conveyor Mode NOTE: This option affects the available menu options in Product Database (Section 4.8 on page 24).
Number Zones	5-Zone	Number of zones for quantifying accepted, over and under weight 5-Zone – Accepted, 2-overweight, 2-underweight 3-Zone – Accepted, 1-overweight, 1 underweight NOTE: This option affects the available menu options in Product Database (Section 4.8 on page 24).
Defect Input	Off	Toggles between Accept, Reject and Off; looks for additional input from separate defect detection such as a metal detector - Accept – requires input for accept; rejects object if there is not input - Reject – rejects object if there is signal from the defect input - Off – input has no affect on accept/reject
Number Diverts	0	Defines the number of divert outputs 0 1 2
Hardware		Lists option cards that are installed in the 1280 NOTE: Installed option cards affect the available menu options in Product Database (Section 4.8 on page 24).
Flicker Time	0.000 sec	Conveyor Mode only; defines the photo eye flicker time to use in conveyor mode; the Product Database is not used when in conveyor mode
Conveyor Auto Start	Enabled	Conveyor Mode only; determines if the conveyor will auto start when in conveyor mode - If Enabled the conveyor output would be on when the program is running - If Disabled the Control Panel Start/Stop jumper will need to be changed to position B-C to start the conveyor using the panel buttons

Table 4-3. Application Menu Parameters

4.5 Product Detection



Name	Value
Max On Time	0.0 sec
Photo Eye Alarm Time	1.0 sec
Tolerance Alarm	1.0 sec
Zone Output Config	Latch
Zone Output Time	0.0 sec
Auto Zero Time	0.0 ms
PLC New Data Time	100 ms

Figure 4-3. Product Detection Menu

Name	Default	Value Options
Max On Time	0	Max on time of the photo eye before photo eye alarm comes on NOTE: If max on time is set to 0, this feature is disabled
Photo Eye/ Overrun Alarm Time	1 Sec	Length of time the Photo Eye/Overrun Alarm Output is on; Photo Eye/ Overrun Alarm could come on in two situations: - When a photo eye input is activated for longer than the Max On Time - When a product overrun condition occurs, see Section 3.5.2 on page 14 and Section 3.5.3 on page 15
Tolerance Alarm	1 Sec	Time the Tolerance Alarm Output is on after the product is rejected
Zone Output Config	Latch	Toggles between; - Latch – Zone outputs stay on until next product is weighed or E-stop is pressed - Pulse – Zone outputs stay on for the Zone Output Time
Zone Output Time	0	Time in seconds for any of the zone outputs to stay on NOTE: Zone Output Time only available if Zone Output Config is set to Pulse.
Auto Zero Time	0	Time in milliseconds after an object is weighed to send the KeyPress (ZeroKey) command to the scale NOTE: If Auto Zero Time is set to 0, this feature is disabled.
PLC New Data Time	100 ms	Time value that corresponds with the new data flag for PLC (Section 7.2 on page 42); when the time value expires the register value is set to 0, so the PLC knows to stop looking at the previously saved product data; a register value of 1 lets the PLC know when to look for the next product weight data NOTE: PLC New Data Time must be less than the time between products coming across the scale.

Table 4-4. Product Detection Menu Parameters

4.6 Real Time Data

The Real Time Data menu displays all the tokens to configure a custom data stream out. CONDEC format is the default.

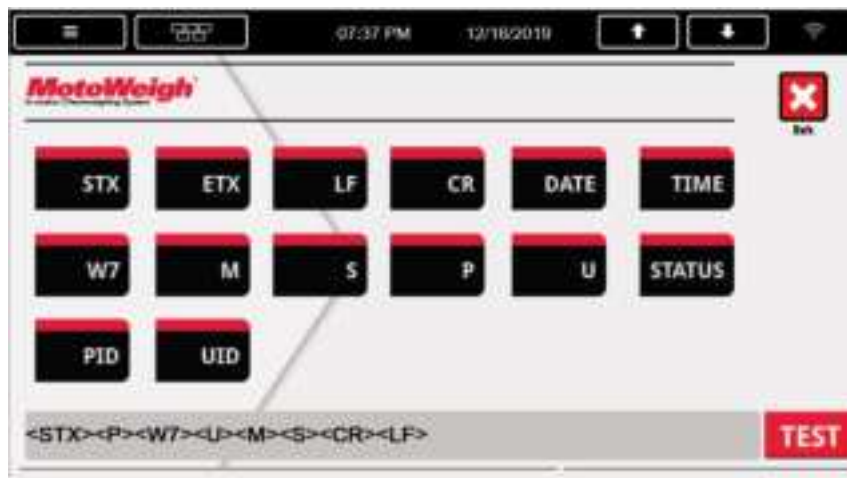


Figure 4-4. Real Time Data Menu

Use tokens in real time data menu to enter the desired string.



NOTE: Default Data String Output (CONDEC): <STX><P><W7><U><M><S><CR><LF>

Available token information is found below:

Token	Description
STX	Start of text ASCII character (ASCII 2)
ETX	End of text ASCII character (ASCII 3)
LF	Line feed ASCII character (ASCII 10)
CR	Carriage return ASCII character (ASCII 13)
W7	Weight in 7 digits (leading digits are spaces)(gross or net)
M	Mode (Gross or Net)
S	Motion, Overload, Underload, space =good
P	Polarity - [space] or -
U	Units to match primary scale units
STATUS	(Weighment status) Accepted or Rejected
PID	Product
UID	Unit ID
DATE	MM/DD/YYYY
TIME	HH:MM

Table 4-5. Serial Data Stream Tokens

4.7 DIO Test

DIO Test displays the status of the digital inputs and outputs. If the DIO is an output, the state can be changed by pressing the ON/OFF button. If the DIO is an input, the screen displays the status of the input. Status cannot be changed on the screen.



Figure 4-5. DIO Test Screen



CAUTION: Be aware when testing outputs, as parts may move.

4.8 Product Database



Figure 4-6. Product Database Menu

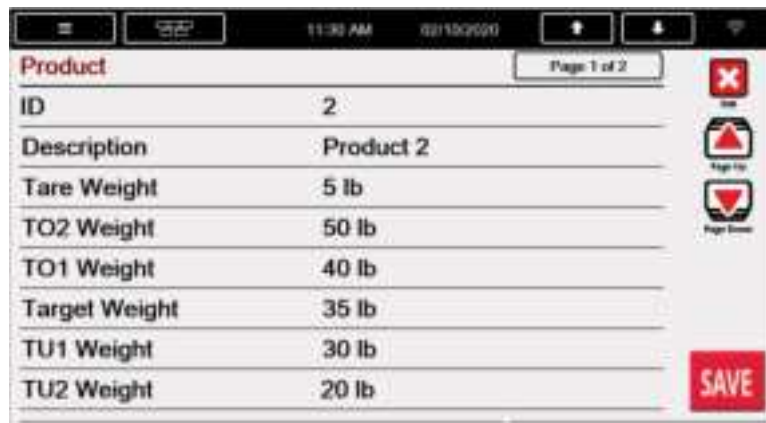


Figure 4-7. Product Settings

Name	Variable	Description
ID		Alphanumeric up to 20 characters
Description		Product Description - Alphanumeric up to 20 characters
Tare Weight		Tare weight
TO2 Weight	5-Zone Only	Tolerance Over Zone 2 (entered as the actual weight over tolerance) see Section 3.6 on page 16
TO1 Weight		Tolerance Over Zone 1 (entered as the actual weight over tolerance)
Target Weight		Target weight (like 25 lb for example)
TU1 Weight		Tolerance Under Zone 1 (entered as the actual weight under tolerance)
TU2 Weight	5-Zone Only	Tolerance Under Zone 2 (entered as the actual weight under tolerance)
Sample Delay	Single Photo Eye Only	Time (in seconds) to delay before sampling
Sample Time	Single Photo Eye Only	Sample time (in seconds) to gather weights to be averaged
Min Detect	Single Photo Eye Only	Minimum detection time - amount of time photo eye must be on to detect product
Flicker Time	Multiple Eye Only	Once the photo eye input detects a product, ignore the input for Flicker Time seconds before another product can be detected
Overrun	Multiple Eye Only	As soon as Product Overrun is detected, system takes one of the following, selectable options: STOP or OFF
TO2 Divert	5-Zone Only	Divert 1, Divert 2, STOP, OFF – can be toggled to cause divert action when in the second overweight zone*
TO1 Divert		Divert 1, Divert 2, STOP, OFF – can be toggled to cause divert action when in the first overweight zone*
Target Divert		Divert 1, Divert 2, STOP, OFF – can be toggled to cause divert action when in the target zone
TU1 Divert		Divert 1, Divert 2, STOP, OFF – can be toggled to cause divert action when in the first underweight zone*
TU2 Divert	5-Zone Only	Divert 1, Divert 2, STOP, OFF – can be toggled to cause divert action when in the second underweight zone*
Divert 1 Delay	If DIVERT > 0	If Divert 1 is configured, wait x seconds before turning on Divert 1 output
Divert 1 On Time	If DIVERT > 0	If Divert 1 is configured, turn divert on for this long when the delay time has expired
Divert 2 Delay	If DIVERT = 2	If Divert 2 is configured, wait x seconds before turning on Divert 1 output
Divert 2 On Time	If DIVERT = 2	If Divert 2 is configured, turn divert on for this long when the delay time has expired
Stop Delay	If DIVERT = STOP	If Target zone set to stop, wait x seconds before conveyor stop
Speed	If A/O card installed	Analog output % for product speed
NOTE: Fields are not visible if variable is not met; see Section 4.4 on page 21		
* Toggle Choices Depend on Divert # setting; see Section 4.4 on page 21		

Table 4-6. Product Database Parameters

Add Product

1. Press **Add Entry**.
2. Press the menu parameters to enter the settings. Enter a product ID, product description, product tare weight, weight zone information and all other visible settings.

Edit product description

1. Select product to be edited.
2. Press the **Edit Entry**.
3. Press desired menu parameters and make appropriate edits.



NOTE: When product is selected, text will display red.

Delete product

1. Select product to be deleted.
2. Press the **Delete Entry**.

4.9 User Database

Press the **Users** softkey to access the list of users in the system.



Figure 4-8. User Database Menu

Field	Description
ID	User ID - 20 character alphanumeric
Name	User Name - 20 character alphanumeric
Password	Password - 20 character alphanumeric

Table 4-7. User Database Menu Parameters

Add User

1. Press .
2. Enter the login name and password for a new user.

Edit User

1. Select user to edit.
2. Press .
3. Change the password for existing users.



NOTE: When product is selected, text will display red.

Delete User

1. Select user to be deleted
2. Press .



NOTE: A strong password is recommended for the Administrator; use a password with characters and digits.

5.0 Product Detection Configuration

Connect a computer to a serial port or an Ethernet TCP/IP port on the 1280. Send the diagnostics handler to get diagnostics from the last product run.



NOTE: It is recommended to use a single product for each of the steps, statically weighing the product before weighing in motion. The static weight and the in motion weight should be within tolerance.

No diagnostic feedback is returned when MotoWeigh weighing type is set to Weight Based.

1. Press the **Start** softkey from the Home Screen.
2. Allow a product to pass over the scale.
3. Send diagnostics command handler when a product passes over the scale and weighing is complete.
 - Diagnostics command handler: **F#1=DIAG<CR>**
4. The indicator sends the following diagnostic data to computer.

Optimum system performance

This example shows an ideal result of diagnostics:

```

Sample Time: 410 milliseconds
Samples: 41
High Sample: 3.33
Low Sample: 3.33
Vibration: 0
Weight Samples:
3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33
3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33
3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33
3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33
3.33
Calculated Weight: 3.33
  
```

Figure 5-1. Ideal Diagnostic Results



IMPORTANT: For products running at a high rate of speed, the total number of samples can be as small as five. This is the minimum number of samples recommended.

5.1 Digital Filtering

In some cases, the scale gives randomized inconsistent weights. This can be due to electronic interference or environmental factors.

An example of diagnostic data:

```

Sample Time: 410 milliseconds
Samples: 41
High Sample: 3.23
Low Sample: 3.43
Vibration: 0.2
Weight Samples:
3.32  3.43  3.31  3.33  3.34  3.23  3.35  3.33  3.30  3.33
3.31  3.35  3.36  3.32  3.33  3.31  3.28  3.37  3.38  3.32
3.38  3.33  3.33  3.29  3.33  3.32  3.33  3.32  3.37  3.38
3.36  3.34  3.33  3.34  3.30  3.33  3.30  3.36  3.33  3.38
3.33
Calculated Weight: 3.33

```

Figure 5-2. Diagnostic Results Need Filtering

This can be caused by various environmental factors such as electronic interference or other environmental factors. To correct this example, first ensure that as much environmental vibration or instability has been removed as possible. Then, adjust the filtering in the **Scales** menu of the main 1280 configuration menu. Add digital filters incrementally to avoid over-filtering. Optimal system performance occurs when minimal filter is added. See the 1280 Enterprise Series Technical Manual (PN 167659) for more information about adjusting the filtering.

5.2 Photo Eye Timing Adjustments

The diagnostic data is used to detect when the indicator samples the weight of a product. The sample time is determined by timing when indicator is set to single photo eye (Section 5.2.1) and by location of the photo eyes when indicator is set to multiple photo eye (Section 5.2.2 on page 31).

5.2.1 Single Photo Eye Product Detection

 **NOTE:** See Section 3.5.2 on page 14 for more information on setting up the single photo eye. Delay Before Sample time and Sample Time are set in the Product Setup menu. See Section 4.8 on page 24.

Sampling Starts Early

In some cases, it is necessary to increase the **Delay before Sample** time.

An example of diagnostic data:

Sample Time: 650 milliseconds										
Samples: 64										
High Sample: 3.33										
Low Sample: 0.89										
Vibration: 2.44										
Weight Samples:										
0.89	0.89	1.28	1.28	1.69	2.10	2.10	2.49	2.49	2.82	
3.07	3.07	3.22	3.22	3.30	3.33	3.33	3.33	3.33	3.33	
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	
Calculated Weight: 2.38										

Figure 5-3. Sampling Starts Early

Each weight sample taken during the **Sample Time** can be viewed. The **Sample Time** begins after the **Delay Before Sample** time has elapsed. In this case, the known product weighs 3.33lbs, but the calculated weight is incorrect because the samples start off very light. This is an indication that the **Delay Before Sample** time is too short and is being triggered before the scale is supporting the entire weight of the product.

To correct this example, slightly increase the **Delay Before Sample** time and run the same product again.

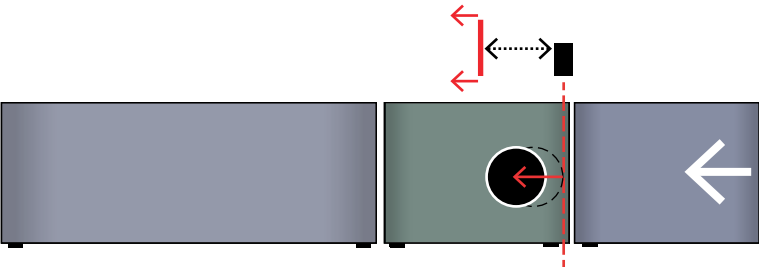


Figure 5-4. Sampling Starts Early: Increase Delay Before Sample Time

Sampling Ends Late

In some cases, it is necessary to decrease the **Sample Time**.

This example shows a diagnostic result that would indicate this:

```

Sample Time: 500 milliseconds
Samples: 49
High Sample: 3.33
Low Sample: 0.12
Vibration: 3.21
Weight Samples:
3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33
3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33
3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33
3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33 3.33
3.33 2.98 2.56 2.20 1.90 1.10 0.67 0.33 0.12
Calculated Weight: 3.12
  
```

Figure 5-5. Sampling Ends Late

Each weight sample taken during the **Sample Time** can be viewed. In this case, the known product weighs 3.33lbs, but the calculated weight is incorrect because the last few samples are very light. This is an indication that **Sample Time** expires when the product is starting to be supported by the out feed conveyor. To fix this, decrease the **Sample Time**.

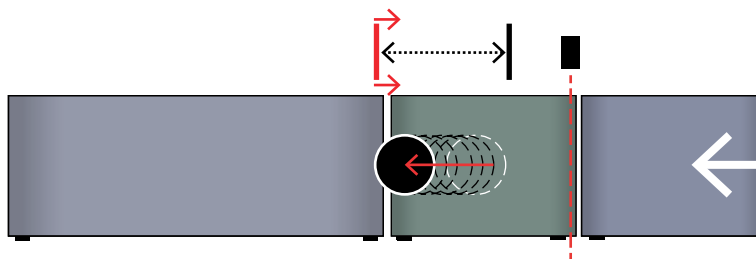


Figure 5-6. Sampling Ends Late: Decrease the Sample Time

Adjustment Sequence

If weight samples are light at both the beginning and end of the sample set, always increase the Delay Before Sample Time before decreasing the Sample time.

5.2.2 Multiple Photo Eye Detection



NOTE: See [Section 3.5.3 on page 15](#) for more information on setting up multiple photo eyes.

Sampling Starts Early

In some cases, it is necessary to move the **Start Data Collection Photo Eye**.

An example of diagnostic data:

Sample Time: 650 milliseconds									
Samples: 64									
High Sample: 3.33									
Low Sample: 0.89									
Vibration: 2.44									
Weight Samples:									
0.89	0.89	1.28	1.28	1.69	2.10	2.10	2.49	2.49	2.82
3.07	3.07	3.22	3.22	3.30	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Calculated Weight: 2.38									

Figure 5-7. Sampling Begins Too Early

Each weight sample taken in the time between photo eye triggers can be viewed. In this case, the known product weighs 3.33lbs, but the calculated weight is incorrect because the samples start off very light. This is an indication that the **Start Data Collection Photo Eye** has been placed too close to the entry of the scale.

To correct this example, move the **Start Data Collection Photo Eye** closer to the end of the scale and run the same product again.

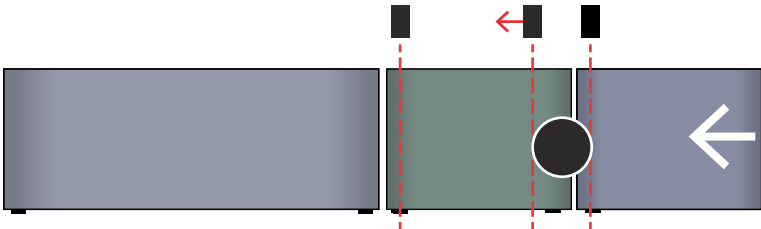


Figure 5-8. Sampling Starts Too Early: Move Start Data Collection Photo Eye

Sampling Ends Late

In some cases, it is necessary to move the **Stop Data Collection Photo Eye**.

This example shows a diagnostic result that would indicate this:

Sample Time: 500 milliseconds									
Samples: 49									
High Sample: 3.33									
Low Sample: 0.12									
Vibration: 3.21									
Weight Samples:									
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
3.33	2.98	2.56	2.20	1.90	1.10	0.67	0.33	0.12	
Calculated Weight: 3.12									

Figure 5-9. Sampling Ends Too Late

Each weight sample taken in the time between photo eye triggers can be viewed. In this case, the known product weighs 3.33lbs, but the calculated weight is incorrect because the last few samples are very light. This is an indication that the **Stop Data Collection Photo Eye** is being triggered when the product is starting to be supported by the out feed conveyor.

To fix this, move the **Stop Data Collection Photo Eye** closer to the entry of the scale.

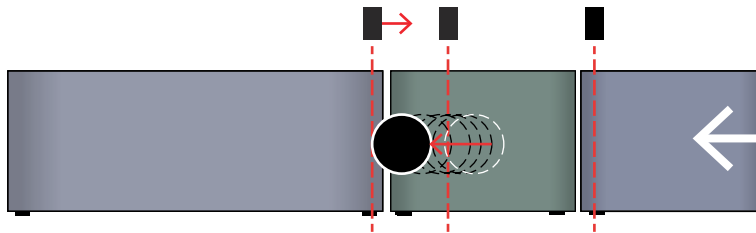


Figure 5-10. Sampling Ends Too Late: Move Stop Data Collection Photo Eye

6.0 Importing and Exporting Files

6.1 Introduction to Importing and Exporting Files

Files can be imported and exported from the 1280 indicator. Importing and exporting are defined as the following:

- **Export** – sending information from the 1280 to a file system (Flash drive, Micro SD)
- **Import** – pulling information onto the 1280 from a previously saved file system. (Onboard, Flash drive, Micro SD)
- **Upload** – sending information from the 1280 to a PC using Revolution® software
- **Download** – pulling information onto the 1280 from a PC using Revolution software

Files which can be imported and exported to/from the 1280 indicator include:

File	Extension	Description
Configuration	.rev	Configuration files include scale configuration, communication, setpoint, print format, database schemas or displayed widgets settings created in Revolution configuration software; configuration files can be imported/downloaded or exported/uploaded
iRite	.cod	Compiled version of source code file (.src extension); iRite data can only be imported/downloaded onto the 1280
Database	.db	Data records which populate a database schema; Database files can be imported/downloaded or exported/uploaded; Database files can be viewed and modified with programs such as notepad or excel. • Import/Download - loads many records of data quickly (transaction data, product or customer data); all rows can be loaded into the 1280 database schema at once; the database schema is part of the Configuration and must be downloaded before actual data is sent; there are three ways to import data • Export/Upload - to keep a backup version of the databases (transaction data, product or customer data) it is important to save a copy of the database file

Table 6-1. Transferable Files

There are several ways to import and export a file to the 1280:

- **Flash drive** — files can be exported to and imported from a flash drive inserted into the USB port on the 1280
- **Micro SD card** — files can be exported to and imported from a micro SD card in the micro SD card Slot
- **PC with Revolution Software** — files can be uploaded to and downloaded from a PC connected to the 1280 by any COM port (USB, Ethernet or serial) which has Revolution open, see [Section 6.2 on page 34](#)

Memory Device	Configuration Files		iRite Files	Database Files	
	Export/ Upload	Import/ Download	Import/ Download	Export/ Upload	Import/ Download
Flash drive or Micro SD card	Section 6.3.2 on page 37	Section 6.3.1 on page 37	Section 6.3.3 on page 38	Section 6.3.5 on page 39	Section 6.3.4 on page 38
PC with Revolution	Section 6.2.3 on page 35	Section 6.2.2 on page 35	Section 6.2.2 on page 35	Section 6.2.5 on page 36	Section 6.2.4 on page 36

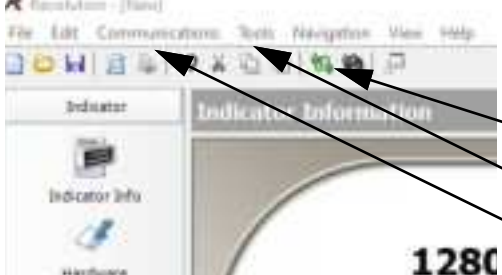
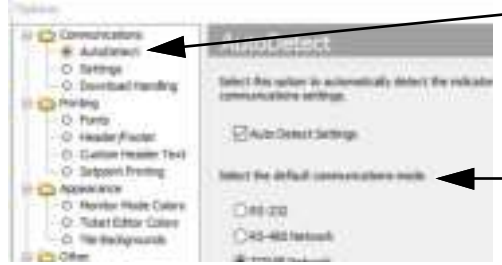
Table 6-2. Transfer Methods

6.2 Uploading and Downloading with Revolution

The Revolution PC software utility provides a suite of functions used to support configuration, calibration, customization and backup of the 1280 software. Hardware and software configuration, stream and ticket formatting, and database management are all supported by Revolution.

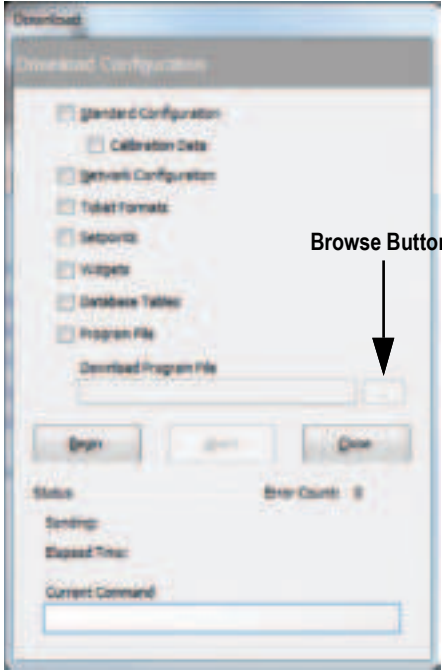
6.2.1 Connecting To Revolution

Use the following steps to connect the 1280 indicator to Revolution.

	1. Connect the PC to any of the 1280 COM ports (USB, Ethernet or Serial). 2. Open Revolution on the PC. 3. Select New from the File menu. 4. Select firmware of the 1280 indicator. Press Ok. 5. In the indicator, press  to enter the Configuration menu.
	6. Click on the Connect icon in the tool bar. Revolution attempts to establish communications to the indicator. 7. If communications settings need to be adjusted, select Options... from the Tools menu.
	8. From AutoDetect, select the type of connection to be made. NOTE: A COMport must be selected from the settings screen if using RS-232; however, baud, parity and data bits are only selectable if the Auto Detect Settings check box remains unchecked on the AutoDetect screen.
	9. Set the communication parameters as needed.
 RS-485 Connection  TCP/IP Connection	10. If RS-485 Network or TCT/IP Network are selected as the default communication mode, a prompt to select an address displays before it tries to connect to the 1280. An address is required for connection to RS-485 or TCP/IP.

6.2.2 Downloading Configuration Files and iRite files to 1280 from Revolution

Use the following steps to download configuration and iRite files to the 1280 from Revolution. Database files can be downloaded using the steps in [Section 6.2.4 on page 36](#).

 Browse Button	1. Connect indicator to Revolution. See Section 6.2 on page 34 for Revolution connection instructions. 2. In <i>Revolution</i>, select Communications from the toolbar, then select Download Configuration. The menu box to the left displays 3. Mark the check boxes corresponding to sections to be downloaded. 4. If the iRite program is to be downloaded, press the Browse button to bring up the PC file system. If not, skip to Step 7. 5. Navigate to the saved .cod file. The selected path should be displayed in the white text box. 6. Press Begin and wait for the download to complete. Settings from the Revolution file are now populated in the 1280. 7. Press  on the indicator to save settings and exit configuration.
--	---

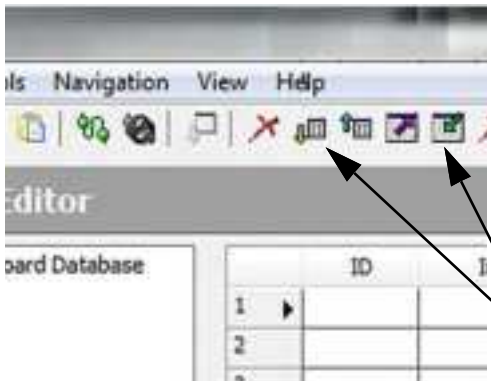
6.2.3 Uploading Configuration Files from 1280 to Revolution



NOTE: Changes to configuration parameters (made in the same configuration session) must be saved prior to Uploading the configuration.

	1. Connect indicator to Revolution. See Section 6.2 on page 34 for Revolution connection instructions. 2. In <i>Revolution</i>, select Communications from the toolbar, then select Upload Configuration. A progress box displays and disappears when upload is complete. Settings from the indicator have populated Revolution. 3. Select SaveAs from the File menu and navigate to the folder on the PC where the configuration file is to be stored.
---	---

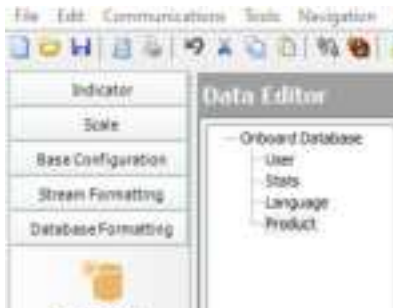
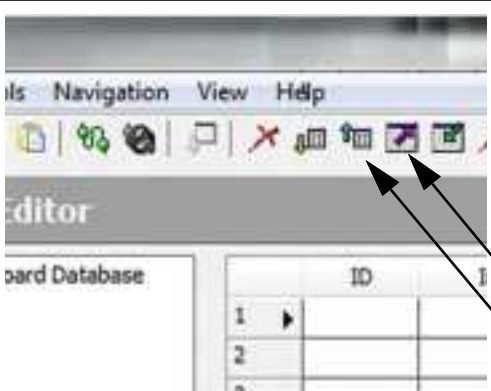
6.2.4 Downloading Database files from Revolution to 1280

	1. Open the Revolution file with the desired (previously downloaded) database schemas. 2. Connect indicator to Revolution. See Section 6.2 on page 34 for Revolution connection instructions. 3. Navigate to the Database Editor in Revolution and select the database name (in the middle) to be populated.
	4. A grid as many columns wide as there are fields, and as many rows down as the records display. Options to populate this grid are: • Import a previously saved .db file stored on the PC to the Database Editor by pressing on the Import icon • Type all the data in the Database Editor 5. Click on the Download icon.

6.2.5 Upload Database file to Revolution From the 1280



NOTE: Changes to configuration parameters (made in the same configuration session) must be saved prior to uploading the database.

	1. Open the Revolution file with the desired (previously downloaded) database schemas. 2. Connect indicator to Revolution, see Section 6.2 on page 34 for Revolution connection instructions. 3. Navigate to the Database Editor in Revolution and select the database name (in the middle) to be populated.
	4. A grid displays which is as many columns wide as there are fields, and as many rows down as there are records. 5. Click on the Upload icon. 6. The data displayed in the Data Editor is not saved. To save the database to the PC, click on the Export icon. 7. The file system box displays asking where to save the file on the PC and what to name the file.

6.3 Importing and Exporting with a Flash Drive or Micro SD Card



IMPORTANT: Importing a configuration overwrites the existing configuration.



NOTE: The Import Configuration screen looks the same whether importing from an onboard file system, a micro SD card or a flash drive. The only difference is the source device is highlighted in red on the left side of the screen.

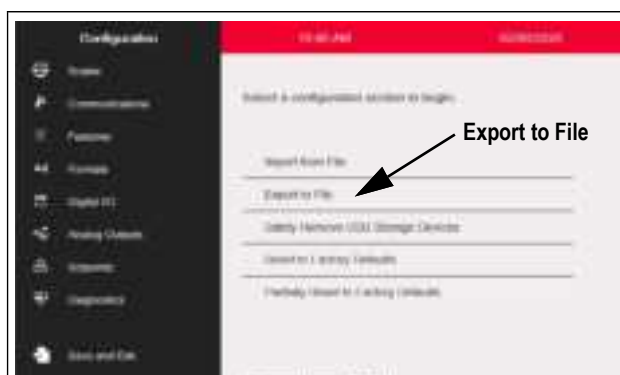
6.3.1 Importing Configuration Files from a Flash Drive or Micro SD Card

	1. Save the Revolution .rev file to the flash drive or micro SD card. 2. Insert the flash drive into either USB port on the indicator, or the micro SD card into the 1280's designated micro SD card slot. 3. Press  Configuration to enter the Configuration menu. 4. Select Import from File. The Import Screen displays.
	5. Select Flash Drive or SD Card (depending on which one is being used). This reads the file system and display available folders. 6. Select Configuration to filter out the .rev files which are stored on the flash drive. 7. Navigate to the folder then the .rev file. Press . 8. The configuration file settings are now downloaded to the 1280. 9. Press .

6.3.2 Exporting Configuration to Flash Drive or Micro SD Card

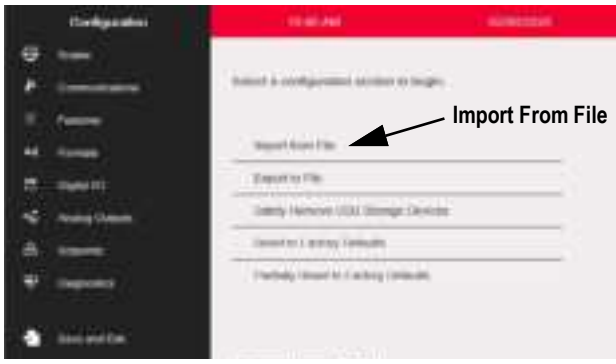


NOTE: Changes to configuration parameters (made in the same configuration session) must be saved prior to exporting the configuration.

	1. Insert the flash drive or the micro SD card into the indicator. 2. Press  Configuration to enter the Configuration menu. 3. Press Export to File. The Export Screen displays.
	4. Select Flash Drive or SD Card, which reads the file system and display folders. 5. Select Configuration to indicate the configuration should be saved as a .rev file. 6. Navigate to the folder where the file is to be stored. 7. Press .

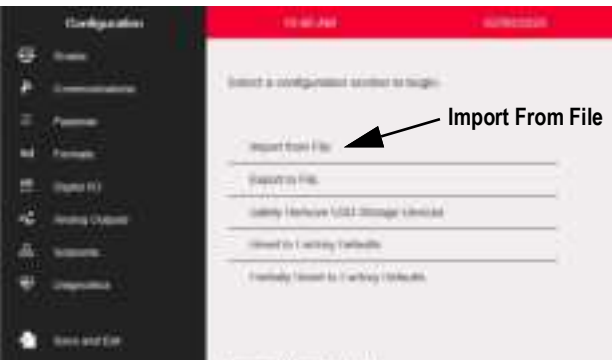
6.3.3 Importing iRite™ Programs from a Flash Drive or Micro SD Card

iRite programs can only be imported onto the 1280.

	1. Save the iRite file to the flash drive or a micro SD card. 2. Press  Configuration to enter the Configuration menu. 3. Press Import from File.
	4. Select Flash Drive or SD Card on the left of the display. 5. Select iRite Program on the top of the display. 6. Navigate to the folder where the desired .cod file is stored and select the file. 7. Press  to import. 8. Press .

6.3.4 Importing Database Data from a Flash Drive or Micro SD Card

The data in the Data Editor is sent one at a time to the 1280. This data is appended to any existing data in the 1280.

	1. Insert a flash drive or a micro SD Card into the 1280 with a saved .db file (a text file with a special extension, which was previously exported pipe-delimited file of records). 2. Press  Configuration to enter the Configuration menu. 3. Press Import from File.
	4. Select Flash Drive or SD Card. 5. Select Database on the top of the display. 6. Navigate to the folder where the desired .db file is stored and select the file. 7. Press  to import. 8. Press .

6.3.5 Exporting Database Data to a Flash Drive or Micro SD Card



NOTE: Changes to database parameters (made in the same configuration session) must be saved prior to exporting the database.

	1. Once the data has been saved on the 1280 (through iRite during run mode, or after a previous download of data), insert a flash drive or micro SD card into the indicator. 2. Press  Configuration to enter the Configuration menu. 3. Press Export to File.
	4. Select Flash Drive or SD Card, which reads the file system and displays available folders. 5. Select Database to indicate the database data is to be stored as a pipe-delimited .db file. 6. Navigate to the folder location where the .db file is to be stored. 7. Press  Done to select and export.

7.0 Database Files and Stored Variables

The following tables list the variables for the user database and product database. All data is stored in 1280 indicator.

7.1 Database Files



NOTE: Screenshots of the Data Editor are for illustrative purposes only and have been visually cropped. Refer to tables for full variable list.

7.1.1 User Database Variables



Figure 7-1. Example of User Database in Revolution

Field	Type	Description
ID	String	User ID - 20 character alphanumeric
Name	String	User Name - 20 character alphanumeric
Password	String	Password - 20 character alphanumeric

Table 7-1. User Database Fields

7.1.2 Statistics Database Table

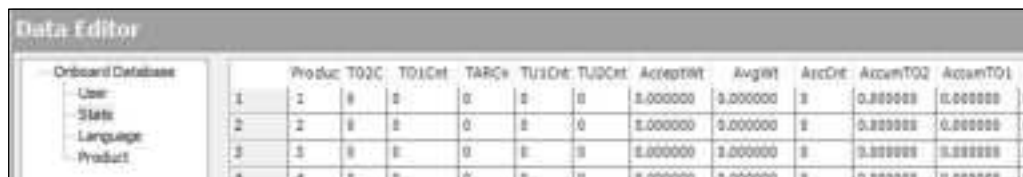


Figure 7-2. Example of Statistics Database in Revolution

Field	Type	Description
Product	String	Product ID that was used
TO2Cnt	Integer	Number of times product was weight in this zone
TO1Cnt	Integer	Number of times product was weight in this zone
TarCnt	Integer	Number of times product was weight in this zone
TU1Cnt	Integer	Number of times product was weight in this zone
TU2Cnt	Integer	Number of times product was weight in this zone
AcceptWt	Real	Accumulated weight of all weightments
AccCnt	Integer	Number of accepted weighments
AvgWt	Real	Average weight of accepted weighments
AccumTO2	Real	Accumulated weight of all weightments in this zone
AccumTO1	Real	Accumulated weight of all weightments in this zone
AccumTar	Real	Accumulated weight of all weightments in this zone
AccumTU1	Real	Accumulated weight of all weightments in this zone
AccumTU2	Real	Accumulated weight of all weightments in this zone
StdDev	Real	Standard Deviation (rolling last 300 weights)
DfectCnt	Integer	Number of times Reject Input was seen (if enabled)
Div1Cnt	Integer	Number of times Divert 1 happened
Div1Wt	Real	Accumulated weight that was diverted to Divert 1
Div2Cnt	Integer	Number of times Divert 2 happened
Div2Wt	Real	Accumulated weight that has been diverted to Divert 2

Table 7-2. Statistics Fields

7.1.3 Product Database Variables

ID	Desc	Tare	TO2	TO1	Target	TU1	TU2	SmpDelay	SmpTime	MinDet
1	Weigh Sample 1	0.00000	40.00000	35.00000	35.00000	25.00000	15.00000	0.25000	0.50000	0.10000
2	Weigh Sample 2	5.00000	50.00000	40.00000	35.00000	30.00000	20.00000	0.25000	0.50000	0.10000
3	Weigh Sample 3	5.00000	50.00000	40.00000	35.00000	30.00000	20.00000	0.25000	0.50000	0.10000
4	Weigh Sample 4	5.00000	50.00000	40.00000	35.00000	30.00000	20.00000	0.25000	0.50000	0.10000
5	Weigh Sample 5	5.00000	50.00000	40.00000	35.00000	30.00000	20.00000	0.25000	0.50000	0.10000
6	Weigh Sample 6	5.00000	50.00000	40.00000	35.00000	30.00000	20.00000	0.25000	0.50000	0.10000
7	Weigh Sample 7	5.00000	50.00000	40.00000	35.00000	30.00000	20.00000	0.25000	0.50000	0.10000
8	Weigh Sample 8	5.00000	50.00000	40.00000	35.00000	30.00000	20.00000	0.25000	0.50000	0.10000
9	Weigh Sample 9	5.00000	50.00000	40.00000	35.00000	30.00000	20.00000	0.25000	0.50000	0.10000

Figure 7-3. Example of Product Database in Revolution

Field	Type	Variables	Description
ID	String		Alphanumeric up to 20 characters
Desc	String		Product Description
Tare	Real		Tare weight
TO2	Real	5-zone only	Tolerance Over Zone 2 (entered as the actual weight over tolerance, like 27 lb for example)
TO1	Real		Tolerance Over Zone 1 (entered as the actual weight over tolerance, like 26 lb for example)
Target	Real		Target weight (like 25 lb for example)
TU1	Real		Tolerance Under Zone 1 (entered as the actual weight under tolerance, like 24 lb for example)
TU2	Real	5-zone only	Tolerance Under Zone 2 (entered as the actual weight under tolerance, like 23 lb for example)
SmpDelay	Real	Single photo eye only	Time (in seconds) to delay before sampling
SmpTime	Real	Single photo eye only	Sample time (in seconds) to gather weights to be averaged
MinDet	Real	Single photo eye only	Minimum detection time, after photo eye is tripped that it has to be on to be legit
Flicker	Real	Multiple photo eye only	As soon as we see a photo eye, delay x seconds before we count it as another product
Thresh	Real	Weight Based Only	Threshold weight that when gone above, sampling begins
TO2Dvrt	String	5-zone only	Divert 1, Divert 2, STOP, OFF - can be toggled to signify action when in this zone (choices of toggles depending on DIVERT # setting)
TO1Dvrt	String		Divert 1, Divert 2, STOP, OFF - can be toggled to signify action when in this zone (choices of toggles depending on DIVERT # setting)
TarDvrt	String		Divert 1, Divert 2, STOP, OFF - can be toggled to signify action when in this zone
TU1Dvrt	String		Divert 1, Divert 2, STOP, OFF - can be toggled to signify action when in this zone (choices of toggles depending on DIVERT # setting)
TU2Dvrt	String	5-zone only	Divert 1, Divert 2, STOP, OFF - can be toggled to signify action when in this zone (choices of toggles depending on DIVERT # setting)
Div1Del	Real	DIVERT > 0	If Divert 1 is configured, wait x seconds before turning on Divert 1 output
Div1On	Real	DIVERT > 0	If Divert 1 is configured, turn it on this long after the delay
Div2Del	Real	DIVERT = 2	If Divert 2 is configured, wait x seconds before turning on Divert 1 output
Div2On	Real	DIVERT = 2	If Divert 2 is configured, turn it on this long after the delay
Speed	Real	Only if AO card installed	Analog output % for product speed (used only if card installed)

Table 7-3. Product Database Fields



NOTE: Fields that include variables will only display if corresponding variable is set in the application menu.
See [Section 4.5 on page 22](#).

7.2 Ethernet IP Communication

From 1280 to PLC

Input #	Description
1	Product ID
2	Weight
3	Time (HHMMSS)
4	Status (Accepted or Rejected)
5	System Status • 1 = Running • 2 = Stopped • 3 = E-stop pressed
6	Scale Status (See table below)
7	Calculated Product Weight
8	New Data Flag for PLC (0 or 1), a value of 1 lets the PLC know when to look at the register for the next product weight data

Table 7-4. Communication from 1280 to PLC

Word 2 Bit	Indicator Status Data	
	Value=0	Value=1
00	Error	No error
01	Tare not entered	Tare entered
02	Not zero	Center of zero
03	Weight invalid	Weight OK
04	Standstill	In-motion
05	Primary units	Other units
06	Tare not acquired	Tare acquired
07	Gross weight	Net weight
08	Channel number NOTE: Value 0 represents scale #32	
09		
10		
11		
12		
13		
14	Integer data	Floating point data
15	Positive weight	Negative weight

Table 7-5. Scale Status

From PLC to 1280

Input #	Description
1	System • 1 = Start • 2 = Stop
2	Product ID (send ID to be selected - must be numeric)
3	TO2 - Set currently selected product to this and save to DB
4	TO1
5	Target
6	TU1
	TU2

Table 7-6. Communication from PLC to 1280

8.0 Default Indicator Settings

Several of the necessary settings to run the MotoWeigh must be made or adjusted in the main 1280 setup menu. See the 1280 Enterprise Series Technical Manual (PN 167659) for more information about configuration of the indicator. These settings include digital input/output, auto zero, language, weight calibration, filtering, sample rate and fieldbus communication settings. These are stored in the .rev configuration file. Save settings by uploading the configuration file to a PC, SD card or USB flash drive. Settings can be reloaded and replaced by reloading the .rev configuration file. See [Section 6.0 on page 33](#) for more information on importing and exporting files.



NOTE: The scale sample rate must be set to 120 Hz. This is the default setting and should not be changed.

8.1 Digital Input/Output Settings

Full functionality of the MotoWeigh program requires a digital I/O card to be installed, however the MotoWeigh will have basic functionality using the onboard DIO slot. The 1280 will detect which option cards are installed and adjust accordingly.

Onboard Slot 0 Digital I/O Configuration

Slot	Bit	Type	Function
0	1	OUTPUT	Conveyor Start
	2	OUTPUT	Divert 1 (if enabled)
	3	PROG	Start Data Collection
	4	PROG	Stop Data Collection
	5	PROG	Estop
	6	PROG	Overrun Photo Eye
	7	OUTPUT	Divert 2 (if enabled)

Table 8-1. Digital I/O Assignments to Slot 0

Option Card Digital I/O Configuration

Slot	Bit	Type	Function
4	1	OUTPUT	Conveyor Start
	2	OUTPUT	Divert 1 (if enabled)
	3	PROG	Start Data Collection
	4	PROG	Stop Data Collection
	5	PROG	Estop
	6	PROG	Overrun Photo Eye
	7	OUTPUT	Divert 2 (if enabled)
	8	OUTPUT	Tolerance Over Zone 2
	9	OUTPUT	Tolerance Over Zone 1
	10	OUTPUT	Target
	11	OUTPUT	Tolerance Under Zone 1
	12	OUTPUT	Tolerance Under Zone 2
	13	OUTPUT	Tolerance Alarm
	14	OUTPUT	Photoeye/Overrun Alarm
	15	PROG	Defect Input (if Defect is enabled to ACCEPT or REJECT)
	16	PROG	Remote Start
	17	PROG	Remote Stop

Table 8-2. Digital I/O Assignments to Option Card

8.1.1 Recommended Auto Zero Settings

Rice Lake Weighing Systems recommends the following Auto Zero settings be used when setting up the conveyor scale. These parameters are set in the configuration menu of the 1280. They can also be set using EDP commands. For more information on 1280 configuration and EDP commands, see the 1280 Enterprise Series Technical Manual (PN 167659).

Zero Track Band

Zero Track Band automatically zeros the scale when within the specified range if the weight is within the **Stand Still Time** and the **Zero Range** settings.

Example:

50 x 0.02 lb scale. Auto zero 0.50 lb. Take $0.50/0.02 = 25$

25 is the number that will be entered.

Zero Range

Zero Range is the allowed percentage that can be zeroed. **Zero Range** can be set up to 100% (recommended range: 10-15%).



NOTE: Zero Range must be set to 1.9% or less to comply with NTEP certifications.

Motion Band

Motion Band sets the level (display divisions) at which scale motion is detected. Set **Motion Band** to 2 for in-motion weighing.

Stand Still Time

Stand Still Time is the length of time that the scale is out of motion. Set **Stand Still Time** to 2 (200 ms) for in-motion weighing.



NOTE: All of the parameters listed above must be set in the listed order for the auto zero feature to work along with using a push zero or a forced zero between weights in the user program.

8.1.2 Zeroing Between Weighments

Set **Auto Zero Time** in Product Detection menu. See [Section 4.5 on page 22](#).

When that time has expired, the system zeros the scale as long as all of the above parameters are met.

8.2 Option Cards

See the 1280 Enterprise Series Technical Manual (PN 167659) for complete instructions on opening the applicable indicator enclosure and the necessary ports for connecting to the CPU board.



WARNING: Always disconnect the power before opening an enclosure. Interface option cards are not hot swappable.



CAUTION: A grounding wrist strap must be worn to protect components from electrostatic discharge (ESD) when working inside an enclosure or controller assembly.

8.2.1 Option Card Installation Instructions

1. Disconnect power to the indicator.
2. Gain access to the Controller Assembly box for the specific model.
3. Remove the screw securing the intended slot cover plate of the Controller Assembly box, set the slot cover plate aside and save the screw.
4. Mount the faceplate on module and slide module board assembly into place within the slot.
5. Secure the faceplate and module board assembly into place with the previously removed screw.



NOTE: Interface cable is routed through a cord grip in Universal and Wall mount enclosures. Alternately, a chassis mounted connect can be installed in the enclosure.

6. Reinstall the Controller Assembly box.

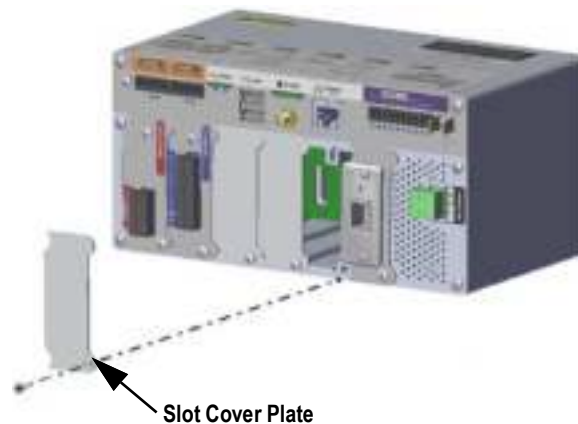


Figure 8-1. Existing Cover Plate Removal

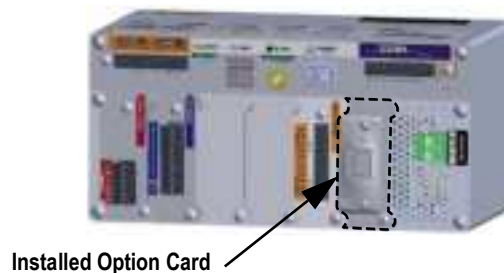


Figure 8-2. Installed Interface Option Card

8.2.2 Single-Channel A/D Card Installation

See the 1280 Enterprise Series Single A/D Scale Card Installation Addendum (PN 164652) for more information on the Single-channel A/D card.

1. Route the cable through the cord grip to attach the cable from the scale to the A/D scale card.
2. Wire the load cell cable from the scale to the connector (from the parts kit) for J1 as shown in [Figure 8-3](#).

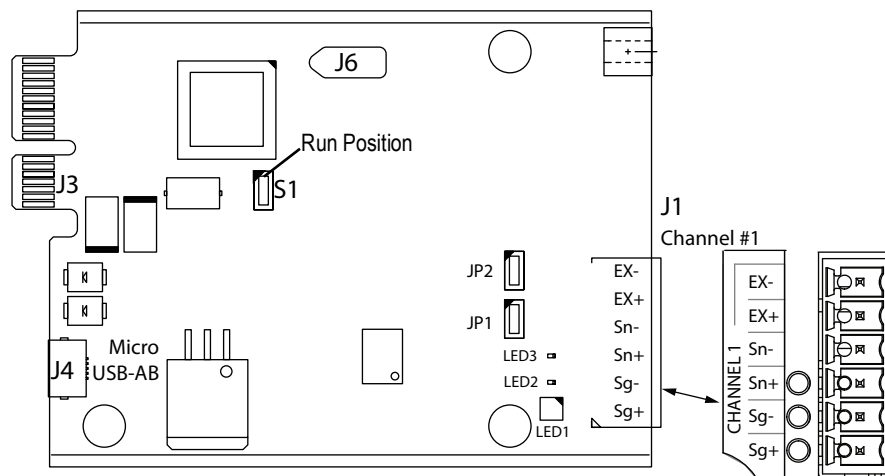


NOTE: To use a 6-wire load cell cable (with sense wires), remove jumpers JP1 and JP2 before installing cord to J1. To use a 4-wire connection, leave jumpers JP1 and JP2 on.

3. When connections are complete, install load cell connector on the A/D scale card.



NOTE: A sealing clip can be installed over the connector to provide a hardware seal that allows access while preventing removal of the scale card and connector.



J1	Channel #1
Pin 1	SIG+
Pin 2	SIG-
Pin 3	SENSE+
Pin 4	SENSE-
Pin 5	EXC+
Pin 6	EXC-

NOTE: For 6-wire load cell connections to connector J1, remove jumpers JP1 and JP2.

Figure 8-3. Single-Channel A/D Card Pin Assignments

Specifications

Excitation Voltage	10 ± 0.5 VDC, 16 x 350Ω or 32 x 700Ω load cells per A/D card
Sense Amplifier	Differential amplifier with 4- and 6-wire sensing
Analog Signal Input Range	-60 mV to 60 mV
Analog Signal Sensitivity	0.3 uV/grad minimum @ 7.5 Hz 1.0 uV/grad typical @ 120 Hz 4.0 uV/grad typical @ 960 Hz
A/D Sample Rate	7.5–960 Hz, software selectable
Input Impedance	>35 MΩ typical
Internal Resolution	±8388608 counts
Weight Display Resolution	9,999,999
Input Sensitivity	10 nV per internal count
System Linearity	±0.01% of full scale
Zero Stability	±150 nV/°C, maximum
Span Stability	±3.5 ppm/°C, maximum
Input Voltage Differential	±800 mV referenced to earth ground
Input Overload	Load cell signal lines ±10 V continuous, ESD protected
RFI/EMI Protection	Signal, excitation and sense lines protected

8.2.3 Digital I/O Expansion Card Installation

Route the cable using one of the following connections.

- Connection to J1: Cable 14-30 AWG
 Connection to J2: Flat Ribbon Cable (PN 170008), 24"
 Round Ribbon Cable, (PN 170009) 60"
 Round Ribbon Cable with cord grip, (PN 170736) 60"

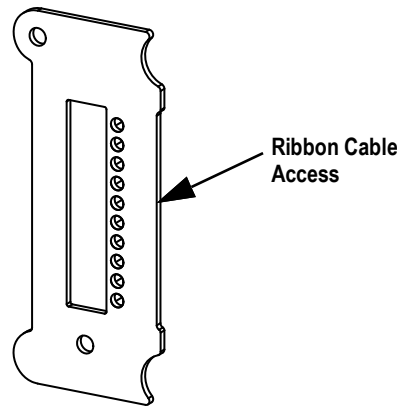
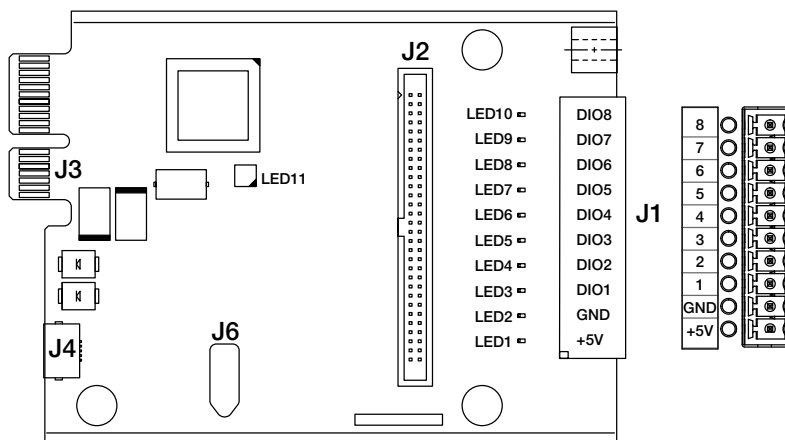


Figure 8-4. Ribbon Card Access



NOTE: Connection cables for J2 include a 60 to 50 pin adapter for relay rack connection.
 The ribbon cables are fed though the face plate by positioning the cable on the top indent.

Make Connections to the option card. See [Figure 8-5](#).



Pin	Signal	Pin	Signal
1	DIO24	27	DIO11
3	DIO23	29	DIO10
5	DIO22	31	DIO9
7	DIO21	33	DIO8
9	DIO20	35	DIO7
11	DIO19	37	DIO6
13	DIO18	39	DIO5
15	DIO17	41	DIO4
17	DIO16	43	DIO3
19	DIO15	45	DIO2
21	DIO14	47	DIO1
23	DIO13	49, 51-60	+5V
25	DIO12	even pins	GND

Figure 8-5. Digital I/O Card Pin Assignments

Use the DIG I/O menu to configure digital I/O as necessary.

Specifications

I/O Channels	Up to 24, 5V/TTL, each software configurable as input or output
Relay Supply Voltage	5 VDC, 500 mA, PTC Fuse 750 mA
Input Voltage	0–5.5 V maximum
Digital Outputs	24 mA balanced outputs with sink/source capability
Input Protection	8-screw terminal: 600W transient voltage suppression for ESD, EFT (electrical fast transients), tertiary lightning, and system-generated transients per IEC 60001-4-2, 60001-4-4, and 60001-4-5; European Standards EN50082 and EN61000-4 Remaining I/O: 2KV HBM, 200V machine model
I/O Connection	60-pin ribbon connector, 8-screw terminal connector

9.0 Maintenance and Troubleshooting

9.1 Preventive Maintenance

A few simple steps will help to maximize and maintain the performance of the MotoWeigh and will extend the life of the product. Refer to the included Rice Lake parts list and drawings for part locations. The parts list and drawings are unique to each application



NOTE: Not all conveyor equipment systems are wash down rated. Even in those that are, extreme water pressure should be avoided around the electrical components of the unit and the load cells.

9.1.1 Start of Shift

The following checklist should be completed at every start of shift and product changeover within shift.

Component	Task
Scale (Static)	☐ 5-point static weight check (center and each corner)
	☐ Quick return to 0
Photo eyes and Reflectors	☐ Photo eyes and reflectors must be kept clean and free of debris
	☐ Ensure photo eyes are properly aligned for optimum scale performance
	☐ Photo eyes change state when blocked
Operation	☐ Conveyor operates as expected
	☐ E-Stop operates as expected
Scale (Dynamic)	☐ Test product with known good weight
	☐ Test product with known overweight
	☐ Test product with known underweight
Divert	☐ Operates as expected
	☐ Divert timing operates as expected

Table 9-1. Start of Shift Check List

9.1.2 Scheduled Maintenance

Scheduled maintenance frequency will depend on application type and environment. Every 200-500 hours of operation typical.

Component	Task
Conveyor	☐ Check bearings for wear
	☐ Grease all bearings
	☐ Check belt for wear
	☐ Check belt sprockets for wear
	☐ Check drive shaft for wear
	☐ Check belt tension • Belt should be just tight enough to not jump a sprocket tooth
	☐ Check timing belt for wear
	☐ Check drive and driven pulleys for wear
	☐ Check timing belt tension • Belt should be just tight enough to not jump a pulley tooth
	☐ Check pneumatic cylinders for lubrication
Operation	☐ Check belt tracking
	☐ Check bearings for excessive heat or noise
	☐ Check motor for excessive heat or noise
	☐ Check product transfers between conveyors

Table 9-2. Scheduled Maintenance Check List

9.1.3 Calibration and Backup

- System configuration and database information should be backed up each time a setting has been changed or a new product is added. A backup can be achieved by uploading or exporting a .rev file. See [Section 6.1 on page 33](#).
- Scale calibration frequency is done based on application type and environment. The scale should be calibrated no less than once per year by authorized personnel.

9.2 Troubleshooting

Below, find general troubleshooting tips for various hardware error conditions.

Issue	Probable Cause	Fix
Scale is not weighing correct statically	Overload stops are touching the scale	Adjust the overload stops
	Binding on the scale	Remove outside factors in contact with the scale
	Needs recalibration	Recalibrate the load cell
	Load cell is faulty	Replace the load cell
Conveyor does not start when start is pressed on screen	System is set to 'manual'	Check jumper in panel, set to 'Auto' position
	Conveyor motor was overloaded	Reset all motor overloads and/or VFD
	Output 1 relay isn't turning on	Check DIO ribbon cable
		Check DIO 1 is set to Output
Program does not detect a product (Weight Based mode)	Mode is not set to Weight Based	Set mode to Weight Based
	Scale does not get stable as product is ran	Remove any outside factors affecting scale
		Slow down conveyor
		Increase filtering
		Decrease standstill time
Program does not detect a product (Single Photo Eye mode)	Mode is not set to Single Photo Eye mode	Set mode to Single Photo Eye
	Photo eye has no power (green light is not on)	See photo eye trouble shooting
	Photo eye is always triggered (orange light is always on)	
	Input relay does not turn on	
Program detects more than 1 product when a single product passes (Single Photo Eye mode)	Photo eye is flickering	Adjust photo eye sensitivity
		Adjust product min detect time
Program detects a product but the weight is not within tolerance (Single Photo Eye mode)	Mode is not set to Single Photo Eye mode	Set mode to Single Photo Eye
	Delay before sample time is not set correctly	Adjust product delay before sample time
	Sample time is not set correctly	Adjust product sample time
	Too much vibration in the system	Remove any outside factors affecting the scale
	Products are spaced too close together	Adjust product spacing
	Filtering is too high or too low	Adjust 1280 filtering settings
	Photo eye is not in the correct position	Adjust photo eye position
Program does not detect a product (Multiple Photo Eye mode)	Mode is not set to Multi Photo Eye mode	Set mode to Multi Photo Eye
	Photo eye has no power (green light is not on)	See photo eye trouble shooting
	Photo eye is always triggered (orange light is always on)	
	Input relay does not turn on	
Program detects more than 1 product when a single product passes (Multiple Photo Eye mode)	Photo eye is flickering	Adjust photo eye sensitivity
		Adjust product flicker time
Program detects a product but the weight is not within tolerance (Multiple Photo Eye mode)	Mode is not set to Multiple Photo Eye mode	Set mode to Multiple Photo Eye
	Too much vibration in the system	Remove any outside factors affecting the scale
	Products are spaced too close together	Adjust product spacing
	Filtering is too high or too low	Adjust 1280 filtering settings
	Photo eyes are not in the correct position	Adjust photo eye position
Program is rejecting every part	Product tolerances are not set correctly	Adjust product tolerance
	Program is marking the product as a defect	Adjust defect input setting

Table 9-3. Troubleshooting Tips

9.3 Photo Eye Troubleshooting



NOTE: Refer to Electrical drawings for specific settings.

Apply power to system

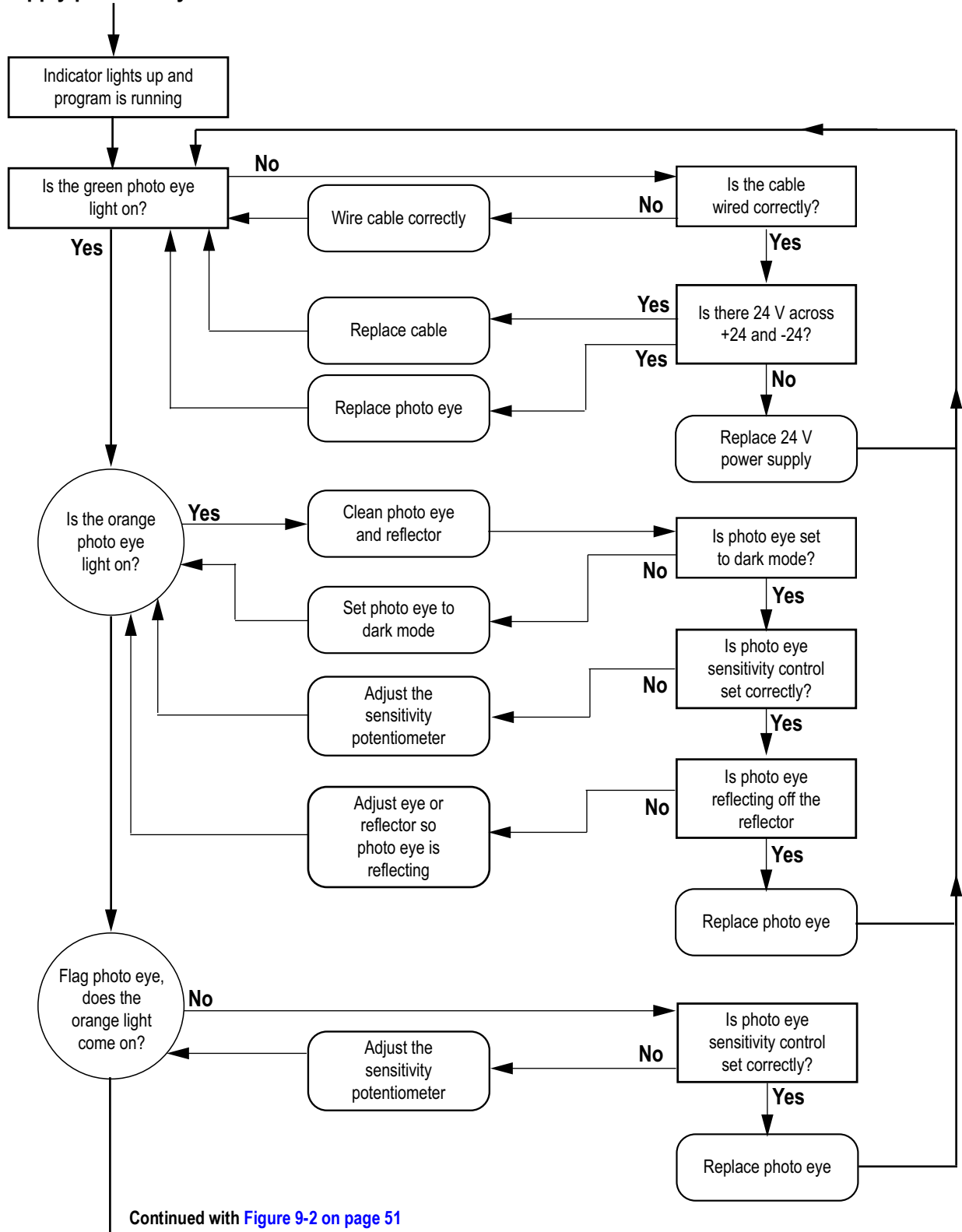


Figure 9-1. Photo Eye Troubleshooting Diagram – Page 1

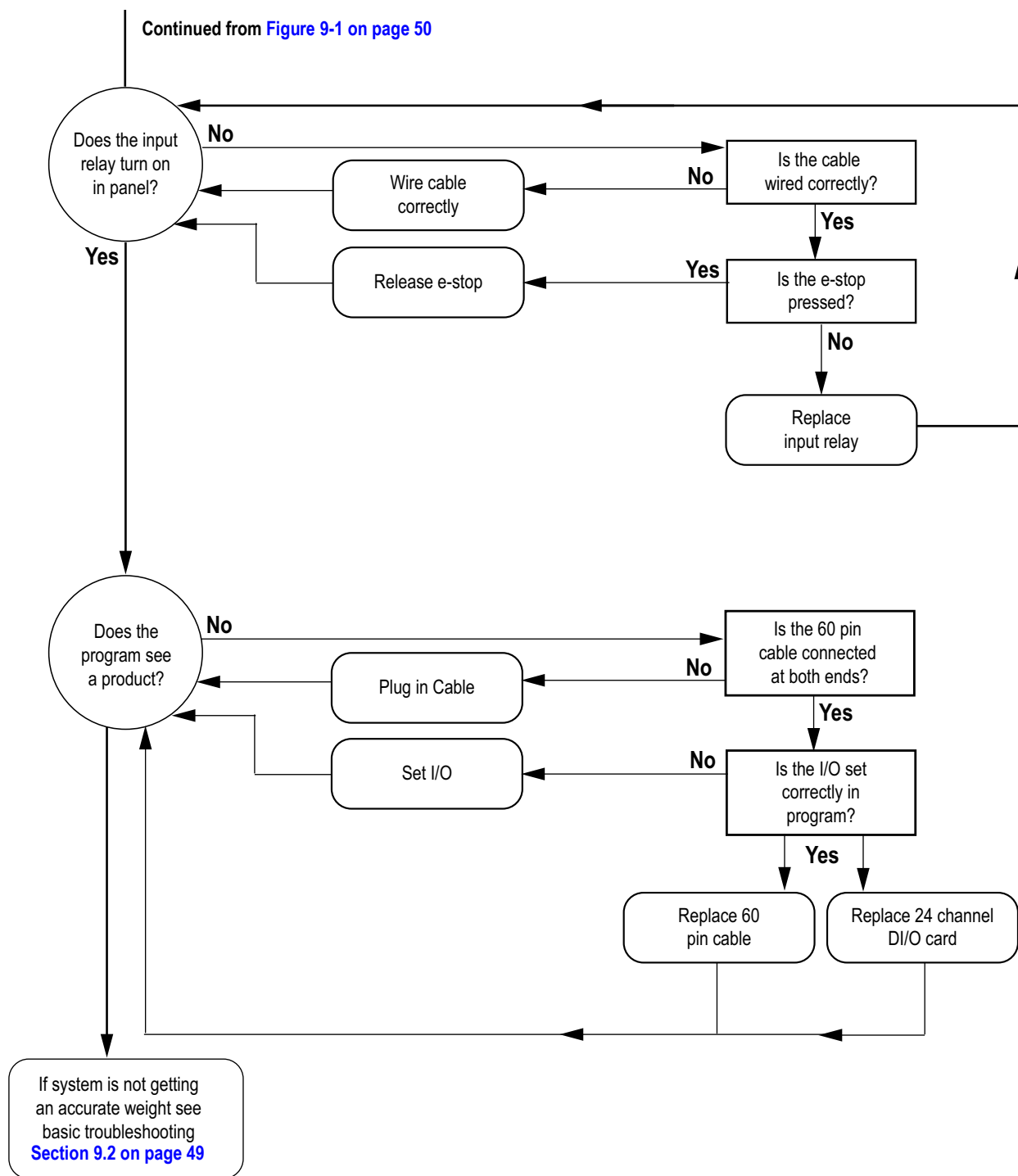


Figure 9-2. Photo Eye Troubleshooting Diagram – Page 2

10.0 Specifications

10.1 Hardware Requirements

This section lists standard hardware and setup requirements that are necessary for the 1280 Enterprise Series Indicator to successfully run the MotoWeigh IMW custom program. See the 1280 Enterprise Series Technical Manual (PN 167659) for more information about general configuration of the indicator.

Screen Size/Type

1280 Screen Size
7.5" screen
12" screen

Table 10-1. 1280 Screen Size

Option Cards

Option cards should be placed into the following slots.

Slot	Type
1	Single Channel A/D Card
2	Analog Output Card (optional)
3	DIO Card (optional)
4	Ethernet IP (optional)

Table 10-2. Option Card Locations

SD Card Slot

Port	Type	Description	Setup
--	CMD	8 Gb Micro SD Card	Images

Table 10-3. SD Card Slot

Serial Port

Port	Type	Description	Setup
1	CMD	Customized Data Stream out	9600,8,N,1

Table 10-4. Serial Port

Ethernet TCP/IP Port

Port	Type	Description	Setup
10001	CMD	Waits for connection from software/device i.e. Revolution or iNterchange	TCP Server
10001	CMD	Customized Data Stream out (duplicate of serial)	TCP Client 1
10002	CMD	Currently Not Used	TCP Client 2
3000	CMD	Web Server	Web Server

Table 10-5. Ethernet TCP/IP Port

10.2 Revolution Hardware and Software Requirements

Refer to the Revolution Scale Software product page at www.RiceLake.com/revolution for Revolution hardware and software requirements.



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