

682 Synergy Plus

Digital Weight Indicator
Firmware Version 1

Technical Manual



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Revision History

This section tracks and describes the current and previous manual revisions for awareness of major updates and when the updates took place.

Table i. Revision Letter History

| Revision | Date | Description |
|----------|----------|---|
| A | 4/8/2022 | Initial manual release with the launch of the product; firmware version 1.0 |
| | | |
| | | |



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1.0 Introduction

This manual is intended for use by service technicians responsible for installing and servicing 682 digital weight indicators. Configuration and calibration of the indicator can be accomplished using the Revolution® configuration utility or the indicator front panel keys. See [Section 4.0 on page 29](#) and [Section 6.0 on page 56](#) for information about configuration and calibration.



Manuals and additional resources are available from Rice Lake Weighing Systems at www.ricelake.com/manuals
Warranty information can be found on the website at www.ricelake.com/warranties

1.1 Safety

Safety Signal 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.

Some procedures described in this manual require work inside the indicator enclosure. These procedures are to be performed by qualified service personnel only.

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

Do not operate without the enclosure completely assembled.

Do not place fingers into slots or possible pinch points.

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

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Do not submerge.

Do not use solvents or aggressive substances to clean the indicator.

Do not exceed the rated specification of the unit.

Only connect unit to equipment certified to IEC 60950, IEC 62368, IEC 61010 or similar.

Do not use for purposes other than weight taking.

Before opening the unit, ensure the power cord is disconnected from the power source.

Disconnect all power before servicing. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

For permanently connected equipment, a readily accessible disconnect device shall be incorporated in the building installation wiring.

Pluggable units must be installed near the socket/outlet and be easily accessible.

Use copper or copper-clad aluminum conductors only.

1.2 FCC Compliance

United States

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.


Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

1.3 Operating Modes

Weigh Mode


Weigh mode is the default mode of the indicator. The indicator displays gross or net weights as required.

User Mode

User mode is accessible by pressing  on the front panel. Access to the Audit, Calibration, limited Setpoint, Accumulator, Tare, Time, Date, MAC ID, Fieldbus Version and Version menus is available when in *User* mode. Access to the User menu can be password protected ([Section 3.4.22 on page 28](#)). The User menu includes the Calibration, limited Setpoints, Accumulator, Time and Date menus.

Setup Mode

Many of the procedures described in this manual, require the indicator to be in *Setup* mode.

See [Section 4.0 on page 29](#) for the procedure to enter *Setup* mode and the parameters available. *Setup* mode is accessible by pressing the setup switch or by pressing  on the front panel when the audit jumper is in the ON position. Access to the Setup menu can also be password protected ([Section 3.4.22 on page 28](#)).



NOTE: See [Section 4.5.5 on page 42](#) for the menu location and description of the password parameters.

1.4 Option Cards

The 682 has a single option card slot which can support the Synergy Series Option Cards. The Synergy Series Option Card kits include instructions for installation and setup.

- Single Analog Output Option Card Kit (PN 195084)
- Relay Option Card Kit (PN 211709)
- Dual Serial Option Card Kit (PN 211710)

1.5 RJ45 Option

The 682 is available with an external RJ45 option. This external RJ45 connector is located on the backplate of the 682 and provides quick access to Ethernet TCP/IP 10Base-T/100Base-TX communication ([Section 2.4.11 on page 10](#)).

682 indicators without the RJ45 option access Ethernet using the J8 connector on the CPU board inside of the enclosure.

2.0 Installation

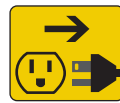
This section describes procedures for connecting power, load cells, digital I/O and data communication cables to a 682 indicator. An assembly drawing and parts list are included for the service technician.



WARNING



*Risk of electrical shock.
Risque de choc.*



*Disconnect power before servicing.
Débranchez l'alimentation avant l'entretien.*



AVERTISSEMENT



CAUTION: *Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to state and local regulations.*



ATTENTION: *Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebut les batteries usagées selon les règlements d'état et locaux.*



WARNING: *Failure to heed the following statements could result in serious injury or death.*

- *Use a grounding wrist strap to protect components from electrostatic discharge (ESD) damage when working inside the indicator enclosure.*
- *Procedures requiring work inside the 682 must be performed by qualified service personnel only.*
- *In-wall and universal mounts, the supply cord serves as the power disconnect. The power receptacle to the indicator must be accessible for these models.*

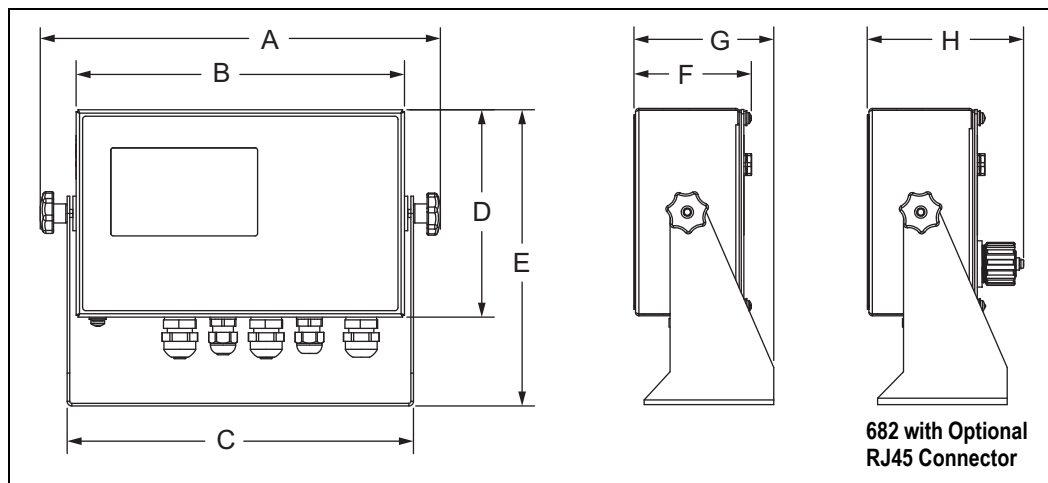
2.1 Unpacking

Immediately after unpacking, visually inspect the 682 to ensure all components are included and undamaged. The shipping carton contains the indicator, this manual and a parts kit. If parts were damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately.

2.1.1 Product Dimensions

This section includes exterior product dimensions of the 682 enclosure and universal stand.

Figure 2-1. Product Dimensions Diagram



682 with Optional RJ45 Connector

Table 2-1. Product Dimensions

| A | B | C | D | E | F | G | H |
|--------------------|-------------------|--------------------|-------------------|-------------------|------------------|-------------------|-------------------|
| 11.6 in (294.7 mm) | 9.5 in (241.3 mm) | 10.0 in (254.0 mm) | 6.0 in (152.4 mm) | 8.6 in (218.5 mm) | 3.5 in (88.9 mm) | 4.0 in (101.6 mm) | 4.5 in (114.3 mm) |

2.2 Mounting Instructions

The 682 includes a universal mount stand. The stand can be mounted on a wall, tabletop or a flat surface.

Figure 2-2. Mounting Dimensions Diagram

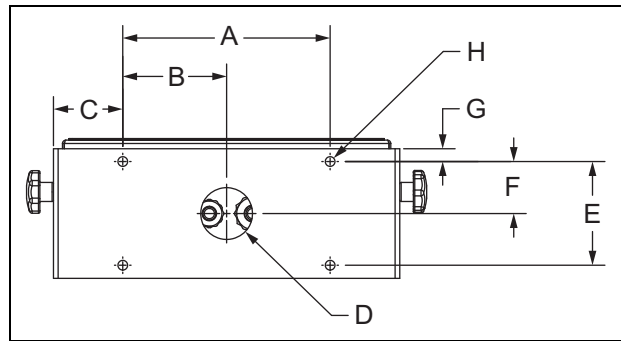


Table 2-2. Mounting Dimensions

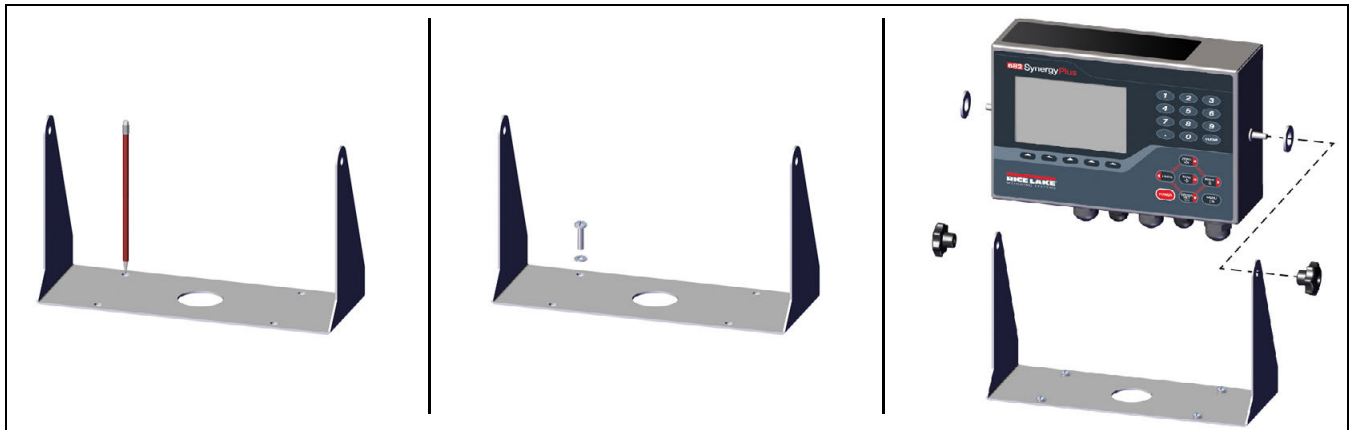
| A | B | C | D | E | F | G | H |
|-------------------|-------------------|-------------------|--------------------|------------------|-------------------|------------------|--------------------|
| 6.0 in (152.4 mm) | 3.01 in (76.5 mm) | 2.01 in (51.1 mm) | Ø 1.5 in (38.1 mm) | 3.0 in (76.2 mm) | 1.51 in (38.4 mm) | 0.37 in (9.4 mm) | Ø 0.28 in (7.1 mm) |



NOTE: The universal mount stand comes attached to the 682. Rice Lake Weighing Systems recommends removing the 682 from the stand prior to mounting.

1. Using the mount as a template, mark the screw locations.
2. Drill holes for the screws.
3. Secure the universal mount using the appropriate 1/4-inch or M6 hardware (not included).
4. Reattach the 682 to the universal mount stand.

Figure 2-3. Mounting the Indicator



NOTE: The parts kit includes rubber grommets to insert into the four screw holes of the universal mount stand for a non-mounted application.

2.3 Backplate Removal

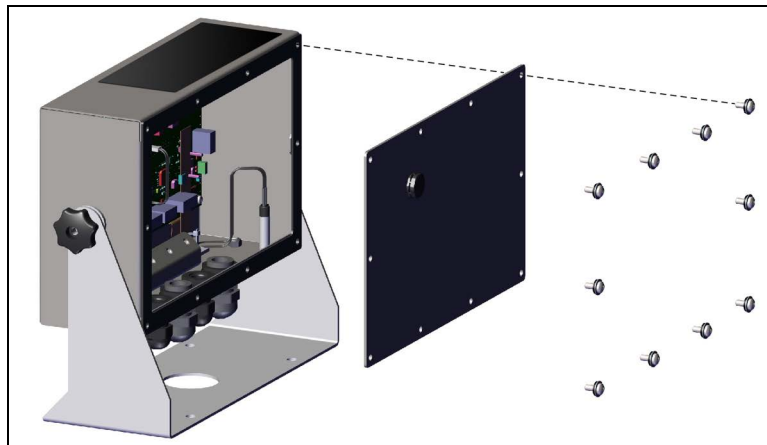
Remove the backplate of the 682 to connect cables and gain access to the 682 board and power supply.



WARNING: Before opening the unit, ensure the power cord is disconnected from the power outlet.

1. Place the 682 facedown on an anti-static work mat.
2. Remove the screws holding the backplate to the enclosure.
3. Lift the backplate away from the enclosure and disconnect the ground wire from the backplate.

Figure 2-4. Removing the Backplate



NOTE: The 682 ships with only four screws securing the backplate. The remaining backplate screws are included in the parts kit. For reassembly, torque backplate screws to 12 in-lb (1.4 N-m).

2.4 Cable Connections

The 682 provides five cord grips at the bottom of the enclosure for cabling into the indicator. One of the cord grips is used for the power supply and the other four are used to accommodate the load cell cable and the serial, digital inputs and outputs, Ethernet, micro USB or the optional analog output communications cables. A version of the 682 with an external RJ45 connector and cap is available. Cable plugs are included in the parts kit and must be installed in open cord grips to prevent moisture from entering the enclosure. Use the attached cap to seal the optional RJ45 connector when not in use. See the following sections to install cables as required for the application. The recommended cable strip length is 0.25 in (7 mm) for all 682 connectors. See Figure 2-5 for the recommended assignments for the 682 cord grips.



IMPORTANT: Prohibit open/bare wires outside of enclosure. Ensure stripped portion of cables are entirely inside cord grips.

IMPORTANT: Properly seal cord grips to prevent moisture damage inside of the enclosure. Cable plugs must be installed in unused cord grips. Cord grip dome nuts, around a cable or a plug, must be torqued to 22 in-lb (2.5 N-m). The cord grip nut against the enclosure must be torqued to 33 in-lb (3.7 N-m).



WARNING: Only connect unit to equipment certified to IEC 60950, IEC 62368, IEC 61010 or similar.

Figure 2-5. Recommended Cord Grip Assignments



2.4.1 Cable Shield Grounding

Except for the power cord, all cables routed through the cord grips must be shield grounded against the enclosure.

- Use hardware provided in parts kit to install shielding clamps on the grounding bracket at the bottom of the enclosure.
- Install only the necessary amount of shielding clamps for the cord grips to be used.
- Remove the insulated jackets and shielding per the following instructions.

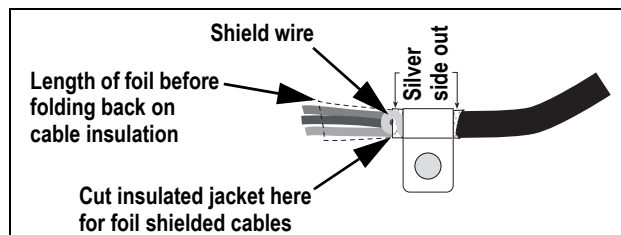
Shielding Procedure

1. Install the shielding clamps on the grounding rail using the clamp screws. Finger tighten the screws at this time.
2. Route the cables through the cord grips and the shielding clamps to determine the cable lengths required to reach the appropriate cable connectors.
3. Mark cables to remove the insulated jacket as described below for Foil Shielded Cables and Braid Shielded Cables.

Foil Shielded Cables

Use the following procedure to shield ground foil shielded cables.

Figure 2-6. Foil Shielded Cable

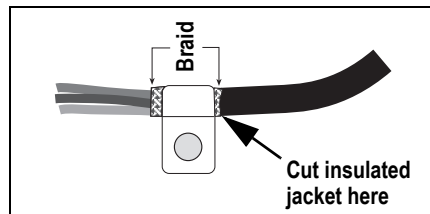


1. Strip the insulated jacket and foil 1/2 in (15 mm) past the shielding clamp.
2. Strip another 1/2 in (15 mm) of the insulated jacket, leaving the foil shielding exposed.
3. Fold the foil shielding back on the cable where the cable passes through the clamp.
4. Ensure the silver (conductive) side of the foil is turned outward.
5. Wrap the shield wire around the cable, ensuring it contacts the foil where the cable passes through the clamp.
6. Torque shielding clamp screw to 10 in-lb (1.1 N-m), ensuring clamp is around the cable and contacting the shield wire.

Braid Shielded Cables

Use the following procedure to shield ground braid shielded cables.

Figure 2-7. Braid Shielded Cable



1. Strip the insulated jacket and braided shielding from a point just past the shielding clamp.
2. Strip another 1/2 in (15 mm) of the insulated jacket, leaving braid exposed where the cable passes through the clamp.
3. Torque shielding clamp screw to 10 in-lb (1.1 N-m), ensuring the clamp is contacting the braided shielding of the cable.

2.4.2 Torque Ratings

Refer to [Table 2-3](#) throughout installation and use of product to maintain proper torque ratings for 682 components.

Table 2-3. Component Torque Ratings

| Component | Torque Rating |
|-----------------------------------|--------------------|
| Backplate Screw | 12 in-lb (1.4 N-m) |
| Setup Screw | 10 in-lb (1.1 N-m) |
| Power Supply Bracket | 4 in-lb (0.46 N-m) |
| Cord Grip Nut (to enclosure) | 33 in-lb (3.7 N-m) |
| Cord Grip Dome Nut (around cable) | 22 in-lb (2.5 N-m) |
| Optional RJ45 Panel Nut | 20 in-lb (2.3 N-m) |

2.4.3 AC Power Cable

AC models of the 682 are shipped with the AC power cable already installed and grounded to the enclosure.

Figure 2-8. Pre-installed AC Power Wiring

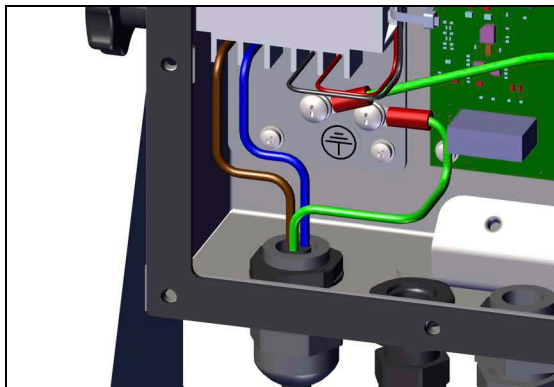


Table 2-4. AC Power Pin Assignments

| Pin | Function |
|-----|-------------------|
| 1 | 120 VAC (Line In) |
| 2 | AC Neutral |
| 3 | Not Used |
| 4 | DC Out (-V) |
| 5 | DC Out (+V) |

2.4.4 DC Power Cable

DC models of the 682 do not include a power cable. Use the following steps to ground and connect a DC power cable.

1. Run the DC power cable (not included), up through the cord grip.



NOTE: The recommended wire gauge range for the power supply cable is 8-18 AWG. The recommended cable strip length is 0.25 in (7 mm) for all 682 connectors. See [Section 2.4.2](#) for proper torque ratings for the power cable cord grip.

2. One wire will be terminated (earth grounded), to the power supply bracket near the cord grip using the backplate grounding screw. The backplate ground is already attached. Remove it so that the power cord ground can be on the bottom of the stack. Torque grounding screw to 10 in-lb (1.13 N-m).
3. Connect the other two wires to the DC power supply board input screw terminal (I/P). See [Table 2-5](#) for the input terminal (I/P) pin assignments.

Figure 2-9. DC Power Supply Board (PN 209417)

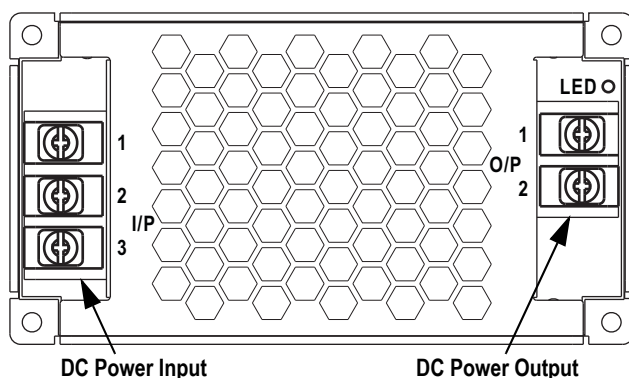


Table 2-5. DC Power Pin Assignments

| Connector | Pin | Function |
|----------------------|-----|-------------|
| Input Terminal (I/P) | 1 | DC Input V+ |
| | 2 | DC Input V- |
| | 3 | Not Used |

| Connector | Pin | Function |
|-----------------------|-----|--------------|
| Output Terminal (O/P) | 1 | DC Output V- |
| | 2 | DC Output V+ |

Pre-installed wiring connects power supply board to CPU board.

2.4.5 Load Cell Cables

To attach the cable from a load cell or junction box, route cable to the J1 connector ([Section 2.5 on page 11](#)). Connector for the cable is included in the parts kit. See [Table 2-6](#) for wiring the load cell cable from the load cell or junction box to connector.



A snap-on ferrite core from the parts kit must be applied to the load cell cable within 1 in (25 mm) of the load cell or within 1 in (25 mm) of the junction box on the homerun cable. The cable must be sent through the ferrite core twice.

Table 2-6. J1 Pin Assignments (Load Cell)

| Connector | Pin | Function |
|-----------|-----|----------|
| J1 | 1 | +SIG |
| | 2 | -SIG |
| | 3 | +SENSE |
| | 4 | -SENSE |
| | 5 | +EXC |
| | 6 | -EXC |



NOTE: For a 4-wire installation leave pins 3 and 4 empty on the connector.

NOTE: For a 6-wire installation set the Sense parameter to 6-WIRE in the Configuration menu ([Section 4.5.1 on page 32](#)). The Sense parameter is set to 4-wire by default and must be configured to match the load cell cable to function properly.

2.4.6 RS-232 Serial Communications

The J3 connector ([Section 2.5 on page 11](#)) provides a connection point for RS-232 serial communications. Two RS-232 ports are available. See [Table 2-7](#) for the pin assignments for the J3 connector.

Table 2-7. J3 Pin Assignments (RS-232)

| Connector | Pin | RS-232 Port 1 | RS-232 Port 2 |
|-----------|-----|---------------|---------------|
| J3 | 1 | GND | - |
| | 2 | RX1 | - |
| | 3 | TX1 | - |
| | 4 | - | GND |
| | 5 | - | RX2 |
| | 6 | - | TX2 |

2.4.7 RS-485/422 Serial Communications

The J4 connector ([Section 2.5 on page 11](#)) provides a connection point for RS-485/422 serial communications. Both full duplex (four-wire) and half duplex (two-wire) are supported through the J4 connector. See [Table 2-8](#) for the pin assignments for the J4 connector.

Table 2-8. J4 Pin Assignments (RS-485/422)

| Connector | Pin | 4-Wire (Full Duplex) | 2-Wire (Half Duplex) |
|-----------|-----|----------------------|----------------------|
| J4 | 1 | GND | GND |
| | 2 | A | - |
| | 3 | B | - |
| | 4 | Y | Y |
| | 5 | Z | Z |

2.4.8 Digital I/O

The Digital I/O port, J5 connector (Section 2.5 on page 11), provides a connection to both digital inputs and outputs.

Digital inputs can be set to provide many functions, including most keypad functions except MENU, numeric keypad and softkeys. Digital inputs are active low (0 VDC) and inactive high (5 VDC). Use the Digital I/O menu to configure the digital inputs.

Digital outputs are used to control relays which drive other equipment. Outputs are designed to sink, rather than source current. Each output is an open collector circuit, capable of sinking 20 mA when active. Digital outputs are active when low or at 0 VDC, with reference to the 5 VDC supply.

Use the Digital I/O menu to set the function of the Digital I/O pins to OUTPUT and then use the Setpoints menu to configure the digital outputs. See Table 2-9 for the pin assignments for the J5 connector.

Table 2-9. J5 Pin Assignments (Digital I/O)

| Connector | Pin | Signal |
|-----------|-----|-------------------|
| J5 | 1 | 5 VDC, 250 mA max |
| | 2 | GND |
| | 3 | DIO1 |
| | 4 | DIO2 |
| | 5 | DIO3 |
| | 6 | DIO4 |

2.4.9 Memory Card Slot

The memory card slot, J6 connector (Section 2.5 on page 11), accepts microSD cards and provides storage space for configuration settings (Section 12.3 on page 85) and Truck IDs. The 682 comes with an 8 GB microSD card (PN 164939) and the memory card slot supports up to a 2 TB microSD card.

2.4.10 Micro USB Device Communications

The Micro USB port, J7 connector (Section 2.5 on page 11), provides a connection point to a PC only. It appears as a Virtual COM Port and is assigned a “COMx” designation. Applications communicate through the port like a standard RS-232 communications port.

The driver must be installed on the PC before the Micro USB device port can be used. With the PC and 682 powered on, connect a USB cable from the PC to the Micro USB connector (J7) on the 682. The PC recognizes if a device has been connected, and attempts to install the driver needed to make it work. The driver can also be downloaded from www.ricelake.com.



NOTE: With a PC connected to the Internet and running Windows 7 or later, the operating system may install the drivers automatically.

When the individual drivers are installed, a new COM Port designation is assigned for each physical USB port the 682 is connected to on the PC.

For example, if the PC has two physical RS-232 COM Ports, they most likely are designated COM1 and COM2. When connecting the 682 to a USB port on the PC, it is assigned the next available port designation, or in this case, COM3. When plugging into the same physical USB port on the PC, the port designation is again COM3. If plugging into another physical USB port on the PC, it is assigned the next available designation, in this case COM4.

After the drivers are installed, use Windows® Device Manager to determine the COM Port designation which was assigned to the USB port, or open an application to be used with the 682, such as Revolution, to see which ports are available.

Configuration of the Micro USB port is done in the USBCOM sub-menu under PORTS in Setup mode.

The port can be configured as either a command (CMD) port for EDP commands and printing, or as a data streaming port. Other settings include termination character(s), echoes, responses and end-of-line delay (Section 4.5.4.2 on page 38).



NOTE: If a computer application has an open communications connection through the Micro USB device port and the physical cable connection is interrupted, a soft reset must be performed on the 682 or the power must be cycled to the 682; the connection in the computer application must be disconnected and then reconnected before it continues to communicate with the 682.

NOTE: For the Micro USB device port, it does not matter what the settings are for baud, data bits, parity and stop bits in the computer software. The port communicates in the same way regardless of these settings.

NOTE: This port is not a host port and is not to be connected to other devices such as keyboards, memory sticks or printers.

2.4.11 Ethernet

The 682 features Ethernet TCP/IP 10Base-T/100Base-TX communication using the J8 connector (Section 2.5 on page 11), and can support two simultaneous connections, one as a server, the other as a client. An external RJ45 option is available.

Through an Ethernet network, software applications can communicate with the 682 using the EDP command set (Section 12.0 on page 84), or data can be streamed continuously from the 682, or printed on demand.

The Ethernet port supports both DHCP and manual configuration of settings such as the IP and netmask. In addition, the TCP Port number and the Default Gateway can be configured using the Ethernet sub-menu of the Ports setup menu. For more information on configuring the Ethernet port see Section 4.5.4.3 on page 39.

Physical connection to the 682 Ethernet port can be made directly from a PC to the 682 (AdHoc Network), or through a network router or switch. The port supports auto-sensing MDI/MDIX cable configuration, allowing either straight-through or crossover cables to be used. See Table 2-10 for the pin assignments for the J8 connector.

Table 2-10. J8 Pin Assignments (Ethernet)

| Connector | Pin | Signal |
|-----------|-----|--------|
| J8 | 1 | TX+ |
| | 2 | TX- |
| | 3 | RX+ |
| | 4 | RX- |



NOTE: When looking into the enclosure from the backside of the indicator, pin 1 of the J8 connector is at the bottom.

See Table 2-11 and Table 2-12 for the pin assignments when connecting an RJ45 Ethernet cable to the J8 connector. There are two Ethernet wire standards (T568A and T568B). If the type of cable is unknown, use the wiring option in Table 2-11. The auto-sensing feature of the Ethernet port allows either of the wiring options to work. Trim the unused wires to get them out of the way.

Table 2-11. Ethernet Cable Pin Assignments for T568A

| RJ45 Pin | Wire Color (T568A) | Wire Diagram (T568A) | 10Base-T Signal 100Base-TX Signal | J8 Pin |
|----------|--------------------|----------------------|--------------------------------------|--------|
| 1 | White/Green | | Transmit+ | 1 |
| 2 | Green | | Transmit- | 2 |
| 3 | White/Orange | | Receive+ | 3 |
| 4 | Blue | | Unused | NA |
| 5 | White/Blue | | Unused | NA |
| 6 | Orange | | Receive- | 4 |
| 7 | White/Brown | | Unused | NA |
| 8 | Brown | | Unused | NA |

Table 2-12. Ethernet Cable Pin Assignments for T568B

| RJ45 Pin | Wire Color (T568B) | Wire Diagram (T568B) | 10Base-T Signal 100Base-TX Signal | J8 Pin |
|----------|--------------------|----------------------|--------------------------------------|--------|
| 1 | White/Orange | | Transmit+ | 1 |
| 2 | Orange | | Transmit- | 2 |
| 3 | White/Green | | Receive+ | 3 |
| 4 | Blue | | Unused | NA |
| 5 | White/Blue | | Unused | NA |
| 6 | Green | | Receive- | 4 |
| 7 | White/Brown | | Unused | NA |
| 8 | Brown | | Unused | NA |

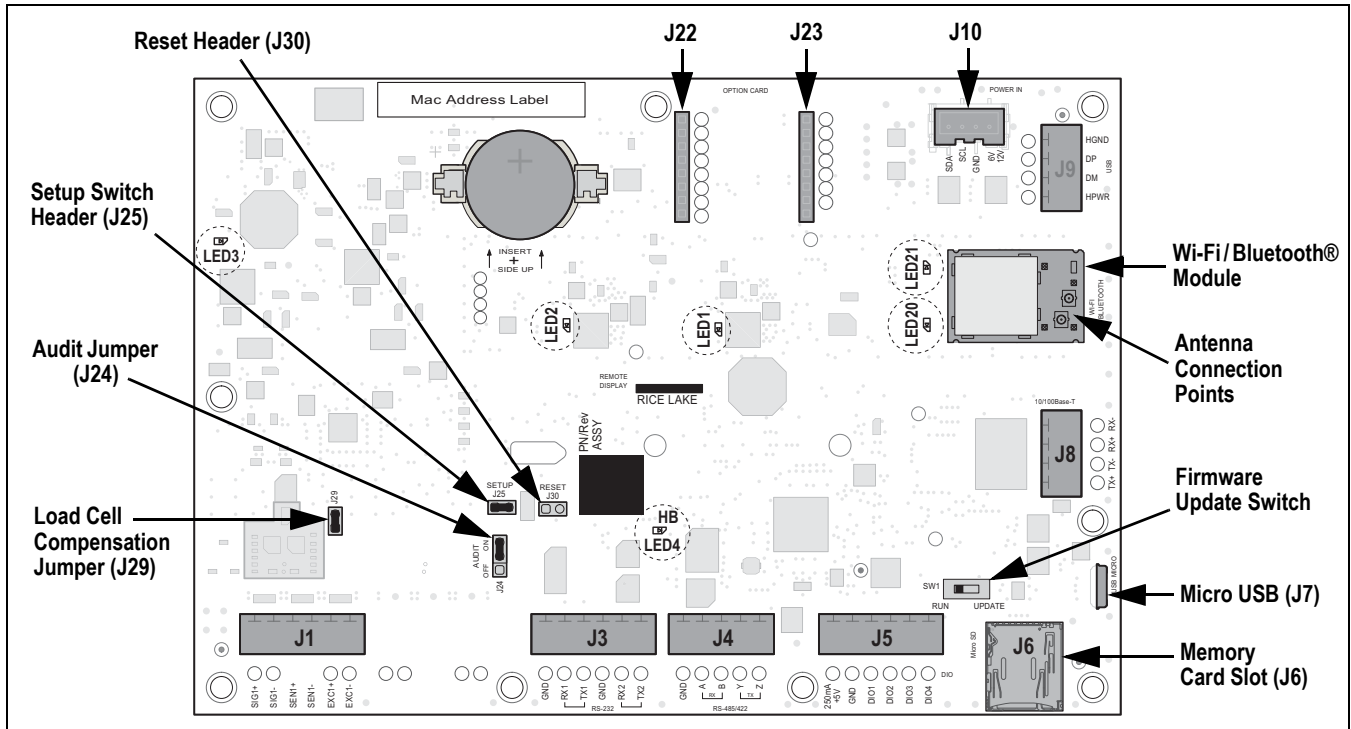
2.4.12 Option Card Port

The 682 has a single option card slot which uses the J22 and J23 connectors. Instructions to install, setup or replace an option card are provided with the option card.

2.5 CPU Board

This section identifies the locations of the connectors and status LEDs on the 682 CPU board.

Figure 2-10. CPU Board



Connectors

- Load Cell (J1)
- RS-232 1-2 (J3)
- RS-485/422 (J4)
- Digital I/O (J5)
- Memory Card Slot (J6) – microSD
- Micro USB (J7)
- Ethernet (J8)
- Antenna 1-2
- Power (J10)
- Option Slot (J22/J23)

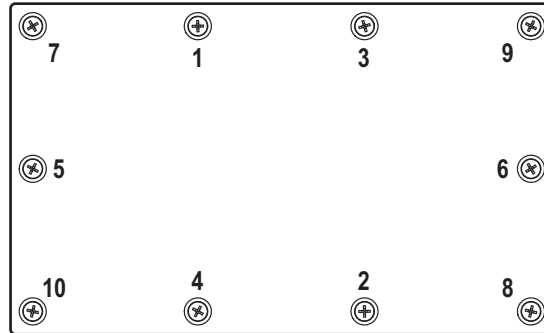
Status LEDs

- 3.3V Power (LED1)
- +5V Power (LED2)
- -5V Power (LED3)
- Heartbeat (LED4)
- Wi-Fi/Bluetooth® Power (LED20)
- Wi-Fi/Bluetooth® Active (LED21)

2.6 Backplate Attachment

Once work inside of the enclosure is complete, reattach the backplate ground wire to the backplate. Position the backplate over the enclosure and install the ten backplate screws. Use the torque pattern in [Figure 2-11](#) to prevent distorting the backplate gasket. Torque screws to 12 in-lb (1.4 N-m).

Figure 2-11. Backplate Torque Pattern



NOTE: Torqued screws may become less tight as the gasket is compressed during the torque pattern; a second torque is required using the same pattern and torque value.

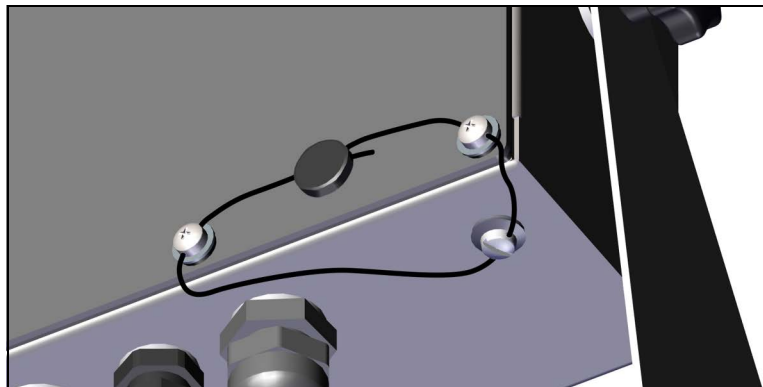
2.7 Sealing the Indicator (Optional)

Insert a lead wire seal through three fillister screws. This restricts access of the setup switch, electronics, electrical contacts and Legal for Trade configuration parameters.



NOTE: The audit jumper (J24) must be set to off to require pressing the setup switch for access to configuration parameters. See [Section 2.5 on page 11](#) for the location of the audit jumper on the CPU board.

Figure 2-12. Sealing the Indicator – No Access



1. Reposition the two fillister head backplate screws to the lower right and lower right-center screws locations.
2. Torque the two backplate screws and setup screw as specified in [Section 2.4.2 on page 7](#).
3. Navigate the sealing wire through the fillister head screws on the backplate and the fillister head screw at the bottom of the enclosure, as shown in [Figure 2-12](#).
4. Seal the wire to secure.

2.8 Parts Kit Components

2.8.1 682 AC Models

Table 2-13. AC Models Parts Kit (PN 194477)

| Part No. | Description | Qty. |
|----------|--|------|
| 15631 | Cable tie, 3 inch nylon | 4 |
| 15650 | Mount, cable tie 3/4 inch | 2 |
| 193230 | Screw, machine M4-0.7 x 10 Phillips pan head SST | 4 |
| 194219 | Screw, machine M4-0.7 x 10 Phillips drilled cheese head SST | 2 |
| 194446 | Ferrite core, snap on Fair-Rite 220 ohm | 1 |
| 19538 | Post plug, slotted black plastic stem, 1/4 x 1, seals inside cord grip | 3 |
| 195993 | Connector, 6 position screw terminal pluggable 3.50 mm black | 3 |
| 195995 | Connector, 4 position screw terminal pluggable 3.50 mm black | 1 |
| 195998 | Connector, 5 position screw terminal pluggable 3.50 mm black | 1 |
| 202140 | Screw, machine M4-0.7 x 10 Phillips pan head, zinc with external tooth washer SEMS | 4 |
| 42149 | Bumper, rubber grommet 0.50 (OD) x 0.281 (ID) | 4 |
| 53075 | Clamp, ground cable shield, radius 0.078 inch | 4 |
| 67550 | Clamp, ground cable shield, radius 0.125 inch | 2 |
| 75062 | Washer, bonded sealing #8 7/16 (0.4375) OD SST | 6 |
| 94422 | Label, capacity 0.40 x 5.00 | 1 |



NOTE: The recommended cable strip length is 0.25 in (7 mm) for all 682 connectors.

2.8.2 682 DC Models

Table 2-14. DC Models Parts Kit (PN 202065)

| Part No. | Description | Qty. |
|----------|--|------|
| 15631 | Cable tie, 3 inch nylon | 4 |
| 15650 | Mount, cable tie 3/4 inch | 2 |
| 15888 | Terminal block, 3 position | 1 |
| 193230 | Screw, machine M4-0.7 x 10 Phillips pan head SST | 4 |
| 194219 | Screw, machine M4-0.7 x 10 Phillips drilled cheese head SST | 2 |
| 194446 | Ferrite core, snap on Fair-Rite 220 ohm | 1 |
| 19538 | Post plug, slotted black plastic stem, 1/4 x 1, seals inside cord grip | 3 |
| 195993 | Connector, 6 position screw terminal pluggable 3.50 mm black | 3 |
| 195995 | Connector, 4 position screw terminal pluggable 3.50 mm black | 1 |
| 195998 | Connector, 5 position screw terminal pluggable 3.50 mm black | 1 |
| 202140 | Screw, machine M4-0.7 x 10 Phillips pan head, zinc with external tooth washer SEMS | 4 |
| 42149 | Bumper, rubber grommet 0.50 (OD) x 0.281 (ID) | 4 |
| 53075 | Clamp, ground cable shield, radius 0.078 inch | 4 |
| 67550 | Clamp, ground cable shield, radius 0.125 inch | 2 |
| 75062 | Washer, bonded sealing #8 7/16 (0.4375) OD SST | 6 |
| 94422 | Label, capacity 0.40 x 5.00 | 1 |

2.9 Replacement Parts

2.9.1 682 AC Models

Figure 2-13. 682 AC Models Replacement Parts Diagram

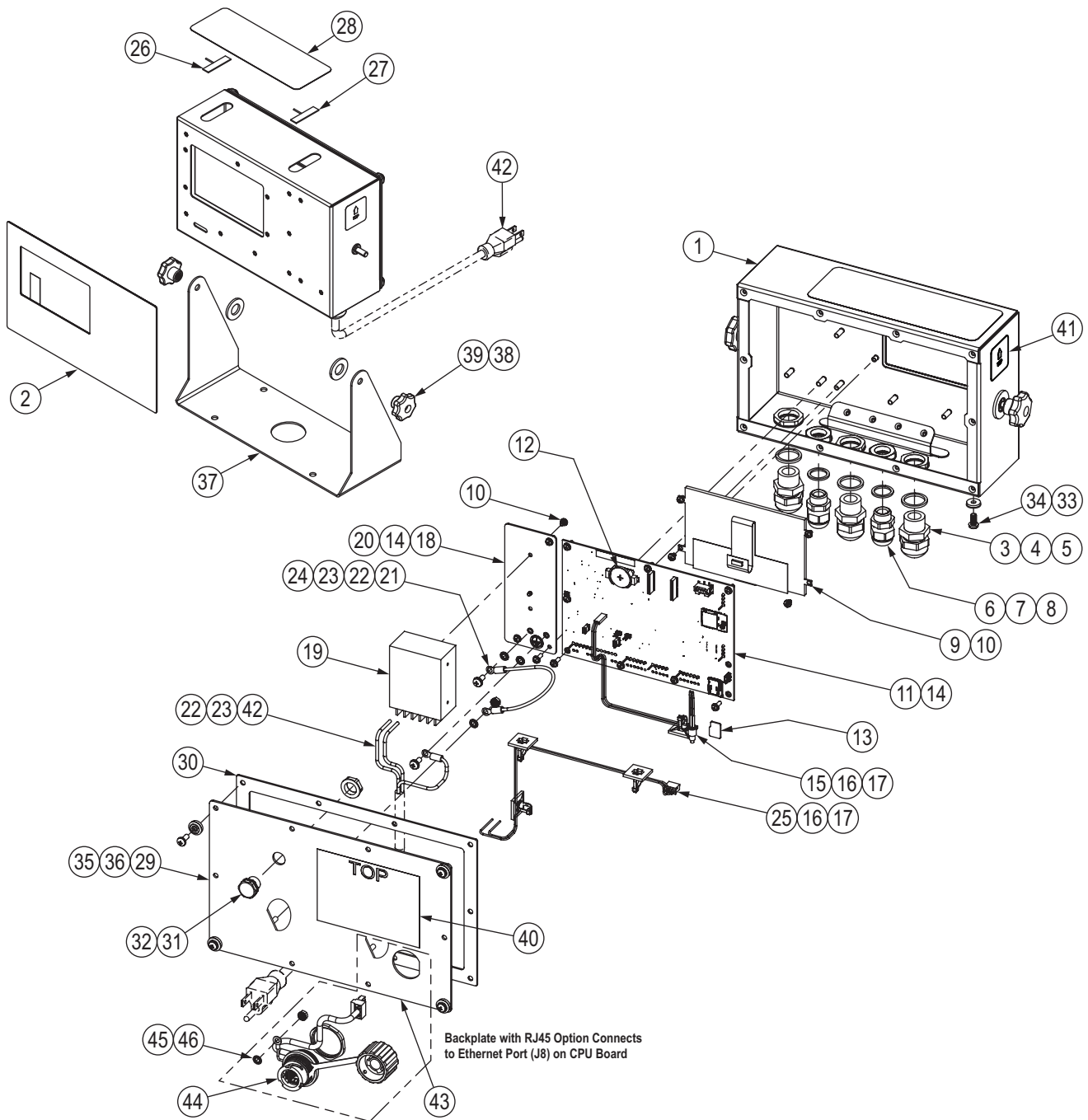


Table 2-15. 682 AC Models Replacement Parts List

| Ref# | Part# | Description |
|--|--------|---|
| 1 | 190231 | Enclosure, 682 Plus indicator LCD display |
| 2 | 190232 | Overlay, 682 Plus membrane switch with numeric keys |
| 3 | 68600 | Cord grip, PG-11 |
| 4 | 68599 | Seal ring, PG-11 |
| 5 | 68601 | Nut, PG-11, Black nylon |
| 6 | 15626 | Cord grip, PG-9, plastic |
| 7 | 30375 | Seal ring, PG-9 nylon |
| 8 | 15627 | Lock nut, PG-9, plastic |
| 9 | 202248 | Display, 5-inch LCD, 500 NIT, 800 X 480 |
| 10 | 199474 | Machine screw M3-0.5 X 5 Phillips head, zinc SEMS with external tooth washer |
| 11 | 211701 | CPU board assembly with battery and memory card installed, ROHS |
| 12 | 71408 | Battery, CR2032 3V lithium |
| 13 | 164939 | Memory, 8G microSDHC Class 4 |
| 14 | 206442 | Machine screw, M3-0.5 x 10 Phillips head, zinc SEMS with external tooth washer |
| 15 | 193108 | Setup switch assembly |
| 16 | 15650 | Mount, cable tie, 3/4 inch |
| 17 | 15631 | Cable tie, 3 inch nylon |
| 18 | 192439 | Bracket, power supply |
| 19 | 193281 | Power supply, 12V, 15W |
| 20 | 16892 | Label, ground protective earth IEC |
| 21 | 15601 | Ground wire, 6 inch w/ no. 8 eye connector |
| 22 | 180856 | Washer, M4 internal tooth |
| 23 | 202140 | Machine screw, M4-0.7 x 10 Phillips head, zinc SEMS with external tooth washer |
| 24 | 180826 | Nut, KEP M4 x 0.7 external tooth lock washer |
| 25 | 193337 | Cable assembly, power harness, 2 position, flying lead |
| 26 | 206509 | Antenna, 2.4/5 GHz strip RF, PCB trace 100 mm cable |
| 27 | 206510 | Antenna, 2.4/5 GHz strip RF, PCB trace 200 mm cable |
| 28 | 207345 | Overlay, 682 antenna cover black |
| 29 | 192562 | Backplate with GORE vent hole |
| 30 | 84388 | Gasket, backplate |
| 31 | 88733 | Vent, breather sealed Gortex membrane |
| 32 | 88734 | Nut, breather vent M12 x 1 thread |
| 33 | 46381 | Washer, bonded sealing SST #10 x 0.50 OD |
| 34 | 180861 | Machine screw, M5 x 0.8 x 10 mm slotted drilled cheese head |
| 35 | 193230 | Machine screw, M4 x 0.7 x 10 Phillips pan head |
| 36 | 75062 | Washer, bonded sealing #8, 7/16 OD |
| 37 | 29635 | Tilt stand, SST |
| 38 | 103988 | Washer, nylon 0.515 - 0.52 |
| 39 | 180825 | Knob, M6 x 1 threaded, 32-mm diameter |
| 40 | 53307 | Label, 4.0 x 2.875 |
| 41 | 53308 | Label, 1.25 x 1.25 8000T |
| 42 | 180842 | Power cord assembly, NEMA 5-15 |
| | 180850 | Power cord assembly, Europe CEE7/7 |
| | 196900 | Power cord assembly, UK plug BS1363, pigtail w/ring terminal |
| | 196901 | Power cord assembly, Australia/New Zealand 3112 plug, pigtail w/ring terminal |
| Additional Parts Specific to 682 Indicator with RJ45 Option | | |
| 43 | 198676 | Backplate with GORE vent hole, RJ45 option <i>NOTE: Replaces 192562 in RJ45 option</i> |
| 44 | 200296 | RJ45 cable assembly, RJ45 bulkhead to four position 3.50 mm spacing connector |
| 45 | 180856 | Washer, M4 internal tooth |
| 46 | 180826 | Nut, KEP M4 x 0.7 external tooth lock washer |

2.9.2 682 DC Models

Figure 2-14. 682 DC Models Replacement Parts Diagram

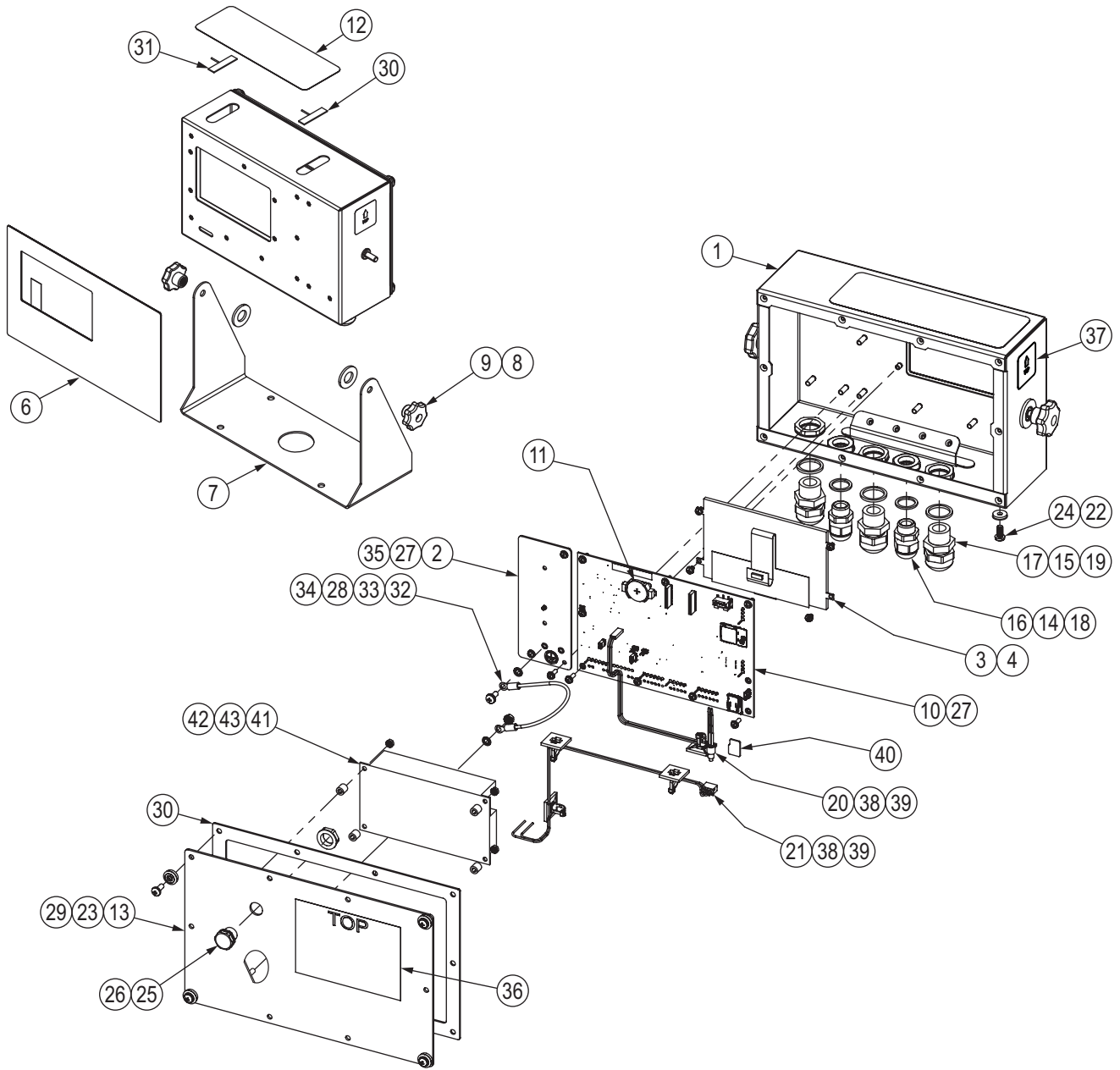


Table 2-16. 682 DC Models Replacement Parts List

| Ref# | Part# | Description |
|------|--------|--|
| 1 | 190231 | Enclosure, 682 Plus indicator LCD display |
| 2 | 192439 | Bracket, power supply |
| 3 | 199474 | Machine screw M3-0.5 X 5 Phillips head, zinc SEMS with external tooth washer |
| 4 | 202248 | Display, 5-inch LCD, 500 NIT, 800 X 480 |
| 5 | 84388 | Gasket, backplate |
| 6 | 190232 | Overlay, 682 Plus membrane switch with numeric keys |
| 7 | 29635 | Tilt stand, SST |
| 8 | 103988 | Washer, nylon 0.515 - 0.52 |
| 9 | 180825 | Knob, M6 x 1 threaded, 32-mm diameter |
| 10 | 211701 | CPU board assembly with battery and memory card installed, ROHS |
| 11 | 71408 | Battery, CR2032 3V lithium |
| 12 | 207345 | Overlay, 682 antenna cover black |
| 13 | 211928 | Backplate, 682 DC with Gore vent hole |
| 14 | 30375 | Seal ring, PG-9 |
| 15 | 68599 | Seal ring, PG-11 |
| 16 | 15626 | Cord grip, PG-9 |
| 17 | 68600 | Cord grip, PG-11 |
| 18 | 15627 | Lock nut, PG-9 |
| 19 | 68601 | Lock nut, PG-11 |
| 20 | 193108 | Setup switch assembly |
| 21 | 193337 | Cable assembly, power harness, 2 position, flying lead |
| 22 | 46381 | Washer, bonded sealing SST #10 x 0.50 OD |
| 23 | 75062 | Washer, bonded sealing #8, 7/16 OD |
| 24 | 180861 | Machine screw, M5 x 0.8 x 10 mm slotted drilled cheese head |
| 25 | 88733 | Vent, breather sealed Gortex membrane |
| 26 | 88734 | Nut, breather vent M12 x 1 thread |
| 27 | 206442 | Machine screw, M3-0.5 x 10 Phillips head, zinc SEMS with external tooth washer |
| 28 | 202140 | Machine screw, M4-0.7 x 10 Phillips head, zinc SEMS with external tooth washer |
| 29 | 193230 | Machine screw, M4 x 0.7 x 10 Phillips pan head |
| 30 | 206510 | Antenna, 2.4/5 GHz strip RF, PCB trace 200 mm cable |
| 31 | 206509 | Antenna, 2.4/5 GHz strip RF, PCB trace 100 mm cable |
| 32 | 15601 | Ground wire, 6 inch w/ no. 8 eye connector |
| 33 | 180856 | Washer, M4 internal tooth |
| 34 | 180826 | Nut, KEP M4 x 0.7 external tooth lock washer |
| 35 | 16892 | Label, ground protective earth IEC |
| 36 | 53307 | Label, 4.0 x 2.875 |
| 37 | 53308 | Label, 1.25 x 1.25 8000T |
| 38 | 15650 | Mount, cable tie, 3/4 inch |
| 39 | 15631 | Cable tie, 3 inch nylon |
| 40 | 164939 | Memory, 8G microSDHC Class 4 |
| 41 | 209417 | Power supply, DC/DC +12V, 9-36VDC input 30 watt |
| 42 | 202064 | Spacer, round nylon M3x0.250 OD x 0.260 |
| 43 | 202061 | Nut, M3x0.5 hex KEP SST |

3.0 Operation

The front panel consists of a full color LCD display with 0.5-in (12.7-mm) tall weight digits. The front panel also includes 24 flat membrane panel, tactile feel buttons, which include six primary scale function buttons, a numeric keypad, five configurable softkeys and a power button. The message area of the display can hold up to three lines of text, which can include process, error or system messages.

3.1 Front Panel

This section provides an example of the 682 front panel and describes all the buttons and their functions.

Figure 3-1. Front Panel Example

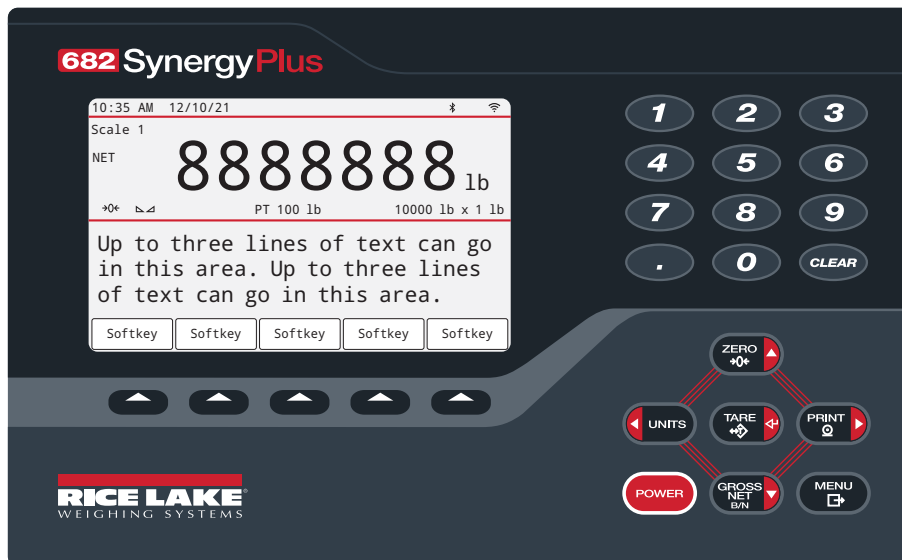




Table 3-1. Front Panel Buttons and Descriptions

| Button | Function |
|--------|--|
| | Turns the unit ON/OFF: If ON, press and hold for eight seconds to turn unit OFF If OFF, press and hold for two seconds to turn unit ON |
| | The Menu button is used to access <i>User mode</i> . See Section 4.1.1 on page 29 for more information on setting up the Menu button to access <i>Setup mode</i> parameters. |
| | Sets the current gross weight to zero, provided the amount of weight to be removed or added is within the specified zero range and the scale is not in motion. The zero band is defaulted to 1.9% of full scale, but can be configured for up to 100% of full scale. Also used as the up button to navigate menus. |
| | Switches the weight display to an alternate unit. The alternate unit is defined in the Configuration menu, and could be kg, g, lb, oz, tn or t. Also used as the left button to navigate menus or to toggle to another digit when editing a value. |
| | Sends on-demand print format out the configured port, provided the conditions for standstill are met. RS232-1 is the default print port. Also used as the right button to navigate menus or to toggle to another digit when editing a value. |
| | Performs one of several predetermined tare functions dependent on the mode of operation selected in the TARE FN parameter. Also acts as an enter button for numeric or parameter entry. |
| | Switches the display mode from gross to net, or from net to gross. If a tare value has been entered or acquired, the net value is the gross weight minus the tare. Used as the down button to navigate menus. |
| | Clears current value in a numeric entry or clears the currently selected digit in an alphanumeric entry. |
| | Configurable softkeys that can be set to perform a variety of functions. See Section 3.4.19 on page 27 to configure softkeys. Also used to select the bottom row of keyboard options located above the softkeys. |

3.2 Status Annunciators









The 682 display uses status annunciators to provide additional information about the value being displayed.

Table 3-2. Display Status Annunciators

| Item | Description |
|---|--|
| GROSS | Gross displays at the left side of the numeric weight area when indicator is in gross weight display mode. |
| NET | Net displays at the left side of the numeric weight area when indicator is in net weight display mode. |
| →0← | The center of zero annunciator indicates the current gross weight reading is within ± 0.25 display divisions of the acquired zero, or is within the center of zero band. A display division is the resolution of the displayed weight value, or the smallest incremental increase or decrease which can be displayed or printed. |
| ▴ ▾ | The standstill annunciator indicates the scale is at standstill or within the specified motion band. Some operations, including zero, tare and print, can only be done when the standstill annunciator is displayed. |
| Units | The current unit displays at the right side of the numeric weight area and specifies which unit of measure is being used. |
| T | Tare (T) annunciator indicates a push-button tare weight has been acquired and stored in memory. |
| PT | Preset Tare (PT) annunciator indicates a preset tare weight has been keyed in or entered and stored in memory. |
|  | Wi-Fi annunciator displays at the top right of the display when the Enabled parameter in the WiFi & Bluetooth menu (Section 4.5.4.4 on page 40) is set to WiFi or Both. |
|  | Bluetooth® annunciator displays at the top right of the display when the Enabled parameter in the WiFi & Bluetooth menu (Section 4.5.4.4 on page 40) is set to Bluetooth or Both. |

3.3 General Navigation






The front panel scale function buttons are also used to navigate through the menu structure.



-  and  move left and right (horizontally) in a menu level
-  and  move up and down to different menu levels
-  enters a menu or parameter and selects/saves highlighted parameter settings or values
-  exits a parameter and selects/saves highlighted parameter settings or values
-  to access *User* mode, to leave a parameter without making changes, or to return to *Weigh* mode
- Use the numeric keypad to enter a value and press  to accept the value ([Section 3.3.1](#))

3.3.1 Numeric Value Entry

Several parameters in the menu structure require the entry of a numeric value rather than the making of a selection.

Follow this procedure to enter a numeric value:

1. Press  or  to enter into a parameter. The current parameter value displays.
2. Press  to clear the current value.
3. Use the numeric keypad to enter a new value.
4. If necessary, press  to toggle the value between negative and positive.
5. Press  to save the new value. The next parameter in the menu displays.

 **NOTE:** Pressing  also saves the new value, but the indicator returns up to the current parameter, rather than to the next parameter in the menu.

3.3.2 Alphanumeric Entry

Several parameters in the menu structure require the entry of an alphanumeric value rather than the making of a selection. When these parameters are entered a full keyboard appears on the display. The front panel scale function buttons are used to navigate the keyboard and select alphanumeric options. The softkeys are used to interact with keyboard options.
















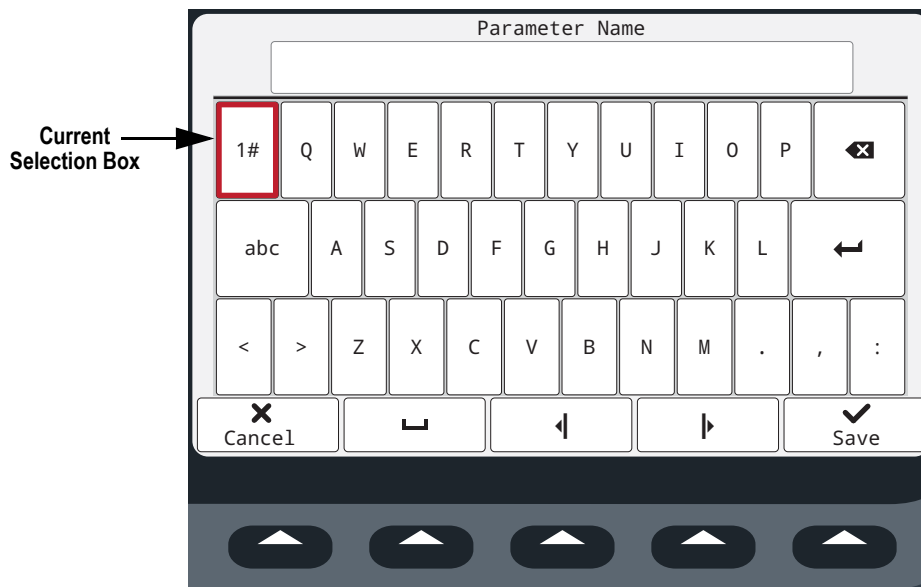
-  and  move left and right (horizontally) on the keyboard
-  and  move up and down (vertically) on the keyboard
-  selects the keyboard option that is highlighted and adds it to the alphanumeric string at the top of the display
 - 1# – Changes keyboard view to numbers and special characters
 - abc/ABC – Capitalize or lowercase keyboard letters; also switches keyboard view from numbers back to letters
 -  – Deletes individual digit in the alphanumeric string
 -  – Return key is not used for the 682
-  selects the keyboard option located above the softkey
 -  **Cancel** – Exits back to menu without saving changes
 -  **Save** – Save changes and exits back to menu
 -  and  – Moves cursor left and right within the alphanumeric string
 -  – Inserts a space into the alphanumeric string
-  deletes the entire alphanumeric string
-  leaves the parameter without saving the changes



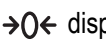
Figure 3-2. Full Keyboard



3.4 General Indicator Operation

This section provides procedures for basic 682 operations.



3.4.1 Zero Scale




1. In Gross mode, remove all weight from the scale and wait for  to display.
2. Press ,  displays to indicate the scale is zeroed.




NOTE: The scale must be stable and within the configured zero range for the scale to be zeroed.

3.4.2 Print Ticket

1. Wait for  to display.
2. Press  to send data to the configured port(s). The default print destination is RS-232 Port 1.


If  does not display and  is pressed, the print action only occurs if the scale comes out of motion within three seconds. If the scale stays in motion for over three seconds, the  press is ignored.

3.4.3 Toggle Units



Press  to toggle between primary, secondary and tertiary units, if configured. The current unit displays.

3.4.4 Toggle Gross/Net Mode

NET mode is available when a tare value has been entered or acquired (Net = Gross minus Tare). If tare has not been entered or acquired, the display remains in GROSS mode. GROSS or NET is indicated on the left side of the display to indicate the current mode. If a tare has been applied, the current tare weight displays in the lower middle of the weight display area.

Press  to toggle the display mode between GROSS mode and NET mode.


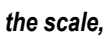
3.4.5 Acquire Tare


1. Place a container on the scale and wait for  to display.
2. Press  to acquire the tare weight of the container. The net weight displays and the Net is indicated on the left side of the display. A "T" displays in the lower middle of the weight display area, followed by the current Tare weight.

3.4.6 Remove Stored Tare Value

1. Remove all weight from the scale and wait for  to display. The display reads the negative tare value and  displays.




NOTE: Press  to zero the scale, if  is not displayed.

2. Press  (or  in OIML mode). Display changes to gross weight and Gross is indicated on the display.

3.4.7 Preset Tare (Keyed Tare)







Tare Function (Section 4.5.1 on page 32) must be set to Keyed Tare or Both for the preset tare feature to function.

1. Remove all weight from the scale and wait for $\nabla \triangleleft$ and $\rightarrow 0 \leftarrow$ to display.
2. With the scale displaying zero weight, use the numeric keypad to enter the tare weight value and press .
3. The display changes to net weight and Net is indicated on the display. A “PT” displays in the lower middle of the weight display area, followed by the current Preset Tare weight.



NOTE: Press  again while $\nabla \triangleleft$ displays, or enter a keyed tare of zero to remove the preset tare value.









3.4.8 Display a Stored Tare

1. Press . Audit displays.
2. Press  or  until Tare displays.
3. Press . Display Tare displays.
4. Press . The stored tare value displays.
5. Press  twice to return to Weigh mode.











NOTE: If there is not a tare in the system, the value displayed is zero.

3.4.9 Clear a Stored Tare





1. Press . Audit displays.
2. Press  or  until Tare displays.
3. Press . Display Tare displays.
4. Press . Clear Tare displays.
5. Press  or  to clear the stored tare value. OK displays.
6. Press  twice to return to Weigh mode.

3.4.10 View Audit Trail Counters









The audit trail calibration and configuration counters can be viewed in *User* mode.

1. Press . Audit displays.
2. Press . Legally Relevant Version displays.
3. Press . Calibration Counter displays.
4. Press . The audit trail calibration counter number displays.
5. Press . Calibration Counter displays.
6. Press . Configuration Counter displays.
7. Press . The audit trail configuration counter number displays.
8. Press  twice to return to Weigh mode.











3.4.11 View Legally Relevant Version

1. Press . Audit displays.
2. Press . Legally Relevant Version displays.
3. Press . The current version number displays.
4. Press  twice to return to *Weigh* mode.











3.4.12 Display Accumulator

1. Press . Audit displays.
2. Press . User Menu displays.
3. Press . Calibration displays.
4. Press  or  until Accumulator displays.
5. Press . Display Accumulator displays.
6. Press . The accumulator value displays.
7. Press  twice to return to *Weigh* mode.

3.4.13 Print Accumulator

1. Press . Audit displays.
2. Press . User Menu displays.
3. Press . Calibration displays.
4. Press  or  until Accumulator displays.
5. Press . Display Accumulator displays.
6. Press . Print Accumulator displays.
7. Press  or  to print the accumulator value. OK displays.
8. Press  twice to return to *Weigh* mode.

3.4.14 Clear Accumulator

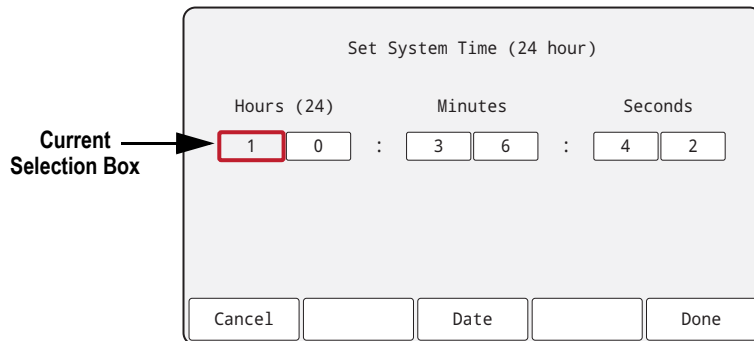
1. Press . Audit displays.
2. Press . User Menu displays.
3. Press . Calibration displays.
4. Press  or  until Accumulator displays.
5. Press . Display Accumulator displays.
6. Press . Clear Accumulator displays.
7. Press  or  to clear the accumulator value. OK displays.
8. Press  twice to return to *Weigh* mode.

3.4.15 View and Edit Time Value

To view and edit the current time:

1. Press . Audit displays.
2. Press . User Menu displays.
3. Press . Calibration displays.
4. Press or until Time displays.
5. Press to view the current set time.

Figure 3-3. Set System Time



6. To edit the time value use the following method:
 - and to move left and right through the time settings
 - and to edit the currently highlighted time setting number
 - Use available softkeys:
 - **Cancel** – Exit without saving
 - **Date** – Switch to view date value
 - **Done** – Save and exit time value
7. Once back to the menu, press to return to *Weigh* mode.



NOTE: Time is backed up by the internal battery and is not lost if the main power is interrupted. See [Section 4.5.5 on page 42](#) for time formatting options.

3.4.16 View and Edit Date Value

To view and edit the current date:







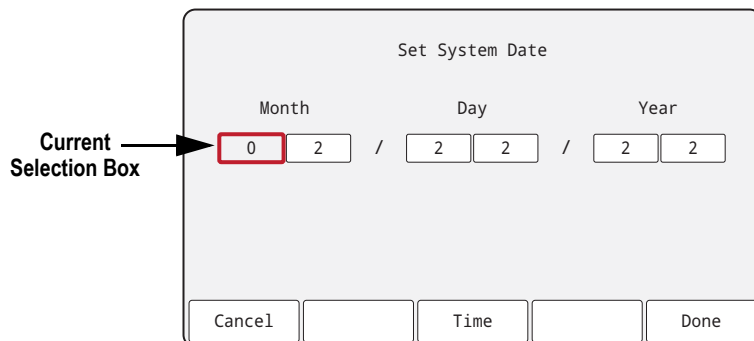





1. Press . Audit displays.
2. Press . User Menu displays.
3. Press . Calibration displays.
4. Press  or  until Date displays.
5. Press  to view the current set date.

Figure 3-4. Set System Date













6. To edit the date value use the following method:
 -  and  to move left and right through the date settings
 -  and  to edit the currently highlighted date setting number
 - Use available softkeys:
 - Cancel – Exit without saving
 - Time – Switch to view time value
 - Done – Save and exit date value
7. Once back to the menu, press  to return to *Weigh* mode.



NOTE: Date is backed up by the internal battery and is not lost if the main power is interrupted. See [Section 4.5.5 on page 42](#) for date formatting options.








3.4.17 Ethernet, Wi-Fi and Bluetooth® MAC IDs

The Ethernet MAC ID, Wi-Fi MAC ID and Bluetooth® MAC ID can be viewed through the top-level menu (Section 4.2 on page 30). MAC addresses display in the following format: 88 : 88 : 88 : 88 : 88 : 88.

1. Press . Audit displays.
2. Press  or  until MAC ID displays.
3. Press . Ethernet MAC ID displays.
4. Press  to view the Ethernet MAC ID.
5. Press . WiFi MAC ID displays.
6. Press  to view the Wi-Fi MAC ID.
7. Press . Bluetooth MAC ID displays.
8. Press  to view the Bluetooth® MAC ID.
9. Press  twice to return to *Weigh* mode.



3.4.18 View Configured Setpoint Values

See Section 14.0 on page 99 more information.

1. Press . Audit displays.
2. Press . User Menu displays.
3. Press . Calibration displays.
4. Press . Setpoint displays.
5. Press . The lowest configured setpoint number displays (e.g. Setpoint 1).
6. Press  or  to navigate to the desired setpoint number (1-8).






NOTE: Only configured setpoint numbers display. See Section 4.5.8 on page 48 for the complete setpoint menu.

7. Press . Value displays.
8. Press  again to view the current configured setpoint value.












NOTE: Displayed setpoints are editable by default, since Access defaults to On. Change Access settings if Setpoint value needs to be read only (Access = Off) or hidden (Access = Hidden).

9. To edit the setpoint value use the following method:
 - Press  to clear the current value
 - Use the numeric keypad to enter the new value
 - Press  to accept the new value once correct
10. Press  to return to *Weigh* mode.


3.4.19 Configure Softkeys

Up to 15 softkeys can be set to perform a variety of functions (Section 4.5.11 on page 53). Configuring softkeys requires access to *Setup* mode (Section 4.1 on page 29).

1. Navigate to the Configuration menu within the Setup menu. Configuration displays.
2. Press  or  until Softkey displays.
3. Press . Softkey 1 displays.
4. Press  or  to navigate to the desired softkey number (1-15).
5. Press . The current softkey setting is highlighted.
6. Press  or  to navigate to the desired softkey setting, if necessary.
7. Press  to accept the highlighted softkey setting.
8. Repeat steps for all needed softkeys.



NOTE: If 6 or more softkeys are enabled, left and right arrows appear in the outside softkey locations to allow navigation between available softkeys.

9. Press  to return to *Weigh* mode.

3.4.20 Alibi Storage

Alibi storage is a database of past print transactions listed by date. It allows previous print transactions to be recalled and reprinted. Alibi storage is enabled in the Program menu (Section 4.5.5 on page 42) while the indicator is in *Setup* mode. Print transactions can be viewed from the front panel of the 682 by configuring a softkey (Section 3.4.19) to Alibi. Pressing the Alibi softkey displays the Alibi Storage screen.

Alibi storage is saved in the board's flash memory (no external memory is required) and data is validated with a cyclic redundancy check (CRC). There is space for 128 KB of data or 2000 print transactions. If the space limit is hit, the first 4 KB of print transactions are deleted to free up space.

Figure 3-5. Alibi Storage Screen

| Alibi Storage | | | | |
|---------------|---|----------------------|-------|---------|
| 0 | : | 02:23 PM 03/24/22 | GROSS | 1015 lb |
| 1 | : | 08:37 AM 03/26/22 | GROSS | 3210 lb |
| 2 | : | 12:46 PM 03/28/22 | GROSS | 4535 lb |
| 3 | : | 10:12 AM 04/01/22 | GROSS | 980 lb |
| 4 | : | 03:21 PM 04/01/22 | GROSS | 2255 lb |

Current Selection Box →







| | | | | |
|---------|-----------|---------|--------------|--------|
| Page Up | Page Down | Reprint | Purge Oldest | Cancel |
|---------|-----------|---------|--------------|--------|

Alibi Storage Softkeys

- Page Up – Returns to the previous five print transactions
- Page Down – Advances to the next five print transactions
- Reprint – Prints the selected print transaction
- Purge Oldest – Deletes the oldest 4 KB of print transactions
- Cancel – Exits the Alibi Storage screen and returns to *Weigh* mode

3.4.21 Enter New Unit ID











Entering a new Unit ID requires access to *Setup* mode ([Section 4.1 on page 29](#)).

1. Navigate to the Configuration menu within the Setup menu. Configuration displays.
2. Press  or  until Program displays.
3. Press . Power Up Mode displays.
4. Press  or  until Unit ID displays.
5. Press . The current unit ID value displays with the on-screen keyboard.
6. Edit the value using the alphanumeric entry procedure ([Section 3.3.2 on page 20](#)).
7. Press **✕ Cancel** softkey to exit without saving.
- Or -
Press **✓ Save** softkey to save and exit when the value is correct.

Once back to the menu, press  to return to *Weigh* mode.







3.4.22 Passwords

The User and Setup menus and can be password protected. See [Section 1.3 on page 2](#) for a description of the *User* and *Setup* modes and what menus are included in each. Use the follow procedure to configure passwords:

1. Navigate to the Configuration menu within the Setup menu. Configuration displays.
2. Press  or  until Program displays.
3. Press . Power Up Mode displays.
4. Press  or  until Password displays.
5. Press . User displays.
6. Press  or  to navigate to the desired password.
7. Press . The current password displays with the on-screen keyboard.
8. Edit the value using the alphanumeric entry procedure ([Section 3.3.2 on page 20](#)).
9. Press **✕ Cancel** softkey to exit without saving.
- Or -
Press **✓ Save** softkey to save and exit when the value is correct.
10. Once back to the menu, press  to return to *Weigh* mode.

3.4.23 Reset Configuration

Defaulting the 682 configuration requires access to *Setup* mode ([Section 4.1 on page 29](#)).

1. Navigate to the Configuration menu within the Setup menu. Configuration displays.
2. Press . Default Configuration displays.
3. Press . No displays.
4. Press . Yes displays.
5. Press  or  to reset the configuration setting. OK displays.
6. Press  twice to return to *Weigh* mode.

4.0 Configuration


There are two types of configuration parameters in the 682, *Setup* mode parameters (or Legal for Trade configuration) and *User* mode parameters (or non-legal configuration). *Setup* mode parameters are accessed by pressing the setup switch ([Section 4.1](#)). *User* mode parameters are accessed by pressing the menu button and do not require pressing the setup switch. Some *User* mode parameters can be password protected ([Section 3.4.22 on page 28](#)).

The following sections provide graphic representations of the 682 menu structures. Most menu diagrams are accompanied by a table which describes all parameters and parameter values associated with the menu. The factory default setting appears at the top of each column in bold type.

The Audit, Calibration, Setpoints, Accumulator, Tare, Time, Date, MAC ID, Fieldbus Version and Version menus can be accessed by pressing the MENU button. The Audit, Tare, MAC ID, Fieldbus Version and Version menus are read only and accessible in the top-level menu. The Calibration, Setpoints, Accumulator, Time and Date menus are available in the User menu and can be password protected ([Section 3.4.22 on page 28](#)).

 **NOTE:** The *User* mode setpoints menu displays the setpoint value of configured setpoints and is accessible with the menu button. Complete configuration of setpoints is available in *Setup* mode within the *Setup* menu.

The Setup menu is accessed by pressing the setup switch ([Section 4.1](#)) and can also be password protected.

 **NOTE:** All weight related parameters must be configured prior to calibrating the unit.

4.1 Setup Switch

In order to configure the 682, it must be placed in *Setup* mode with the setup switch or with the audit jumper ([Section 4.1.1](#)). The setup switch is accessed through a small hole on the bottom of the enclosure. Remove the setup switch screw and insert a non-conductive tool into the access hole to press the setup switch.


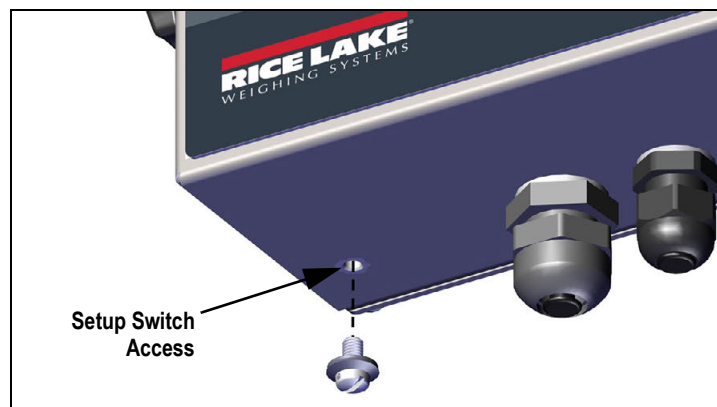
 **IMPORTANT:** Use caution when inserting the non-conductive tool into the enclosure. Insert the tool about 3/4 in (19 mm), until the switch is engaged. Do not use excessive force which could damage the switch.


Figure 4-1. Setup Switch Access



When the 682 is placed in *Setup* mode, the Setup menu is accessed and Configuration displays. See [Section 4.5 on page 32](#) for a detailed breakdown of this menu. Torque the setup switch screw to 10 in-lb (1.1 N-m) when reinserting.

4.1.1 Audit Jumper

The audit jumper (J24) turns *Setup* mode access ON and OFF. Access to *Setup* mode is allowed without pressing the setup switch when the audit jumper is in the ON position. Access to *Setup* mode requires pressing the setup switch when the audit jumper is in the OFF position. See [Section 2.5 on page 11](#) for the location of the audit jumper on the CPU board.

 **NOTE:** In certain Legal for Trade applications it is necessary to seal the indicator to restrict access to the setup switch ([Section 2.7 on page 12](#)). Breaking of the seal terminates the Legal for Trade status of the indicator.

4.2 Main Menu

This section provides a flow chart and descriptions for the 682 top-level Main menu.

Figure 4-2. Main Menu

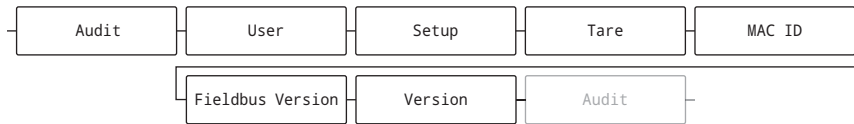


Table 4-1. Main Menu Descriptions

| Menu | Description |
|------------------|---|
| Audit | Displays the legally relevant firmware version and allows access to view/print audit trail information; see Section 4.3 |
| User | See Section 4.4 on page 31 for menu structure and parameter descriptions of the User menu |
| Setup | See Section 4.5 on page 32 for menu structure and parameter descriptions of the Setup menu; only accessible when in <i>Setup</i> mode by pressing the setup switch or if the audit jumper is in the ON position |
| Tare | Displays and clears stored tare value; see Section 4.6 on page 53 |
| MAC ID | Displays the MAC addresses for Ethernet, Wi-Fi and Bluetooth® (read only) |
| Fieldbus Version | Displays the installed Fieldbus card's firmware version (read only); displays V0.00.00 if no Fieldbus card is installed |
| Version | Displays the installed firmware version number (read only) |

4.3 Audit Menu

This section provides a flow chart and descriptions for the Audit menu.

Figure 4-3. Audit Menu

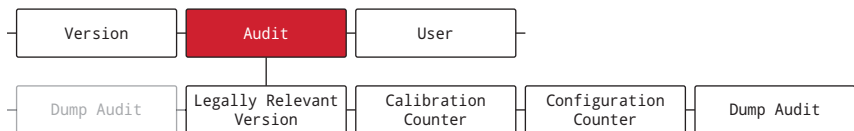


Table 4-2. Audit Menu Descriptions

| Parameter | Description |
|--------------------------|---|
| Legally Relevant Version | Legally relevant firmware version number (read only) |
| Calibration Counter | Displays total number of calibration events (read only) |
| Configuration Counter | Displays total number of configuration events (read only) |
| Dump Audit | Sends the audit parameters to the configured audit destination ports (Section 4.5.6 on page 45) |

4.4 User Menu

This section provides a flow chart and descriptions for the User menu. The User menu and can be password protected. See [Section 3.4.22 on page 28](#) for the procedure to set a User menu password.

Figure 4-4. User Menu

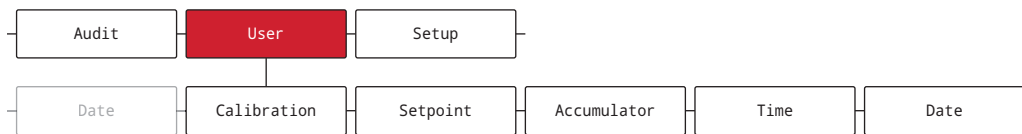


Table 4-3. User Menu Descriptions

| Parameter | Description |
|-------------|--|
| Calibration | See Section 4.5.3 on page 35 for menu structure and parameter descriptions of the Calibration menu |
| Setpoint | Displays the setpoint value of configured setpoints; Read only unless access parameter for the setpoint is set to ON; menu is empty if no setpoints are configured; setpoints are fully configurable in the setup menu while the indicator is in <i>Setup</i> mode |
| Accumulator | Displays, prints and clears accumulated weight value; see Section 4.4.1 |
| Time | Displays the current set time; allows the time to be edited (24-hour) using the navigation keys and softkeys; see Section 3.4.15 on page 24 for editing procedure |
| Date | Displays the current set date; allows the date to be edited using the navigation keys and softkeys; see Section 3.4.16 on page 25 for editing procedure |

4.4.1 Accumulator Menu

This section provides a flow chart and descriptions for the Accumulator menu.

Figure 4-5. Accumulator Menu

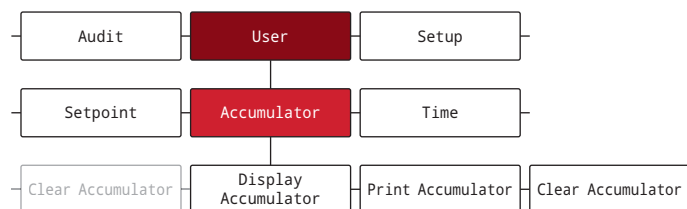


Table 4-4. Accumulator Menu Parameters

| Parameter | Description |
|---------------------|--|
| Display Accumulator | Displays the accumulator value (read only) |
| Print Accumulator | Prints the accumulator value to specified port, if setup |
| Clear Accumulator | Clears the accumulator value |

4.5 Setup Menu

This section provides a flow chart and descriptions for the Setup menu. The Setup menu can be password protected. See [Section 3.4.22 on page 28](#) for the procedure to set a Setup menu password.

Figure 4-6. Setup Menu

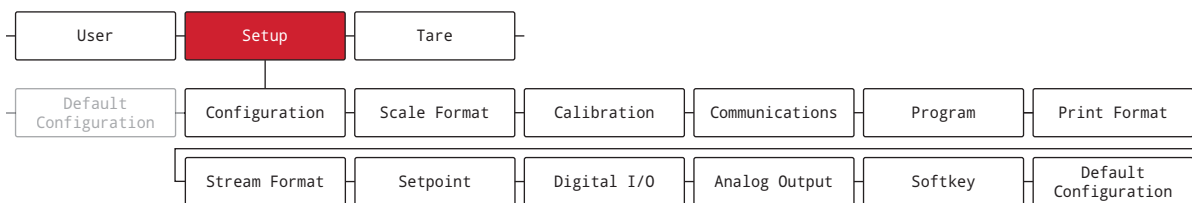


Table 4-5. Setup Menu Descriptions

| Menu | Description |
|-----------------------|---|
| Configuration | See Section 4.5.1 for menu structure and parameter descriptions of the Configuration menu |
| Scale Format | See Section 4.5.2 on page 34 for menu structure and parameter descriptions of the Scale Format menu |
| Calibration | See Section 4.5.3 on page 35 for menu structure and parameter descriptions of the Calibration menu |
| Communications | See Section 4.5.4 on page 36 for menu structure and parameter descriptions of the Communications menu |
| Program | See Section 4.5.5 on page 42 for menu structure and parameter descriptions of the Program menu |
| Print Format | See Section 4.5.6 on page 45 for menu structure and parameter descriptions of the Print Format menu |
| Stream Format | See Section 4.5.7 on page 47 for menu structure and parameter descriptions of the Stream Format menu |
| Setpoint | See Section 4.5.8 on page 48 for menu structure and parameter descriptions of the Setpoint menu |
| Digital I/O | See Section 4.5.9 on page 52 for menu structure and parameter descriptions of the Digital I/O menu |
| Analog Output | See Section 4.5.10 on page 52 for menu structure and parameter descriptions of the Analog Output menu |
| Softkey | See Section 4.5.11 on page 53 for menu structure and parameter descriptions of the Softkey menu |
| Default Configuration | See Section 3.4.23 on page 28 for instructions to reset the configuration settings |

4.5.1 Configuration Menu

This section provides a flow chart and descriptions for the Configuration menu.

Figure 4-7. Configuration Menu

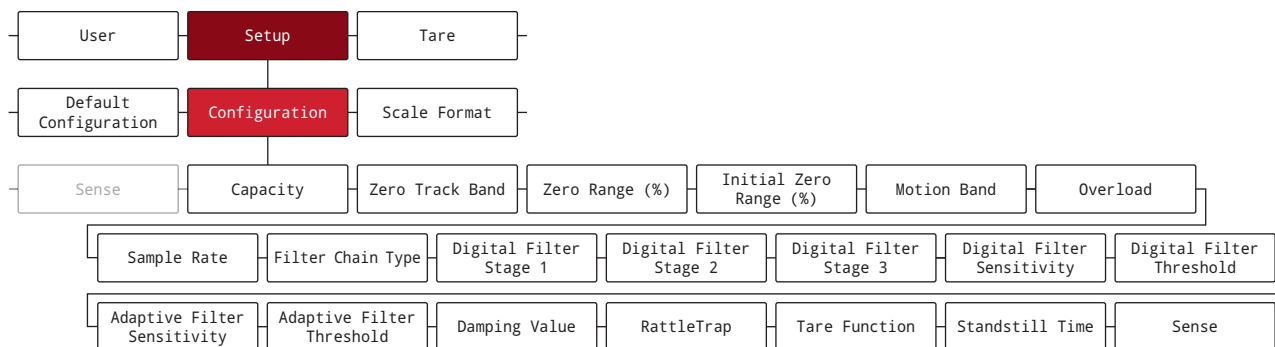


Table 4-6. Configuration Menu Descriptions

| Menu | Description |
|-----------------|--|
| Capacity | Maximum rated capacity of the scale; <i>Enter value: 0.0000001–9999999.0, 10000.0 (default)</i> |
| Zero Track Band | Automatically zeros the scale when within the range specified, as long as the input is within the Zero Range (%) and scale is at standstill; When weight is within the zero band, the center of zero annunciator displays; Max legal value depends on local regulations; Specify the zero tracking band in \pm display divisions; <i>Enter value: 0.0–100.0, 0.0 (default)</i> |

Table 4-6. Configuration Menu Descriptions (Continued)

| Menu | Description |
|-----------------------------|--|
| Zero Range (%) | The total amount the scale can be zeroed; Zero range represents a percentage of capacity; The default value of 1.9 represents $\pm 1.9\%$ around the calibrated zero point, for a total range of 3.8%; A value of 0.0 prevents zeroing; Maximum legal value depends on local regulations; <i>Enter value: 0.0–100.0, 1.9 (default)</i> |
| Initial Zero Range (%) | When the indicator is turned on and the weight value is between the \pm percent range specified by Calibrated Zero, the indicator automatically zeros off the weight; <i>Enter value: 0.0–100.0, 0.0 (default)</i> |
| Motion Band | Sets the level, in display divisions, at which scale motion is detected; If motion is not detected for the time defined by Standstill Time, the standstill symbol lights; Some operations, including print, tare and zero, require the scale to be at standstill; Maximum legal value varies depending on local regulations; If this parameter is set to 0, the standstill annunciator is always lit and operations requiring standstill are performed regardless of scale motion; If 0 is selected, Zero Track Band must also be set to 0; <i>Enter value: 0–100, 1 (default)</i> |
| Overload | Determines the point at which the display blanks and the overload error message displays (^^^^^^); Maximum legal value varies depending on local regulations; <i>Settings: Full Scale + 2% (default), Full Scale + 1D, Full Scale + 9D, Full Scale</i> |
| Sample Rate | Selects measurement rate, in samples per second, of the analog-to-digital converter; Lower sample rate values provide greater signal noise immunity; <i>Settings: 6.25HZ, 7.5HZ, 12.5HZ, 15HZ, 25HZ, 30HZ (default), 50HZ, 60HZ, 100HZ, 120HZ</i> |
| Filter Chain Type | Sets the filter type to be used; <i>Settings:</i> Average Only (default) – Digital Rolling Average Filter (Section 16.7.1 on page 114); Uses Digital Filter Stage 1-3, Digital Filter Sensitivity and Digital Filter Threshold Adaptive Only – Adaptive Filter (Section 16.7.2 on page 115); Uses Adaptive Filter Sensitivity and Adaptive Filter Threshold Damping Only – Damping Filter (Section 16.7.3 on page 115); Uses Damping Value Raw – No filtering |
| Digital Filter Stage 1-3 | Sets the digital filtering rate used to reduce the effects of environmental influences from the immediate area of the scale; <i>Settings indicate the number of A/D conversions per update which are averaged to obtain the displayed reading; a higher number gives a more accurate display by minimizing the effect of a few noisy readings, but slows down the response time of the indicator; Settings: 1, 2, 4 (default), 8, 16, 32, 64, 128, 256</i> |
| Digital Filter Sensitivity | Specifies the number of consecutive A/D readings which fall outside the Filter Threshold before filtering is suspended; <i>Settings: 2OUT (default), 4OUT, 8OUT, 16OUT, 32OUT, 64OUT, 128OUT</i> |
| Digital Filter Threshold | Sets a threshold value, in display divisions; when a number of consecutive A/D readings (Digital Filter Sensitivity) falls outside of this threshold value (when compared to the output of the filter), filtering is suspended and the A/D value is sent straight through the filter; Filtering is not suspended if the threshold is set to NONE; <i>Settings: NONE (default), 2D, 5D, 10D, 20D, 50D, 100D, 200D, 250D</i> |
| Adaptive Filter Sensitivity | Controls the stability and response time of the scale; <i>Settings:</i> Light (default) – Fastest response to small weight changes, but less stable Medium – Has a quicker response time than heavy, but more stable than light Heavy – Results in an output which is more stable but settles slowly; small changes in weight data (a few grads) on the scale base are not seen quickly |
| Adaptive Filter Threshold | Sets the adaptive filter weight threshold value (in display divisions); a weight change exceeding the threshold resets the filtered values; must be set above the noise disturbances in the system (if set to zero, the filter is disabled); <i>Enter value: 0–2000, 10 (default)</i> |
| Damping Value | Sets the damping time constant (in 0.1 sec intervals); <i>Enter value: 0–2560, 10 (default)</i> |
| RattleTrap | Enables RattleTrap filtering; Effective at eliminating vibration effects, environmental influences and mechanical interference from nearby machinery, may increase response time over standard digital filtering; <i>Settings: Off (default), On</i> |
| Tare Function | Enables or disables push-button and keyed tare; <i>Settings:</i> Both (default) – Both push button and keyed tares are enabled No Tare – No tare allowed (gross mode only) Push Button Tare – Push button tares enabled Keyed Tare – Keyed tares enabled |
| Standstill Time | Specifies the length of time the scale must be out of motion, before the scale is considered to be at standstill (in 0.1 sec intervals); <i>Enter value: 0–600, 10 (default)</i> |
| Sense | Specifies the type of load cell cable connected to the J1 connector (Section 2.4.5 on page 8); this parameter must be set correctly to match the actual load cell cable connection to ensure the load cell functions properly with the indicator; <i>Settings: 4-WIRE (default), 6-WIRE</i> |

4.5.2 Scale Format Menu

This section provides a flow chart and descriptions for the Scale Format menu.

Figure 4-8. Scale Format Menu

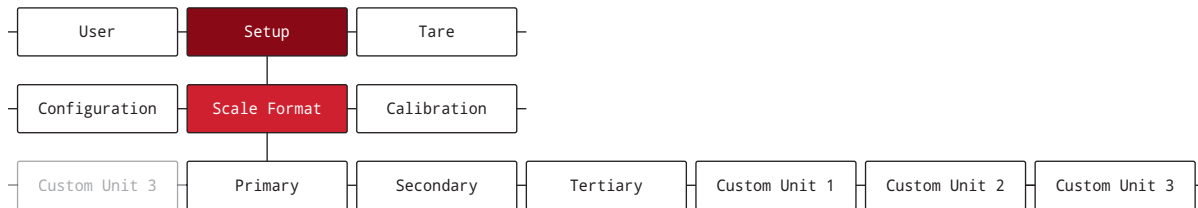


Table 4-7. Scale Format Menu Parameters

| Parameter | Description |
|------------------------|---|
| Primary | <p>Scale format and units settings for the Primary format; Sub-Parameters:</p> <p>Format – Sets the decimal point and the display divisions for the Primary display weight format; <i>Settings: 8888881 (Primary default), 8888882, 8888885, 8888810, 8888820, 8888850, 8888100, 8888200, 8888500, 8888881, 88.88882, 88.88885, 888.8881, 888.8882, 888.8885, 8888.881, 8888.882, 8888.885, 88888.81, 88888.82, 88888.85, 88888.1, 88888.2, 88888.5</i></p> <p>For example, select 8888.885 if a count by of 0.005 is needed or select 8888820 if a count by of 20 is needed (the 8s serve as placeholders and show a breakdown of how digits will display);</p> <p>Units – Sets the units type; <i>Settings: LB (Primary default), KG, OZ, TN, T, G, NONE</i></p> <p>Split Mode – See Section 5.0 on page 54 for more information; Only displays under Primary; <i>Settings: Off (default), Multi-Range, Multi-Interval</i></p> |
| Secondary and Tertiary | <p>Scale format and units settings for the Secondary and Tertiary format; Sub-Parameters:</p> <p>Format – Sets the decimal point and the display divisions for the Secondary and Tertiary display weight format; <i>Settings: 8888881, 8888882, 8888885, 8888810, 8888820, 8888850, 8888100, 8888200, 8888500, 88.88881, 88.88882, 88.88885, 888.8881, 888.8882, 888.8885, 8888.881, 8888.882, 8888.885, 88888.81, 88888.82, 88888.85, 88888.1, 88888.2, 88888.5 (Secondary and Tertiary default)</i></p> <p>For example, select 8888.885 if a count by of 0.005 is needed or select 8888820 if a count by of 20 is needed (the 8s serve as placeholders and show a breakdown of how digits will display);</p> <p>Units – Sets the units type; <i>Settings: LB, KG (Secondary and Tertiary default), OZ, TN, T, G, NONE</i></p> <p>Enabled – Enables the front panel UNITS button to toggle between the Primary, Secondary and Tertiary formats; Only displays under Secondary and Tertiary; <i>Settings: ON (Secondary default), OFF (Tertiary default)</i></p> |
| Custom Unit 1-3 | <p>Available custom units that can be set as the Secondary and Tertiary units to convert weight of the Primary unit; Sub-Parameters:</p> <p>Label – Available to enter a name for custom units; maximum length is 2 alphanumeric characters; blank by default</p> <p>Multiplier – Conversion factor/multiplier applied to the primary units to convert weight for custom units; 1.0 (default) <i>For example, to configure a custom unit to gallons (with primary units set to lb), set the custom unit multiplier to 8</i></p> |

4.5.3 Calibration Menu

This section provides a flow chart and descriptions for the Calibration menu.

Figure 4-9. Calibration Menu

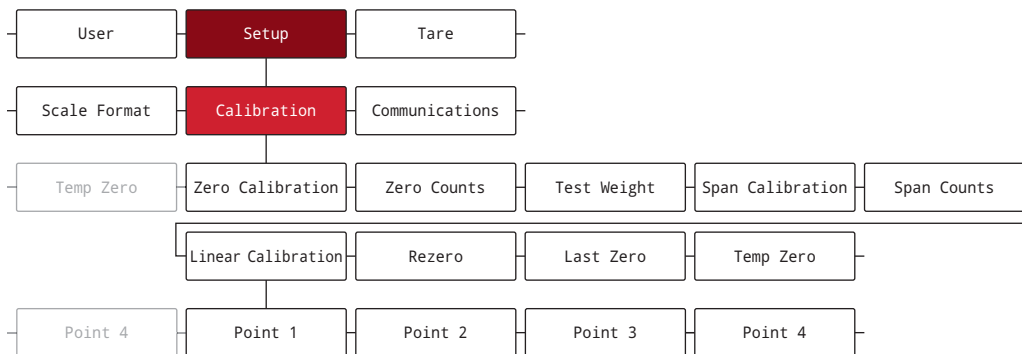


Table 4-8. Calibration Menu Parameter

| Parameter | Description |
|--------------------|--|
| Zero Calibration | Executes the zero calibration process (Section 6.1 on page 56) |
| Zero Counts | Displays the raw count value at the zero weight; A zero calibration generates this raw count value; Manually changing this count value changes the zero weight and negates the zero calibration |
| Test Weight | Sets the test weight value for the span calibration (Section 6.1 on page 56); Enter value: 0.000001–9999999.999999, 10000.0 (default) |
| Span Calibration | Executes the span calibration process (Section 6.1.1 on page 56) |
| Span Counts | Displays the raw count value at the span weight; A span calibration generates this raw count value; Manually changing this count value changes the span weight and negates the span calibration |
| Linear Calibration | Linear or multi-point calibration is performed by entering up to four additional calibration points (Section 6.1.2 on page 57); Points 1-4 have the following sub-parameters: Linear Point # Weight – Sets the test weight value for the linear calibration point Calibrate Linear Point # – Executes the linear calibration process for the point; generates the raw count value for the test weight value for Point # Linear Point # Counts – Displays the raw count value at the linear point weight; A linear calibration generates this raw count value; Manually changing this count value changes the linear point weight and negates the linear calibration for the point |
| Rezero | Removes an offset value from the zero and span calibrations (Section 6.2.3 on page 57) |
| Last Zero | Takes last push button zero in the system (from <i>Weigh</i> mode) and uses it as the new zero reference point, after which a new span calibration must be performed; this calibration cannot be performed when calibrating a scale for the first time (Section 6.2.1 on page 57) |
| Temp Zero | Temporarily zeros the displayed weight of a non-empty scale, after a span calibration was performed; The difference between the temporary zero and the previously calibrated zero value is used as an offset (Section 6.2.2 on page 57) |

4.5.4 Communications Menu

This section provides a flow chart and descriptions for the Communications menu.

Figure 4-10. Communications Menu

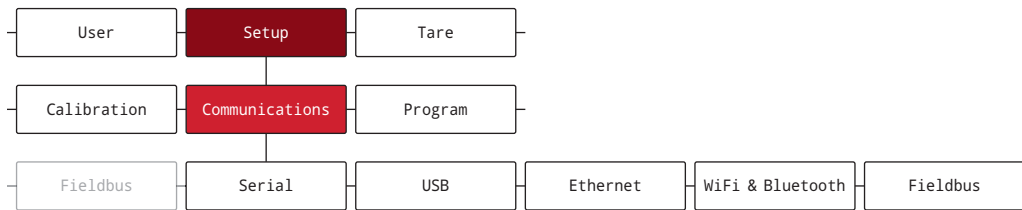


Table 4-9. Communications Menu Descriptions

| Menu | Description |
|------------------|--|
| Serial | Supports RS-232 and RS-485/422 serial communications (Section 4.5.4.1 on page 36) |
| USB | Intended to be connected to a PC only; appears as a Virtual COM Port and is assigned a "COMx" designation; Applications communicate through the port like a standard RS-232 communications port (Section 4.5.4.2 on page 38) |
| Ethernet | Features Ethernet TCP/IP 10Base-T/100Base-TX communication and can support two simultaneous connections, one as a server, the other as a client (Section 4.5.4.3 on page 39) |
| WiFi & Bluetooth | Supports Wi-Fi and Bluetooth® communications (Section 4.5.4.4 on page 40) |
| Fieldbus | Supports Fieldbus network protocol communications (Section 4.5.4.5 on page 41) |

4.5.4.1 Serial Menu

This section provides a flow chart and descriptions for the Serial menu.

Figure 4-11. Serial Menu

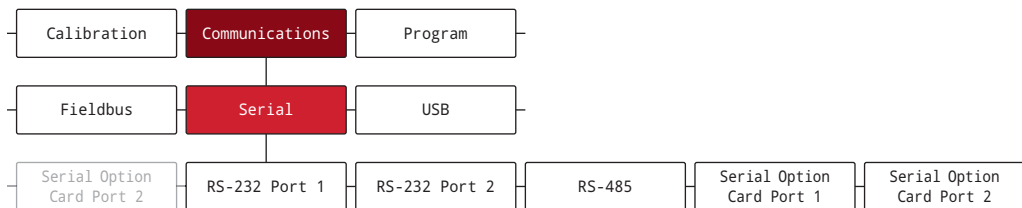


Table 4-10. Serial Menu Parameters

| Parameter | Description |
|-----------------|---|
| RS-232 Port 1-2 | Configurable parameters for RS-232 serial communications ports; Sub-Parameters: Trigger – Sets the input trigger type; <i>Settings:</i> Command (default) – Allows operation of EDP commands and printing Stream Industrial – Scale data is updated up to configured sample rate; Allows operation of EDP commands and printing Stream Legal for Trade – Scale data is updated at configured display update rate; Allows operation of EDP commands and printing Remote – Configures the port to operate as a serial scale input Baud – Sets the transmission speed for the port; <i>Settings:</i> 1200, 2400, 4800, 9600 (default), 19200, 28800, 38400, 57600, 115200 Bits – Sets number of data bits transmitted or received by the port and specifies the parity bit to odd, even or none; <i>Settings:</i> 8NONE (default), 8EVEN, 8ODD, 7EVEN, 7ODD Stop Bits – Sets the number of stop bits transmitted or received by the port; <i>Settings:</i> 1 (default), 2 Line Terminator – Sets the termination character for data sent from the port; <i>Settings:</i> CR/LF (default), CR End of Line Delay – Sets the delay period from when a formatted line is terminated to the beginning of the next formatted serial output (0.1-second intervals); <i>Enter value:</i> 0–255, 0 (default) Echo – Specifies if characters received by the port are echoed back to the sending unit; <i>Settings:</i> On (default), Off Response – Specifies if the port transmits replies to serial commands; <i>Settings:</i> On (default), Off |

Table 4-10. Serial Menu Parameters (Continued)

| Parameter | Description |
|-----------------------------|---|
| RS-485 | <p>Configurable parameters for RS-485/422 serial communications port; Sub-Parameters:</p> <p>Trigger – Sets the input trigger type; <i>Settings:</i></p> <p>Command (default) – Allows operation of EDP commands and printing</p> <p><i>Stream Industrial</i> – Scale data is updated up to configured sample rate; Allows operation of EDP commands and printing</p> <p><i>Stream Legal for Trade</i> – Scale data is updated at configured display update rate; Allows operation of EDP commands and printing</p> <p><i>Remote</i> – Configures the port to operate as a serial scale input</p> <p><i>Fieldbus</i> – Configures the port to operate for Fieldbus; Automatically configures all port parameters for Fieldbus and hides the port parameters in the menu</p> <p>NOTE: When in STRIND, STRLFT and REMOTE, if the Communications port is set to RS-485, the port does not stream data.</p> <p>Baud – Sets the transmission speed for the port; <i>Settings:</i> 1200, 2400, 4800, 9600 (default), 19200, 28800, 38400, 57600, 115200</p> <p>Bits – Sets number of data bits transmitted or received by the port and specifies the parity bit to odd, even or none; <i>Settings:</i> 8NONE (default), 8EVEN, 8ODD, 7EVEN, 7ODD</p> <p>Stop Bits – Sets the number of stop bits transmitted or received by the port; <i>Settings:</i> 1 (default), 2</p> <p>Line Terminator – Sets the termination character for data sent from the port; <i>Settings:</i> CR/LF (default), CR</p> <p>End of Line Delay – Sets the delay period from when a formatted line is terminated to the beginning of the next formatted serial output (0.1-second intervals); <i>Enter value:</i> 0–255, 0 (default)</p> <p>Echo – Specifies if characters received by the port are echoed back to the sending unit; <i>Settings:</i> On (default), Off</p> <p>Response – Specifies if the port transmits replies to serial commands; <i>Settings:</i> On (default), Off</p> <p>Address – Specifies address used to connect to the port; Must be set to 0 for RS-422; <i>Enter value:</i> 0–255, 0 (default)</p> <p>Duplex – Specifies FULL (4-wire) or HALF (2-wire) duplex used to connect to the port; <i>Settings:</i> FULL (default), HALF</p> |
| Serial Option Card Port 1-2 | <p>Configurable parameters for the serial option card ports; Sub-Parameters:</p> <p>Port Type – Sets the serial port type; <i>Settings:</i> RS-232 (default), RS-485</p> <p>Trigger – Sets the input trigger type; <i>Settings:</i></p> <p>Command (default) – Allows operation of EDP commands and printing</p> <p><i>Stream Industrial</i> – Scale data is updated up to configured sample rate; Allows operation of EDP commands and printing</p> <p><i>Stream Legal for Trade</i> – Scale data is updated at configured display update rate; Allows operation of EDP commands and printing</p> <p><i>Remote</i> – Configures the port to operate as a serial scale input</p> <p><i>Fieldbus</i> – Configures the port to operate for Fieldbus; Automatically configures all port parameters for Fieldbus and hides the port parameters in the menu</p> <p>Baud – Sets the transmission speed for the port; <i>Settings:</i> 1200, 2400, 4800, 9600 (default), 19200, 28800, 38400, 57600, 115200</p> <p>Bits – Sets number of data bits transmitted or received by the port and specifies the parity bit to odd, even or none; <i>Settings:</i> 8NONE (default), 8EVEN, 8ODD, 7EVEN, 7ODD</p> <p>Stop Bits – Sets the number of stop bits transmitted or received by the port; <i>Settings:</i> 1 (default), 2</p> <p>Line Terminator – Sets the termination character for data sent from the port; <i>Settings:</i> CR/LF (default), CR</p> <p>End of Line Delay – Sets the delay period from when a formatted line is terminated to the beginning of the next formatted serial output (0.1-second intervals); <i>Enter value:</i> 0–255, 0 (default)</p> <p>Echo – Specifies if characters received by the port are echoed back to the sending unit; <i>Settings:</i> On (default), Off</p> <p>Response – Specifies if the port transmits replies to serial commands; <i>Settings:</i> On (default), Off</p> <p>Address – Specifies address used to connect to the port (RS-485 only); Must be set to 0 for RS-422; <i>Enter value:</i> 0–255, 0 (default)</p> <p>Duplex – Specifies FULL (4-wire) or HALF (2-wire) duplex used to connect to the port (RS-485 only); <i>Settings:</i> FULL (default), HALF</p> |

4.5.4.2 USB Menu

This section provides a flow chart and descriptions for the USB menu.

Figure 4-12. USB Menu

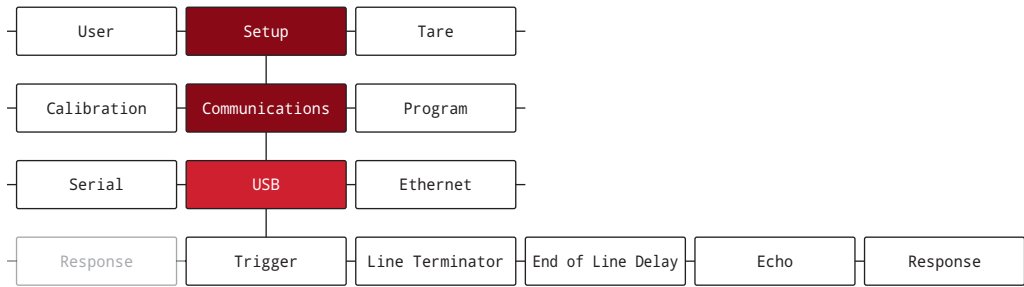


Table 4-11. USB Menu Parameters

| Parameter | Description |
|-------------------|---|
| Trigger | Sets the input trigger type; <i>Settings:</i> Command (default) – Sets input trigger to command; allows operation of EDP commands and can print <i>Stream Industrial</i> – Scale data is updated up to configured sample rate; allows operation of EDP commands and printing <i>Stream Legal For Trade</i> – Scale data is updated at configured display update rate; allows operation of EDP commands and printing <i>Remote</i> – Configures the port to operate as a serial scale input |
| Line Terminator | Sets the termination character for data sent from the port; <i>Settings:</i> CR/LF (default), <i>CR</i> |
| End of Line Delay | Sets the delay period from when a formatted line is terminated to the beginning of the next formatted serial output (0.1-second intervals); <i>Enter value:</i> 0–255, 0 (default) |
| Echo | Specifies if characters received by the port are echoed back to the sending unit; <i>Settings:</i> On (default), <i>Off</i> |
| Response | Specifies if the port transmits replies to serial commands; <i>Settings:</i> On (default), <i>Off</i> |

4.5.4.3 Ethernet Menu

This section provides a flow chart and descriptions for the Ethernet menu.

Figure 4-13. Ethernet Menu

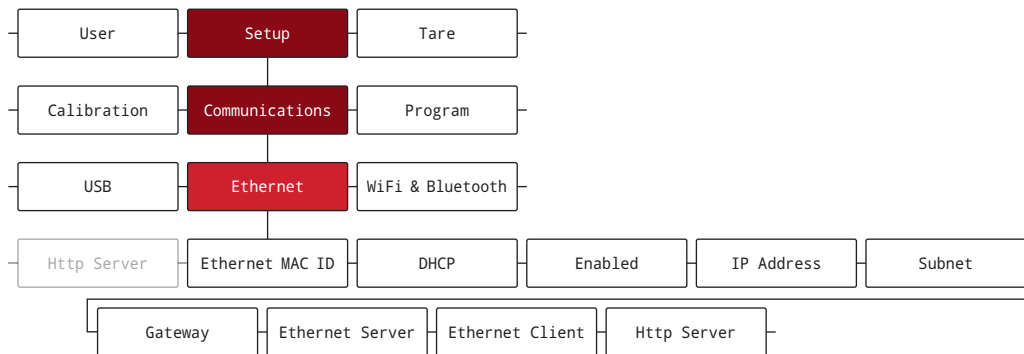


Table 4-12. Ethernet Menu Parameters

| Parameter | Description |
|-----------------|--|
| Ethernet MAC ID | Displays the Ethernet MAC address (read only): 00:00:00:00:00:00 |
| DHCP | Dynamic Host Configuration Protocol (static allocation of IP address when OFF); Settings: On (default), <i>Off</i> |
| Enabled | Enables Ethernet communications; Settings: Off (default), <i>On</i> |
| IP Address | IP Address; Enter value: 0.0.0.0 (default) |
| Subnet | Subnet Mask; Enter value: 255.255.255.0 (default) |
| Gateway | Default Gateway; Enter value: 0.0.0.0 (default) |
| Ethernet Server | Allows the 682 to receive external EDP commands; Sub-parameters: Trigger – Sets the input trigger type; Settings: Command (default), <i>Stream Industrial, Stream Legal For Trade, Remote Port</i> Remote Port – Specifies IP Address port to open to establish communications; Enter value: 1025–65535, 10001 (default) Name – Host name for Ethernet Server; Enter characters: <i>Alphanumeric entry up to 30 characters</i> , 0 (default) Line Terminator – Sets the termination character for data sent from the port; Settings: CR/LF (default), <i>CR</i> Echo – Specifies if characters received by the port are echoed back to the sending unit; Settings: Off (default), <i>On</i> Response – Specifies if the port transmits replies to serial commands; Settings: On (default), <i>Off</i> |
| Ethernet Client | Allows the 682 to send EDP commands to external devices; Sub-parameters: Trigger – Sets the input trigger type; Settings: Command (default), <i>Stream Industrial, Stream Legal For Trade, Remote</i> Remote IP Address – Sets the remote IP Address; Enter value: 0.0.0.0 (default) Remote Port – Specifies IP Address port to look for to establish communications; Enter value: 1025–65535, 10001 (default) Line Terminator – Sets the termination character for data sent from the port; Settings: CR/LF (default), <i>CR</i> Echo – Specifies if characters received by the port are echoed back to the sending unit; Settings: On (default), <i>Off</i> Response – Specifies if the port transmits replies to serial commands; Settings: On (default), <i>Off</i> End of Line Delay – Sets the delay period from when a formatted line is terminated to the beginning of the next formatted serial output (0.1-second intervals); Enter value: 0–255, 0 (default) Disconnect Time – Sets the disconnect timeout (in seconds); Enter value: 0–60, 0 (default) |
| Http Server | Enables the remote HTTP web server (Section 8.0 on page 62); Settings: Off (default), <i>On</i> |

4.5.4.4 WiFi & Bluetooth Menu

This section provides a flow chart and descriptions for the Wi-Fi and Bluetooth® menu.

Figure 4-14. WiFi & Bluetooth Menu

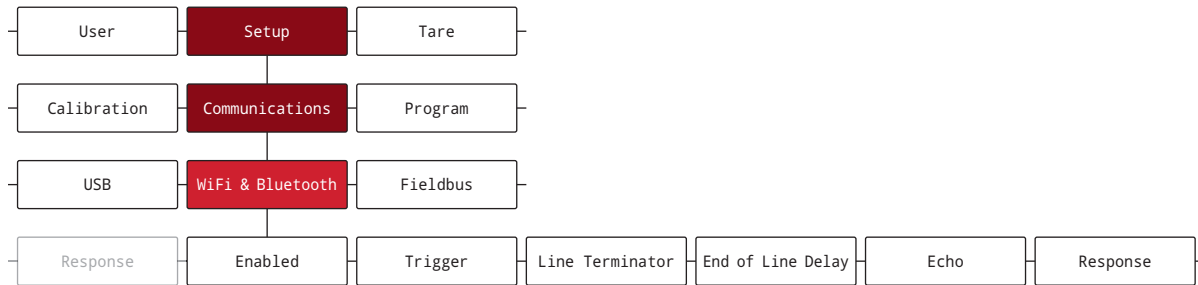


Table 4-13. WiFi & Bluetooth Menu Parameters

| Parameter | Description |
|-------------------|--|
| Enabled | Enables the wireless module and specifies Wi-Fi and/or Bluetooth® communication; <i>Settings: OFF (default), WiFi, Bluetooth, Both</i> |
| Trigger | Sets the input trigger type; <i>Settings: Settings: Command (default), Stream Industrial, Stream Legal For Trade, Remote</i> Command (default) – Sets the input trigger to command; allows operation of EDP commands and can print <i>Stream Industrial</i> – Scale data is updated up to configured sample rate; allows operation of EDP commands and printing <i>Stream Legal for Trade</i> – Scale data is updated at configured display update rate; allows operation of EDP commands and printing <i>Remote</i> – Configures the port to operate as a serial scale input |
| Line Terminator | Sets the termination character for data sent from the port; <i>Settings: CR/LF (default), CR</i> |
| End of Line Delay | Sets the delay period from when a formatted line is terminated to the beginning of the next formatted serial output (0.1-second intervals); <i>Enter value: 0–255, 0 (default)</i> |
| Echo | Specifies if characters received by the port are echoed back to the sending unit; <i>Settings: On (default), Off</i> |
| Response | Specifies if the port transmits replies to serial commands; <i>Settings: On (default), Off</i> |

4.5.4.5 Fieldbus Menu

This section provides a flow chart and descriptions for the Fieldbus menu. The Fieldbus menu specifies the Network Protocol and associated settings. Fieldbus is enabled in the Serial menu ([Section 4.5.4.1 on page 36](#)).

Figure 4-15. Fieldbus Menu

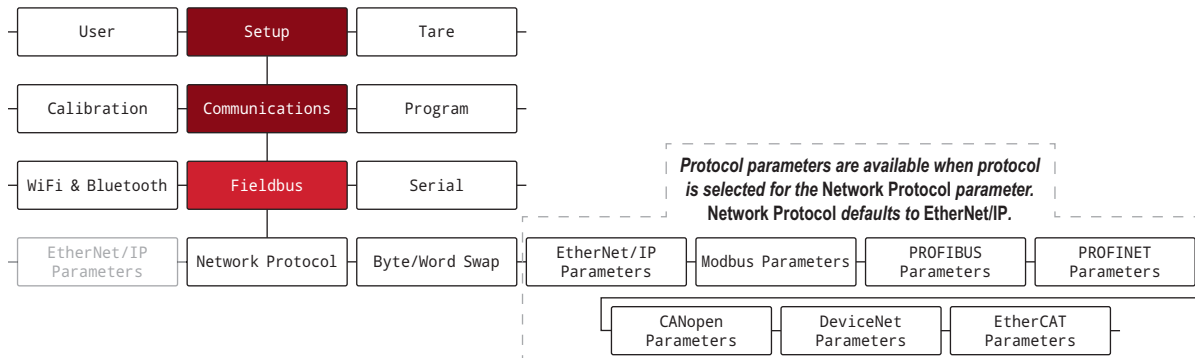


Table 4-14. Fieldbus Menu Parameters

| Parameter | Description |
|------------------------|--|
| Network Protocol | Enables network protocol; <i>Settings: EtherNet/IP (default), Modbus, PROFIBUS, PROFINET, CANopen, DeviceNet, EtherCAT</i> |
| Byte/Word Swap | Enables Byte or Word swap, Both enables Byte and Word; If values are not being returned this parameter could possibly correct it; <i>Settings: None (default), Byte, Word, Both</i> |
| EtherNet/IP Parameters | Sub-Parameters: Auto IP – Automatically get network parameters from the network (DHCP); <i>Settings: Off (default), On</i> IP Address – Hidden if Auto IP is set to On; <i>Enter value: 0.0.0.0 (default)</i> Subnet – Hidden if Auto IP is set to On; <i>Enter value: 255.255.255.0 (default)</i> Gateway – Hidden if Auto IP is set to On; <i>Enter value: 0.0.0.0 (default)</i> |
| Modbus TCP Parameters | Sub-Parameters: Auto IP – Automatically get network parameters from the network (DHCP); <i>Settings: Off (default), On</i> IP Address – Hidden if Auto IP is set to On; <i>Enter value: 0.0.0.0 (default)</i> Subnet – Hidden if Auto IP is set to On; <i>Enter value: 255.255.255.0 (default)</i> Gateway – Hidden if Auto IP is set to On; <i>Enter value: 0.0.0.0 (default)</i> |
| PROFIBUS Parameters | Sub-Parameters: Node Address – <i>Enter value: 1-126, 1 (default)</i> |
| PROFINET Parameters | Sub-Parameters: Auto IP – Automatically get network parameters from the network (DHCP); <i>Settings: Off (default), On</i> IP Address – Hidden if Auto IP is set to On; <i>Enter value: 0.0.0.0 (default)</i> Subnet – Hidden if Auto IP is set to On; <i>Enter value: 255.255.255.0 (default)</i> Gateway – Hidden if Auto IP is set to On; <i>Enter value: 0.0.0.0 (default)</i> |
| CANopen Parameters | Sub-Parameters: Node Address – <i>Enter value: 1-128, 1 (default)</i> Node Rate – <i>Settings: 1 MB (default), 10 KB, 20 KB, 50 KB, 100 KB, 125 KB, 250 KB, 500 KB, 800 KB</i> |
| DeviceNet Parameters | Sub-Parameters: Node Address – <i>Enter value: 1-64, 1 (default)</i> Node Rate – <i>Settings: 125 KB, 250 KB, 500 KB (default)</i> |
| EtherCAT Parameters | Sub-Parameters: None – No sub-parameters are needed for EtherCAT |

4.5.5 Program Menu

This section provides a flow chart and descriptions for the Program menu.

Figure 4-16. Program Menu

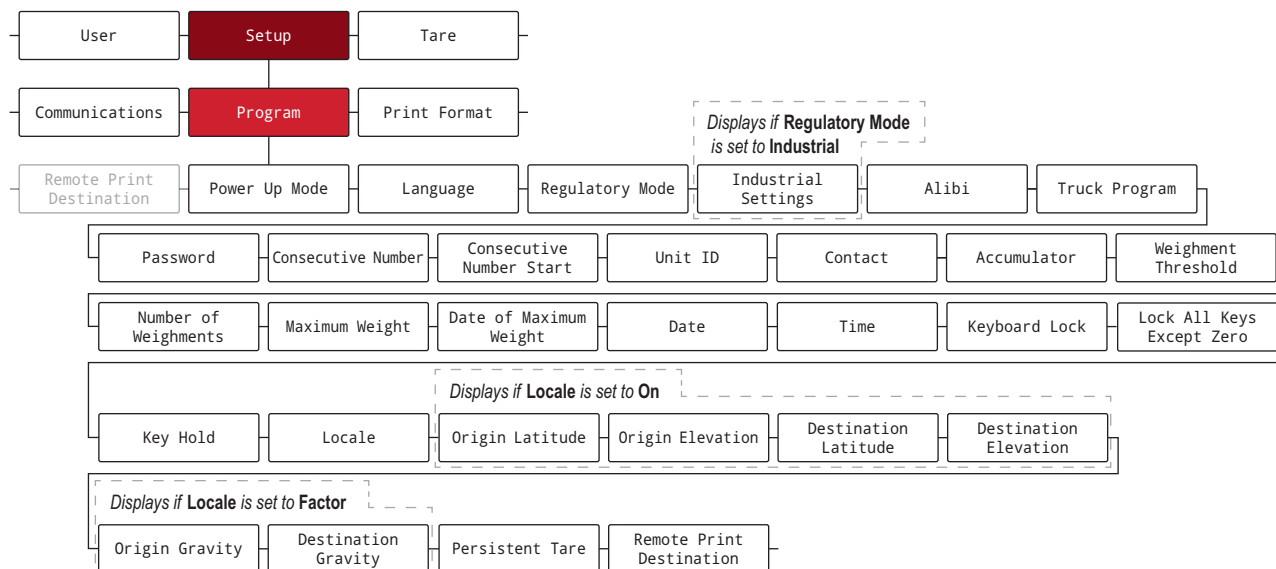


Table 4-15. Program Menu Parameters

| Parameter | Description |
|---------------------|---|
| Power Up Mode | When the indicator is turned on, it performs a display test, then enters a warm up period; <i>Settings:</i> GO (default) – Performs display test, then enters <i>Weigh</i> mode after brief warm up period DELAY – Performs display test, then enters a warm up period of 30 seconds <ul style="list-style-type: none"> If no motion is detected during warm up period, indicator enters <i>Weigh</i> mode when warm up period ends If motion is detected, the 30 second timer is reset and the warm up period is repeated |
| Language | Specifies the text language for the 682 indicator; Applies to <i>Weigh</i> mode only; <i>Settings:</i> English (default), <i>Spanish, French, German, Dutch, Portuguese, Italian</i> |
| Regulatory Mode | Specifies the regulatory agency having jurisdiction over the scale site; the value specified for this parameter affects the function of the front panel tare and zero keys; <i>Settings:</i> NTEP (default), <i>OIML, Measurement Canada, Industrial, None</i> OIML, NTEP and Measurement Canada modes allow a tare to be acquired at a weight greater than zero; None allows tares to be acquired at any weight value OIML, NTEP and Measurement Canada modes allow a tare to be cleared only if the gross weight is at no load; None allows tares to be cleared at any weight value NTEP and OIML modes allow a new tare to be acquired even if a tare is already present; In Measurement Canada mode, the previous tare must be cleared before a new tare can be acquired None, NTEP and Measurement Canada modes allow the scale to be zeroed in either gross or net mode as long as the current weight is within the specified Zero Range (%); In OIML mode, the scale must be in gross mode before it can be zeroed; pressing the ZERO key in net mode clears the tare Industrial provides a set of sub-parameters to allow customization of tare, clear and print functions in non-Legal for Trade scale installations |
| Industrial Settings | Displays when Regulatory Mode parameter is set to Industrial; See Section 4.5.5.1 on page 44 |
| Alibi | Alibi can be toggled On/Off; if On, print transactions are stored in the Alibi Storage database (data validated with CRC) and can be viewed from the front panel of the 682 by configuring a softkey (Section 3.4.19 on page 27) to Alibi; if Off, print transactions are not stored; Alibi data is stored in flash memory, no external memory is required; there is space for 128 KB of data or 2000 print transactions; if the limit is hit, the first 4 KB of print transactions are deleted to free up space; <i>Settings:</i> Off (default), <i>On</i> |
| Truck Program | Configurable parameters for Truck In/Out applications; <i>Sub-Parameters:</i> Mode – Truck modes track Truck IDs and weights with keyed tares and value swapping features in six preset modes; See Section 7.0 on page 59 ; <i>Settings:</i> Off (default), <i>Mode 1, Mode 2, Mode 3, Mode 4, Mode 5, Mode 6</i> ID Overwrite – Allows duplicate Truck IDs to replace stored Truck IDs when enabled; <i>Settings:</i> Disable (default), <i>Enable</i> |

Table 4-15. Program Menu Parameters (Continued)

| Parameter | Description |
|---------------------------|---|
| Password | Configurable passwords to secure the User and Setup menus; ensure the audit jumper (J24) is in the ON position when using the Setup password; 999999 can be entered to overwrite either password if forgotten, overwriting the password clears configuration and calibration settings (use Revolution to backup settings before overwriting); <i>Sub-Parameters:</i> User – User menu password secures the user menu with configured password; <i>Enter characters: Up to 16 alphanumeric characters</i> Setup – Setup menu password secures the setup menu with configured password; <i>Enter characters: Up to 16 alphanumeric characters</i> |
| Consecutive Number | Allows sequential numbering for print operations; the value is incremented following each print operation which includes <CN> in the ticket format; <i>Enter value: 0–9999999, 0 (default)</i> |
| Consecutive Number Start | Specifies the initial consecutive number value used when the consecutive number is reset by sending Clear Consecutive Number digital input; <i>Enter value: 0–9999999, 0 (default)</i> |
| Unit ID | Specifies the unit identification with an alphanumeric value; <i>Enter characters: Up to 6 alphanumeric characters, 1 (default)</i> |
| Contact | Contact Information; See Section 4.5.5.2 on page 45 |
| Accumulator | Accumulation can be toggled On/Off; if On, accumulation occurs on print operation; if Off, an accumulation does not occur; <i>Settings: Off (default), On</i> |
| Weighment Threshold | When the weight falls below the value set, the accumulator is rearmed; <i>Enter value: 0.0–9999999.0, 1000.0 (default)</i> |
| Number of Weighments | Displays the total number of weighments (read only) |
| Maximum Weight | Displays the maximum weight/weighment allowed (read only) |
| Date of Maximum Weight | Displays the date and time the maximum weight/weighment occurred (read only) |
| Date | Allows setting of the date format and date separator character Date Format – <i>Settings: MMDYY (default), DDMMYY, YYMMDD, YYDDMM</i> Date Separator – <i>Settings: Slash (default), Dash, Semi, Dot</i> |
| Time | Allows setting of the time format and the separator character Time Format – <i>Settings: 12HOUR (default), 24HOUR</i> Time Separator – <i>Settings: Colon (default), Comma, Dot</i> |
| Keyboard Lock | Disables the keyboard except for the menu and power key; <i>Settings: Off (default), On</i> |
| Lock All Keys Except Zero | Disables the keyboard except for the zero, menu and power keys; <i>Settings: Off (default), On</i> |
| Key Hold | Allows setting of the key hold time and interval Key Hold Time – How long a key needs to be held before a key hold action is initiated (in tenths of a second); 20 equals 2 seconds; <i>Enter value: 10–50, 20 (default)</i> Key Hold Interval – The amount of time between increments during a key hold (in twentieths of a second); 2 equals a tenth of a second (10 increments per second during a key hold); <i>Enter value: 1–100, 2 (default)</i> |
| Locale | Enables location gravity compensation; <i>Settings:</i> Off (default) – gravity compensation disabled On – calculates gravity compensation using the origin and destination latitudes and elevations Factor – uses origin and destination gravity factors to find gravity compensation |
| Origin Latitude | Origin latitude (to nearest degree) for gravity compensation; displays when Locale parameter is set to On; <i>Enter value: 0–90, 45 (default)</i> |
| Origin Elevation | Origin elevation (in meters) for gravity compensation; displays when Locale parameter is set to On; <i>Enter value: -9999–9999, 345 (default)</i> |
| Destination Latitude | Destination latitude (to nearest degree) for gravity compensation; displays when Locale parameter is set to On; <i>Enter value: 0–90, 45 (default)</i> |
| Destination Elevation | Destination elevation (in meters) for gravity compensation; displays when Locale parameter is set to On; <i>Enter value: -9999–9999, 345 (default)</i> |
| Origin Gravity | Origin gravity factor (in m/s ²) for gravity compensation; displays when Locale parameter is set to Factor; <i>Enter value: 9.00000–9.99999, 9.80665 (default)</i> |
| Destination Gravity | Destination gravity factor (in m/s ²) for gravity compensation; displays when Locale parameter is set to Factor; <i>Enter value: 9.00000–9.99999, 9.80665 (default)</i> |
| Persistent Tare | Tare persists through a power cycle; <i>Settings: Off (default), On</i> |
| Remote Print Destination | Specifies if the 682 (Local) or another indicator (Remote) handles the print key; <i>Settings: Remote (default), Local</i> |

4.5.5.1 Industrial Settings Menu

This section provides a flow chart and descriptions for the Industrial Settings menu. The Industrial Settings menu only displays if the Regulatory Mode parameter is set to Industrial.

Figure 4-17. Industrial Settings Menu

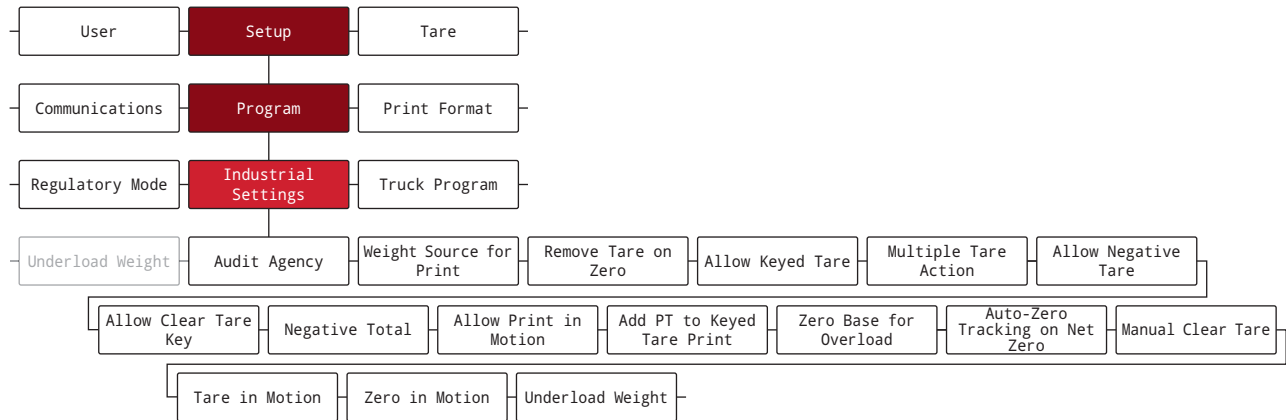


Table 4-16. Industrial Settings Menu Parameters

| Parameter | Description |
|--------------------------------|--|
| Audit Agency | Audit trail display agency format; Settings: NTEP (default), Measurement Canada, None, OIML |
| Weight Source for Print | Display or scale weight source for print; Settings: Display (default), Captured Scale Zero |
| Remove Tare on Zero | Remove tare on zero; Settings: No (default), Yes |
| Allow Keyed Tare | Always allow keyed tare; Settings: Yes (default), No |
| Multiple Tare Action | Replaces existing tare when the tare key is pressed; Settings: Replace (default), Remove, Nothing |
| Allow Negative Tare | Allow negative or zero tare; Settings: No (default), Yes |
| Allow Clear Tare Key | Allow clear key to clear tare or accumulator when displayed; Settings: Yes (default), No |
| Negative Total | Allow total scale to display negative value; Settings: No (default), Yes |
| Allow Print in Motion | Allow print while in motion; Settings: No (default), Yes |
| Add PT to Keyed Tare Print | Add preset tare (PT) to keyed tare print; Settings: Yes (default), No |
| Zero Base for Overload | Zero base for overload calculation; Settings: Calibrated Zero (default), Captured Scale Zero |
| Auto-Zero Tracking on Net Zero | Perform auto zero tracking on net zero; Settings: No (default), Yes |
| Manual Clear Tare | Allow manual clearing of the tare value; Settings: Yes (default), No |
| Tare in Motion | Allow tare in motion; Settings: No (default), Yes |
| Zero in Motion | Allow scale to be zeroed while in motion; Settings: No (default), Yes |
| Underload Weight | Underload weight value in display divisions; Enter value: 1-9999999, 20 (default) |

4.5.5.2 Contact Information Menu

This section provides a flow chart and descriptions for the Contact Information menu.

Figure 4-18. Contact Information Menu

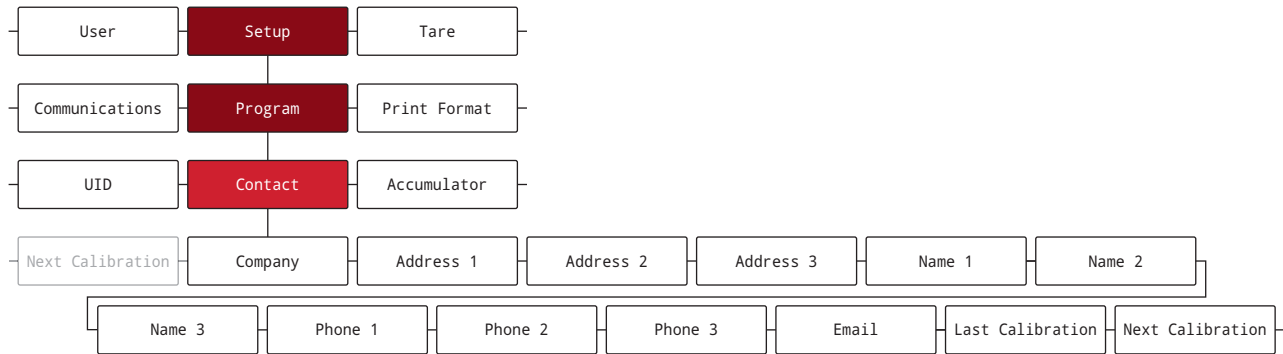


Table 4-17. Contact Information Menu Parameters

| Parameter | Description |
|------------------|--|
| Company | Contact company name; <i>Enter characters: Alphanumeric entry up to 30 characters</i> |
| Address 1-3 | Contact company address lines; <i>Enter characters: Alphanumeric entry up to 20 characters (for each line)</i> |
| Name 1-3 | Contact names; <i>Enter characters: Alphanumeric entry up to 30 characters (for each line)</i> |
| Phone 1-3 | Contact phone numbers; <i>Enter characters: Alphanumeric entry up to 20 characters (for each line)</i> |
| Email | Contact email address; <i>Enter characters: Alphanumeric entry up to 40 characters</i> |
| Last Calibration | Last calibration date; <i>Enter value: 8-digit number (MMDDYYYY)</i> |
| Next Calibration | Next calibration date; <i>Enter value: 8-digit number (MMDDYYYY)</i> |

4.5.6 Print Format Menu

This section provides a flow chart and descriptions for the Print Format menu.

Figure 4-19. Print Format Menu

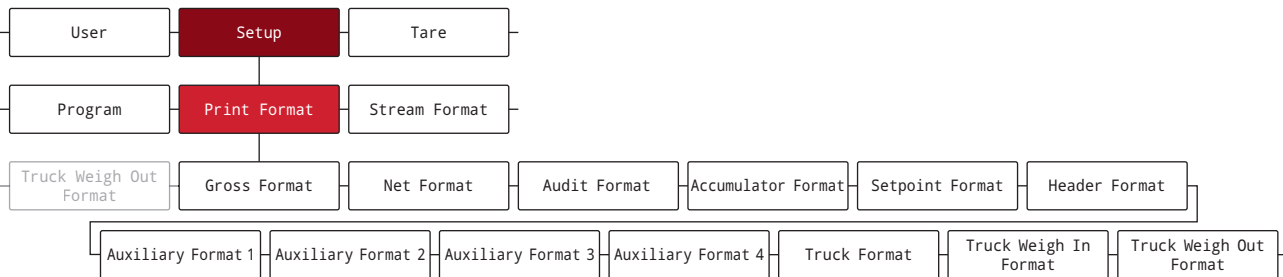


Table 4-18. Print Format Menu Parameters

| Parameter | Description |
|--------------|--|
| Gross Format | Gross demand print format string Format – <i>Enter characters: Alphanumeric entry up to 1,000 characters, GROSS<G><NL><TD><NL> (default)</i> Destination Port 1-2 – Destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |
| Net Format | Net demand print format string Format – <i>Enter characters: Alphanumeric entry up to 1,000 characters, GROSS<G><NL>TARE<SP><T><NL>NET<SP2><N><NL2><TD><NL> (default)</i> Destination Port 1-2 – Destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |

Table 4-18. Print Format Menu Parameters (Continued)

| Parameter | Description |
|------------------------|---|
| Audit Format | Audit destination print ports where the audit parameters are sent when an Audit Dump is done Destination Port 1-2 – Dump audit destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |
| Accumulator Format | Accumulator print format string Format – Enter characters: Alphanumeric entry up to 1,000 characters, ACCUM <A><NL><DA> <TI><NL> (default) Destination Port 1-2 – Destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |
| Setpoint Format | Setpoint print format string Format – Enter characters: Alphanumeric entry up to 1,000 characters, <SCV><SP><SPM><NL> (default) Destination Port 1-2 – Destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |
| Header Format | Ticket header format strings Header Format 1 – Header 1 Format String; Enter characters: Alphanumeric entry up to 1,000 characters, COMPANY NAME<NL>STREET ADDRESS<NL>CITY, ST ZIP<NL2> (default) Header Format 2 – Header 2 Format String; Enter characters: Alphanumeric entry up to 1,000 characters, COMPANY NAME<NL>STREET ADDRESS<NL>CITY, ST ZIP<NL2> (default) |
| Auxiliary Format 1-4 | Auxiliary print format strings Format 1-4 – Enter characters: Alphanumeric entry up to 1,000 characters, GROSS<G><NL2><TD><NL> (default) Destination Port 1-2 – Destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |
| Truck Format | Truck print format string Format – Enter characters: Alphanumeric entry up to 1,000 characters, REG ID: <TID>: <TR2> <TD><NL> (default) Destination Port 1-2 – Destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |
| Truck Weigh In Format | Truck weigh in print format string Format – Enter characters: Alphanumeric entry up to 1,000 characters, <NL><ID><SP><TID><NL2>GROSS<SP><TR1><NL2><DA><SP><TI><NL> (default) Destination Port 1-2 – Destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |
| Truck Weigh Out Format | Truck weigh out print format string Format – Enter characters: Alphanumeric entry up to 1,000 characters, <NL6><ID><SP><TID><NL2>GROSS<TR1><NL>TARE<SP><TR2><NL>NET<SP2><TR3><NL2><DA><SP><TI><NL> (default) Destination Port 1-2 – Destination ports; Settings: RS-232 Port 1 (Port 1 default), RS-232 Port 2, RS-485, TCP Client 1, TCP Server, USB, Serial Option Card Port 1, Serial Option Card Port 2, WiFi & Bluetooth, None (Port 2 default) |

4.5.7 Stream Format Menu

This section provides a flow chart and descriptions for the Stream Format menu.

Figure 4-20. Stream Format Menu

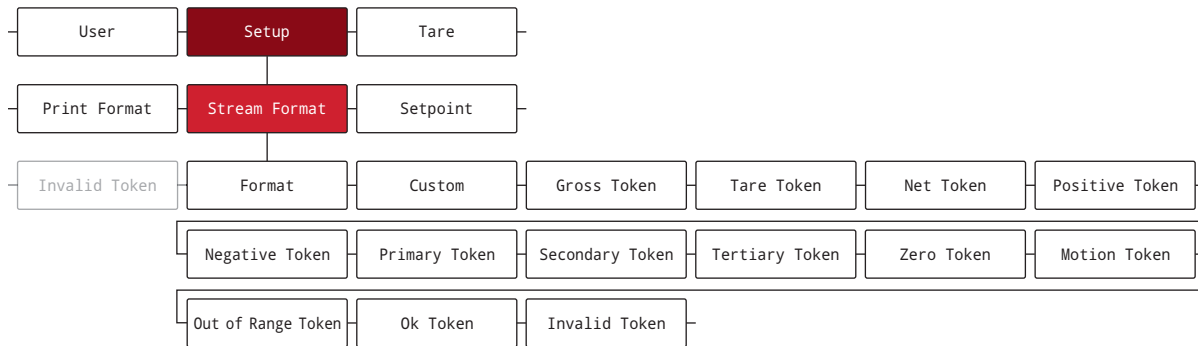


Table 4-19. Stream Format Menu Parameters

| Parameter | Description |
|--------------------|--|
| Format | Specifies the stream format used for streaming output of scale data or specifies the expected input for a serial scale; <i>Settings:</i> RLWS (default) – Rice Lake Weighing Systems stream format (Section 16.5.1 on page 110) Cardinal – Cardinal stream format (Section 16.5.2 on page 110) Weigh-Tronix – Avery Weigh-Tronix stream format (Section 16.5.3 on page 111) Toledo – Mettler Toledo stream format (Section 16.5.4 on page 111) Custom – Custom stream format |
| Custom | Specifies the custom stream format; only displays if SFORMAT is set to CUSTOM; see Section 16.6 on page 112 for available stream format tokens; <i>Enter characters:</i> Alphanumeric entry up to 1,000 characters |
| Gross Token | Mode token when streaming the gross weight; <i>Enter characters:</i> Alphanumeric entry up to 8 characters, G (default) |
| Tare Token | Mode token when streaming the tare weight; <i>Enter characters:</i> Alphanumeric entry up to 8 characters, T (default) |
| Net Token | Mode token when streaming the net weight; <i>Enter characters:</i> Alphanumeric entry up to 8 characters, N (default) |
| Positive Token | Polarity token when the weight is positive; <i>Settings:</i> Space (default), None, + |
| Negative Token | Polarity token when the weight is negative; <i>Settings:</i> Space, None, – (default) |
| Primary Token | Units token when streaming primary units; <i>Enter characters:</i> Alphanumeric entry up to 8 characters, L (default) |
| Secondary Token | Units token when streaming secondary units; <i>Enter characters:</i> Alphanumeric entry up to 8 characters, K (default) |
| Tertiary Token | Units token when streaming tertiary units; <i>Enter characters:</i> Alphanumeric entry up to 8 characters, K (default) |
| Zero Token | Status token when the weight is at center of zero; <i>Enter characters:</i> Alphanumeric entry up to 2 characters, Z (default) |
| Motion Token | Status token when the weight is in motion; <i>Enter characters:</i> Alphanumeric entry up to 2 characters, M (default) |
| Out of Range Token | Status token when the weight is out of range; <i>Enter characters:</i> Alphanumeric entry up to 2 characters, O (default) |
| Ok Token | Status token when the weight is OK (not invalid, out-of-range, at zero or in-motion); <i>Enter characters:</i> Alphanumeric entry up to 2 characters (default is a space) |
| Invalid Token | Status token when streaming an invalid weight; <i>Enter characters:</i> Alphanumeric entry up to 2 characters, I (default) |

4.5.8 Setpoint Menu

The following sections provide flow charts and descriptions for the Setpoint menu.

Figure 4-21. Setpoint Menu

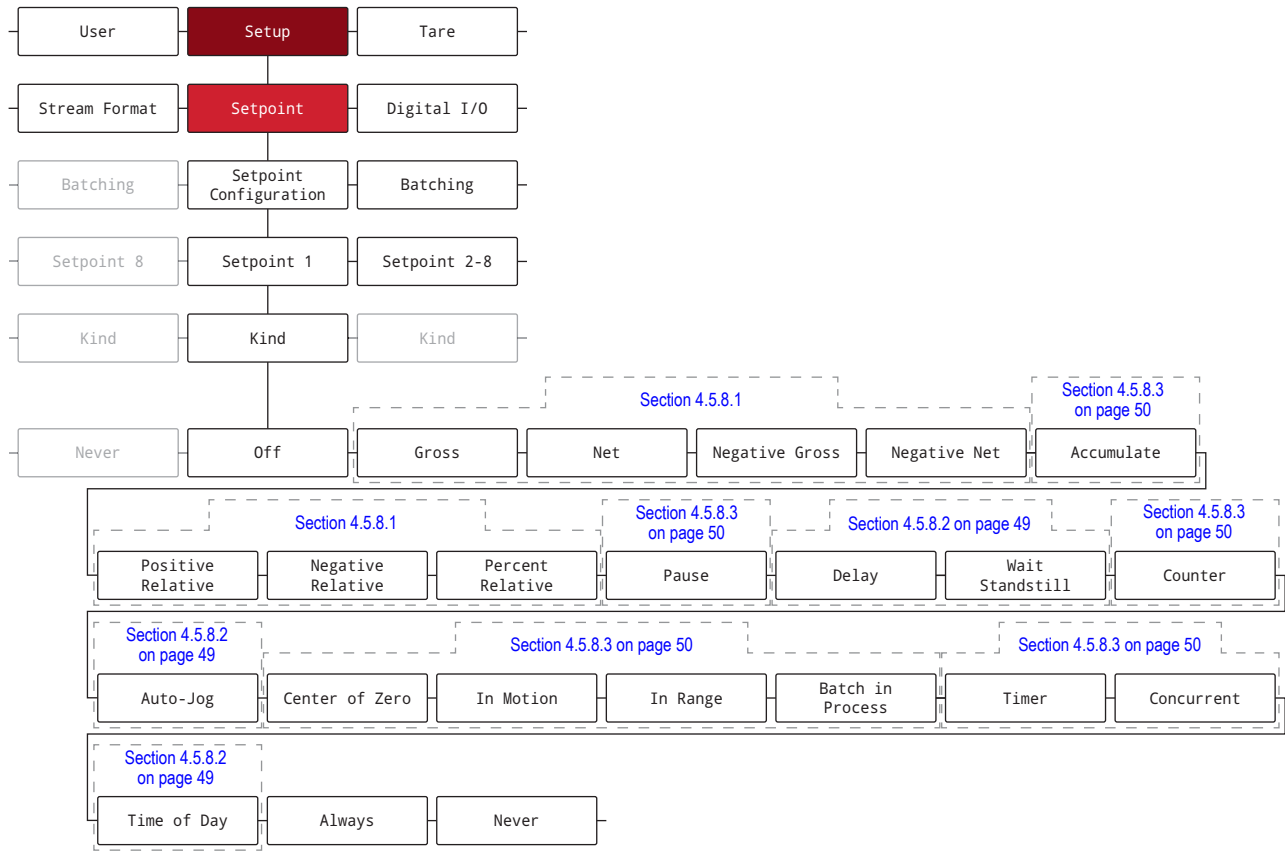
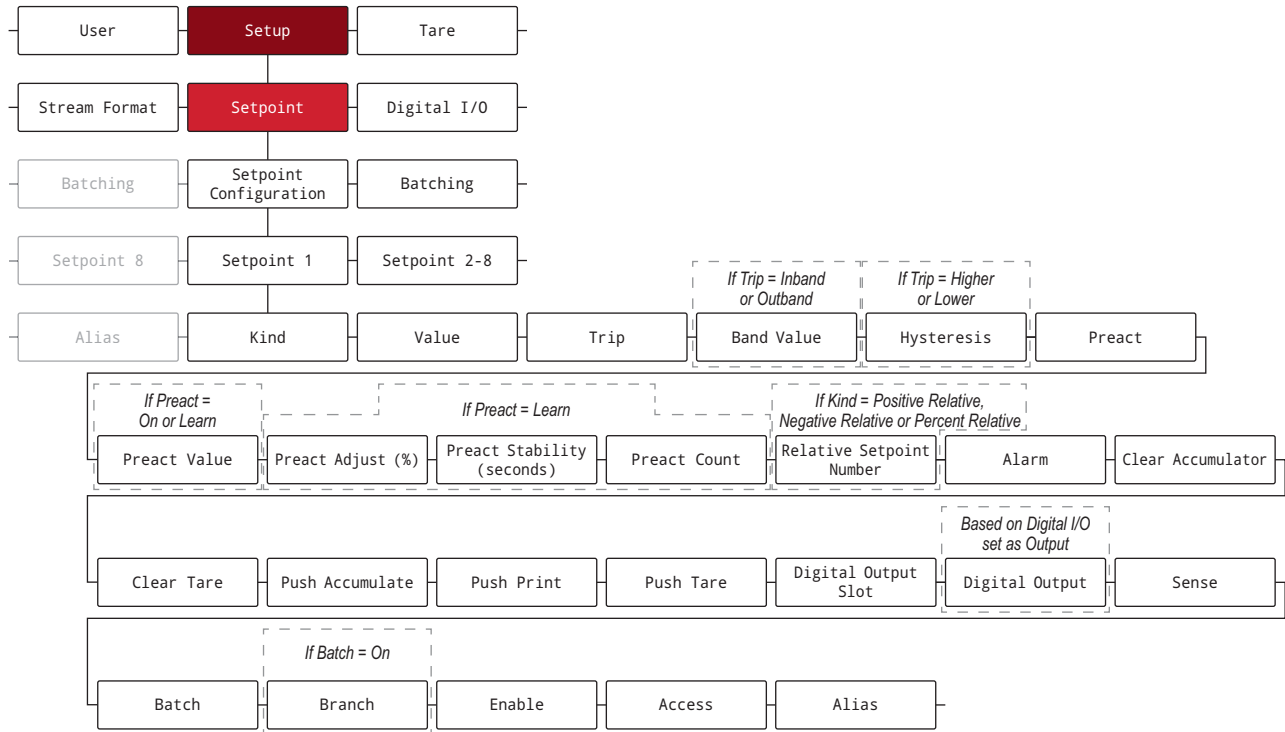


Table 4-20. Setpoints Menu Parameters

| Parameter | Description |
|------------------------|--|
| Setpoint Configuration | Access to configuration parameters and settings for up to eight setpoints; <i>Settings: Setpoint 1-8</i> <i>Kind – Setpoint Kind; Settings: Off (default), Gross, Net, Negative Gross, Negative Net, Accumulate, Positive Relative, Negative Relative, Percent Relative, Pause, Delay, Wait Standstill, Counter, Auto-Jog, Center of Zero, In Motion, In Range, Batch in Process, Timer, Concurrent, Time Of Day, Always, Never</i> |
| Batching | Batch sequence runs when set to Auto or Manual; <i>Settings:</i> Off (default) <i>Auto – Allows the batch sequence to repeat automatically once it has been started</i> <i>Manual – Requires a Batch Start input/command to run the batch sequence</i> |

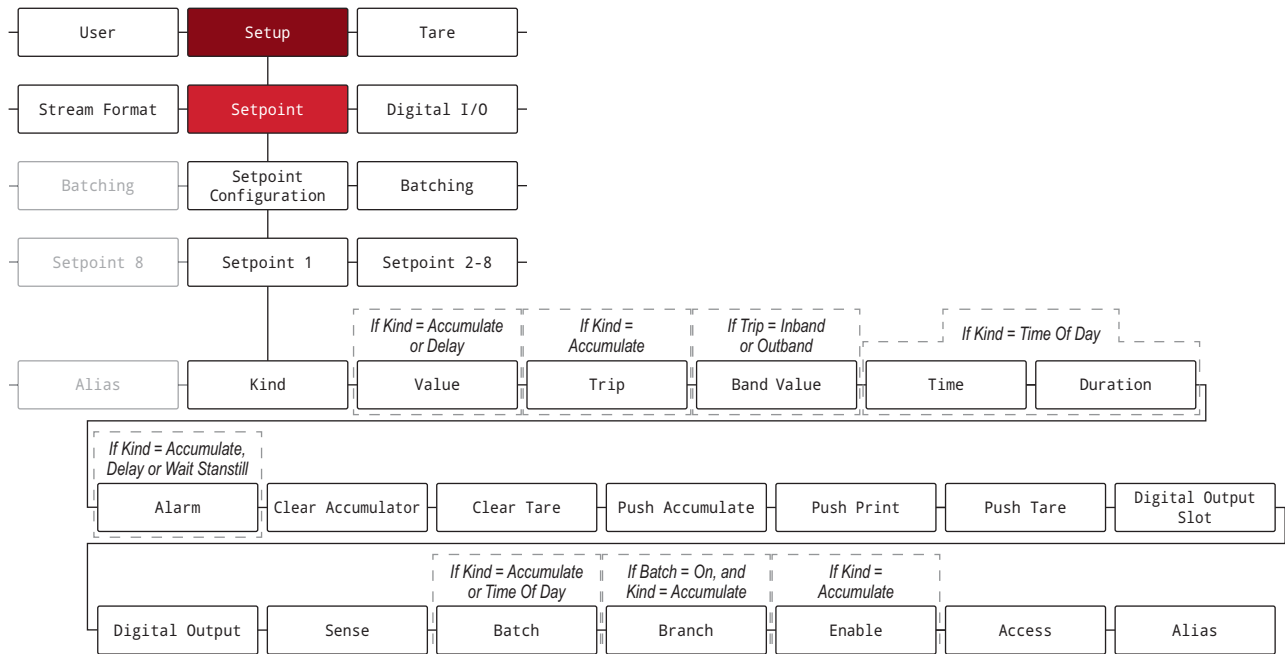
4.5.8.1 If Kind = Gross, Net, Negative Gross, Negative Net, Positive Relative, Negative Relative, Percent Relative

Figure 4-22. Setpoints Parameter Group A



4.5.8.2 If Kind = Accumulate, Delay, Wait Standstill, Auto-Jog, Time Of Day

Figure 4-23. Setpoints Parameter Group B



4.5.8.3 If Kind = Pause, Counter, Center of Zero, In Motion, In Range, Batch in Process, Timer, Concurrent

Figure 4-24. Setpoints Parameter Group C

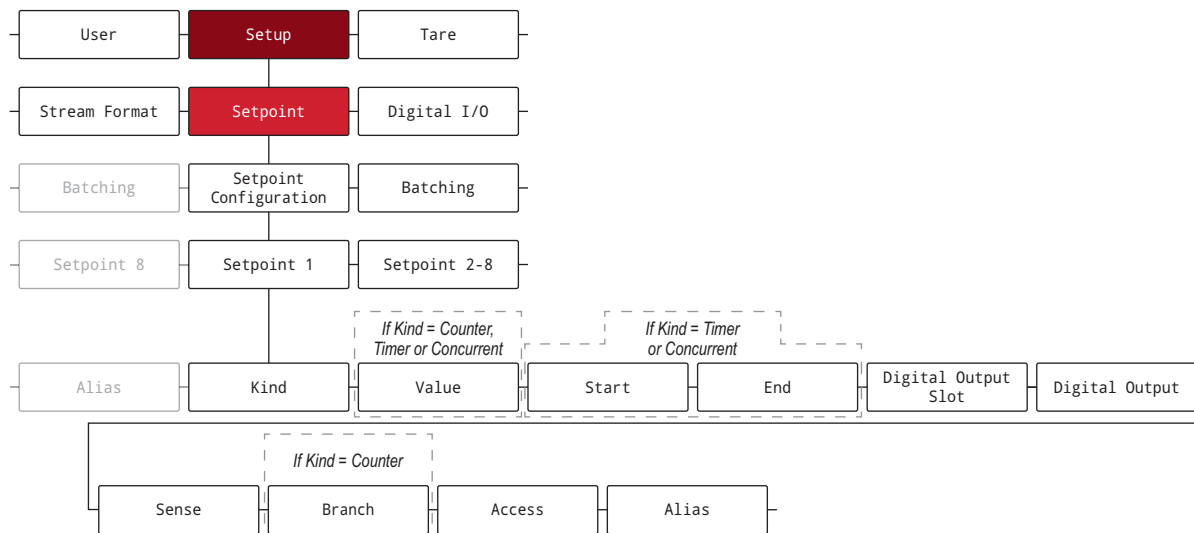


Table 4-21. Kind Parameter Descriptions

| Parameter | Description |
|----------------------------|---|
| Value | For weight-based setpoints: <i>Enter value: 0.0–9999999.0, 0.0 (default)</i> For time-based setpoints: <i>Enter value: 0.0–65535.0, 0.0 (default)</i> For Counter setpoints: <i>Enter value: 0.0–65535.0, 0.0 (default)</i> |
| Trip | Specifies whether the setpoint is satisfied when the weight is higher or lower than the setpoint value, within a band established around the value, or outside of the band; in a batch sequence with Trip = Higher, the associated digital output is active until the setpoint value is reached or exceeded; with Trip = Lower, the output is active until the weight goes below the setpoint value; <i>Settings: Higher (default), Lower, Inband, Outband</i> |
| Band Value | For setpoints with Trip = Inband or Outband, specifies a weight equal to half the band width; The band established around the setpoint value is Value ± Band Value; <i>Enter value: 0.0–9999999.0, 0.0 (default)</i> |
| Hysteresis | Specifies a band around the setpoint value which must be exceeded before the setpoint, once off, can trip on again; <i>Enter value: 0.0–9999999.0, 0.0 (default)</i> |
| Preact | Allows the digital output associated with a setpoint to shut off before the setpoint is satisfied to allow for material in suspension; <i>Settings: Off (default)</i> <i>On</i> – Adjusts setpoint trip value up or down (depending on the Trip parameter setting) from setpoint value using a fixed value specified on the Preact Value parameter <i>Learn</i> – Can be used to automatically adjust the Preact value after each batch; it compares the actual weight at standstill to the target setpoint value and adjusts the Preact Value by the Preact Adjust (%) value times the difference after each batch |
| Start | Specifies starting setpoint number; do not specify number of the Timer or Concurrent setpoint itself; Timer or Concurrent setpoint begins when starting setpoint begins; <i>Enter value: 1–8, 1 (default)</i> |
| End | Specifies ending setpoint number; do not specify number of the Timer or Concurrent setpoint itself; Timer or Concurrent setpoint stops when ending setpoint begins; <i>Enter value: 1–8, 1 (default)</i> |
| Time | For Time Of Day setpoints, specifies the time at which the setpoint becomes active; the format used to enter the time (12hour or 24hour) is based on the value specified for the Time Format parameter in the Program menu (HHMM); <i>Enter value: 0000 (default)</i> |
| Duration | For Time Of Day setpoints; specifies the length of time the digital output associated with this setpoint changes state; value is entered in hours, minutes and seconds (HHMMSS); <i>Enter value: 000000 (default)</i> |
| Preact Value | Specifies the preact value for setpoints with Preact set to On or Learn; depending on the Trip setting specified for the setpoint, the setpoint trip value is adjusted up or down by the Preact Value; <i>Enter value: 0.0–9999999.0, 0.0 (default)</i> |
| Preact Adjust (%) | Setpoints with Preact set to Learn, specifies a decimal representation of the percentage of error correction applied (50.0 = 50%, 100.0 = 100%) each time a Preact adjustment is made; <i>Enter value: 0.0–100.0, 50.0 (default)</i> |
| Preact Stability (seconds) | Setpoints with Preact set to Learn, specifies the time, in 0.1-sec intervals, to wait for standstill before adjusting the Preact value; setting this parameter to a value greater than zero disables the learn process if standstill is not achieved in the specified interval (in tenths of a second); <i>Enter value: 0–65535, 0 (default)</i> |

Table 4-21. Kind Parameter Descriptions (Continued)

| Parameter | Description |
|--------------------------|--|
| Preact Count | Setpoints with Preact set to Learn, specifies the number of batches after which the preact value is recalculated; the default value, 1, recalculates the preact value after every batch cycle; <i>Enter value: 1–65535, 1 (default)</i> |
| Relative Setpoint Number | For relative setpoints, specifies the number of the relative setpoint; <i>Enter value: 1–8, 1 (default)</i> Target weight for this setpoint is determined as follows: Positive Relative setpoints, the value of the relative setpoint plus the value (Value parameter) of the Positive Relative setpoint Negative Relative setpoints, the value of the relative setpoint minus the value of the Negative Relative setpoint Percent Relative setpoints, the percentage (specified on Value parameter of the Percent Relative setpoint) of the target value of the relative setpoint |
| Alarm | Specify On to display the word Alarm on the primary display while the setpoint is active (batch setpoints) or while the setpoint is not tripped (continuous setpoints); <i>Settings: Off (default), On</i> |
| Clear Accumulator | Specify On to clear the accumulator when the setpoint is satisfied; <i>Settings: Off (default), On</i> |
| Clear Tare | Specify On to clear the tare when the setpoint is satisfied; <i>Settings: Off (default), On</i> |
| Push Accumulator | Specify On to update the accumulator and perform a print operation when the setpoint is satisfied; specify On Quiet to update the accumulator without printing; <i>Settings: Off (default), On, On Quiet</i> |
| Push Print | Specify On to perform a print operation when the setpoint is satisfied; specify Wait Standstill to wait for standstill after setpoint is satisfied before printing; <i>Settings: Off (default), On, Wait Standstill</i> |
| Push Tare | Specify On to perform an acquire tare operation when the setpoint is satisfied; <i>Settings: Off (default), On</i> NOTE: Push Tare acquires the tare regardless of the value specified for the Regulatory Mode parameter in the Program menu |
| Digital Output Slot | Lists all available digital I/O slots; this parameter specifies the slot number of the digital I/O card referenced by the Digital Output setpoint; <i>Settings: None (default), 0, 1</i> |
| Digital Output | Lists all digital output bit numbers available for the specified Digital Output Slot; this parameter is used to specify the digital output bit associated with this setpoint; use the Digital I/O menu to assign bit function to Output; <i>Enter value: 1–4, 1 (default)</i> NOTE: For continuous setpoints, the digital output becomes active (low) when the condition is met; for batch setpoints, the digital output is active until the setpoint condition is met |
| Sense | Specifies whether the value of the digital output associated with this setpoint is inverted when the setpoint is satisfied; <i>Settings: Normal (default), Invert</i> |
| Batch | Specifies whether the setpoint is used as a batch (On) or continuous (Off) setpoint; <i>Settings: Off (default), On</i> |
| Branch | Specifies the setpoint number to which the batch sequence is to branch, if the current setpoint is not satisfied upon initial evaluation (0 = do not branch); <i>Enter value: 0–8, 0 (default)</i> |
| Enable | Specifies if setpoint parameters display in User mode; <i>Settings: On (default), Off</i> |
| Access | Specifies the access allowed to setpoint parameters in User mode; <i>Settings:</i> On (default) – Values can be displayed and changed HIDE – Values cannot be displayed or changed OFF – Values can be displayed but not changed |
| Alias | Name for the setpoint; <i>Enter characters: Alphanumeric entry up to 8 characters, SETPT# (default)</i> |

4.5.9 Digital I/O Menu

This section provides a flow chart and descriptions for the Digital I/O menu.

Figure 4-25. Digital I/O Menu

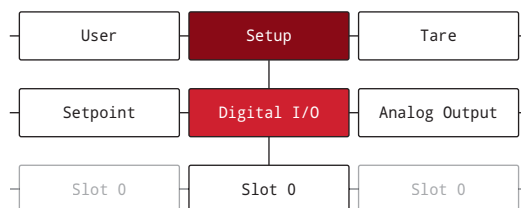


Table 4-22. Digital I/O Menu Parameters

| Parameter | Description |
|-----------|--|
| Bit 1-4 | Digital I/O Bit 1-4 – Specifies the mode and function of the digital I/O pins; <i>Settings: Off (default), Print, Zero, Tare, Units, Primary, Secondary, Clear, Display Accumulator, Display Tare, Clear Accumulator, Clear Tare, Net/Gross, Gross, Net, Clear Consecutive Number, Keyboard Lock, Batch Run, Batch Start, Batch Pause, Batch Reset, Batch Stop, Output</i> |

4.5.10 Analog Output Menu

This section provides a flow chart and descriptions for the Analog Output menu. The Analog Output menu is only functional if the analog output option card is installed. If the option card is not installed, the menu is visible, but not functional. If the analog output option card is installed, configure all other indicator functions and calibrate the indicator before configuring the analog output. Instructions to install and setup the analog output option card are provided with the option card kit (PN 195084).

Figure 4-26. Analog Output Menu

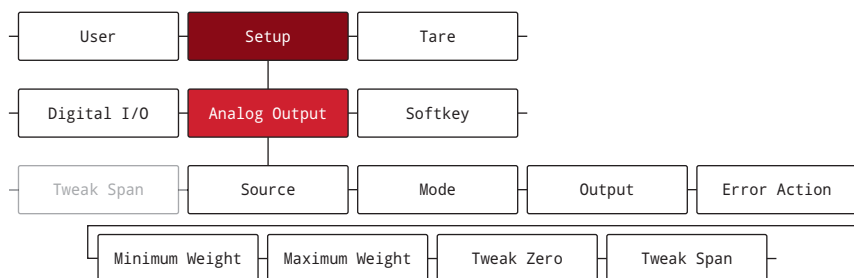


Table 4-23. Analog Output Menu Parameters

| Parameter | Description |
|----------------|---|
| Source | Specifies the scale tracked by the analog output; Only appears if the Regulatory Mode parameter is set to Industrial; <i>Settings: Scale 1 (default), Remote</i> |
| Mode | Specifies the weight data, gross or net, tracked by the analog output when the Source parameter is assigned to a scale; <i>Settings: Gross (default), Net</i> |
| Output | Specifies the type/range of the output; <i>Settings: 0-10V (default), 0-20mA, 4-20mA</i> |
| Error Action | Specifies how the analog output responds to system error conditions; <i>Settings: Full Scale (default) – Set to full scale (10 V or 20 mA) Hold – Holds current value Zero Scale – Sets to zero value (0 V, 0 mA or 4 mA)</i> |
| Minimum Weight | Specifies the minimum weight value tracked by the analog output; <i>Enter value: ±9999999.0, 0.0 (default)</i> |
| Maximum Weight | Specifies the maximum weight value tracked by the analog output; <i>Enter value: ±9999999.0, 10000.0 (default)</i> |
| Tweak Zero | Adjusts the offset of the analog output zero value; <i>Enter value: 0-65535, 0 (default)</i> |
| Tweak Span | Adjusts the offset of the analog output span value; <i>Enter value: 0-65535, 59515 (default)</i> |

4.5.11 Softkey Menu

This section provides a flow chart and descriptions for the Softkey menu. Softkeys are configured to provide additional operator functions. Configured softkeys are at the bottom of the display and are activated by the physical key directly below them. If six or more softkeys are enabled, left and right arrows appear in the outside softkeys to allow navigation between available softkeys. See [Section 3.4.19 on page 27](#) for softkey configuration procedure.

Figure 4-27. Softkey Menu

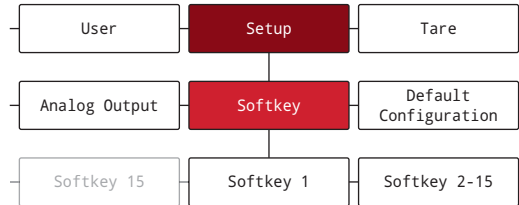


Table 4-24. Softkey Menu Parameters

| Parameter | Description |
|--------------|---|
| Softkey 1-15 | Specifies the operator function assigned to each available softkey; Settings: None (default), Blank, Time Date, Display Tare, Display Accumulator, Setpoint, Batch Stop, Batch Start, Batch Pause, Batch Reset, Stop, Go, Off, Display UID, Alibi, Weigh In, Weigh Out, Truck Regs, Auxiliary Format 1-4 |

4.6 Tare Menu

This section provides a flow chart and descriptions for the Tare menu.

Figure 4-28. Tare Menu

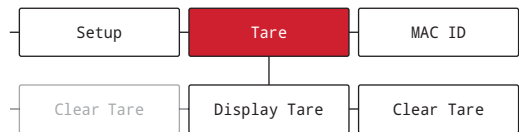


Table 4-25. Tare Menu Parameters

| Parameter | Description |
|--------------|---|
| Display Tare | Displays the current tare value (read only) |
| Clear Tare | Clears the current tare value |

5.0 Split Mode Configuration

The 682 supports multi-range and multi-interval scales of either two or three ranges or intervals. The full scale capacity is the second range/interval when just Range 1 is set or the third range/interval when Range 1 and Range 2 are set.

Figure 5-1. Setup – Scale Format Menu – Split Mode

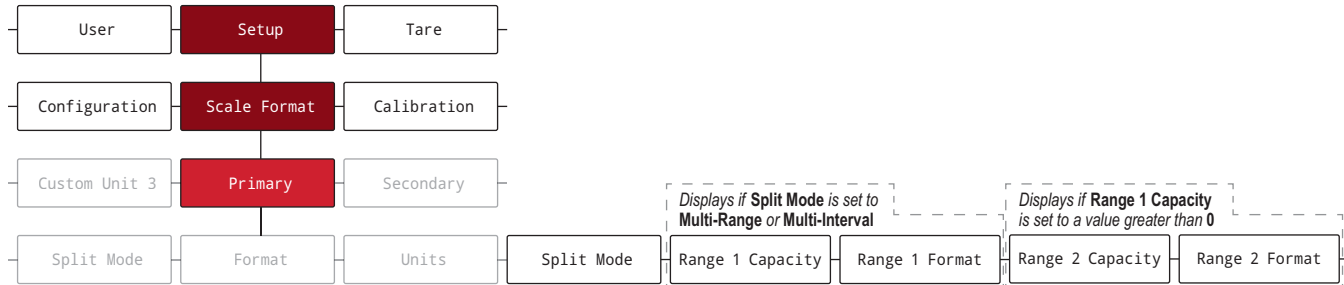


Table 5-1. Split Mode Options

| Mode | Description |
|----------------|--|
| Multi-Range | Provides two or three ranges, each extending to the maximum capacity specified for each range; the scale display division changes as the applied weight increases, but does not reset to lower display divisions until the scale returns to center of zero |
| Multi-Interval | Divides the scale capacity into two or three partial weighing intervals, each with different display divisions; the intervals extend to the maximum capacity specified for each interval; the display divisions change with both increasing and decreasing loads |
| Off | Disables split mode |

Table 5-2. Split Mode – Sub-Parameters

| Parameter | Description |
|-------------------------|--|
| Range 1 Capacity (MRMI) | Sets the capacity of Range 1 for the scale in primary units; this parameter must be set for Range 2 Capacity and Range 2 Format to display; <i>Enter value: 0.0-9999999.0, 0.0 (default)</i> |
| Range 1 Format | Sets the Range 1 units format (decimal point and display divisions); <i>Settings: 8888881 (default), 8888882, 8888885, 8888810, 8888820, 8888850, 8888100, 8888200, 8888500, 88.88881, 88.88882, 88.88885, 888.8881, 888.8882, 888.8885, 8888.881, 8888.882, 8888.885, 88888.81, 88888.82, 88888.85, 888888.1, 888888.2, 888888.5</i> |
| Range 2 Capacity (MRMI) | Sets the capacity of Range 2 for the scale in primary units; only displays if Range 1 Capacity is set to a value greater than 0; <i>Enter value: 0.0-9999999.0, 0.0 (default)</i> |
| Range 2 Format | Sets the Range 2 units format (decimal point and display divisions); only displays if Range 1 Capacity is set to a value greater than 0; <i>Settings: 8888881 (default), 8888882, 8888885, 8888810, 8888820, 8888850, 8888100, 8888200, 8888500, 88.88881, 88.88882, 88.88885, 888.8881, 888.8882, 888.8885, 8888.881, 8888.882, 8888.885, 88888.81, 88888.82, 88888.85, 888888.1, 888888.2, 888888.5</i> |

5.1 Configure a Multi-Range or Multi-Interval Scale

Access to *Setup* mode (Section 4.1 on page 29) is required.

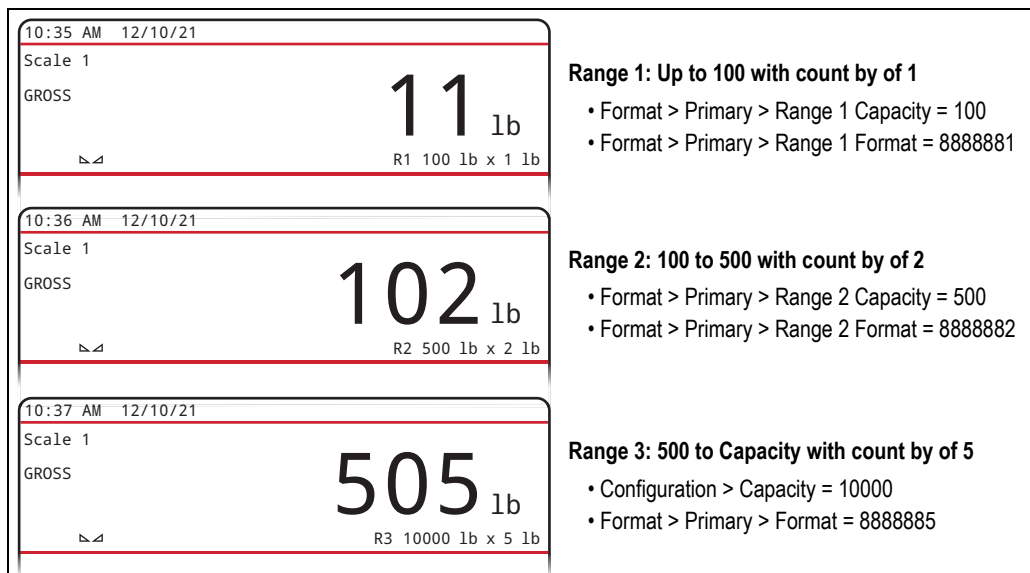
1. Navigate to the Configuration menu within the Setup menu. Configuration displays.
2. Press . Scale Format displays.
3. Press . Primary displays.
4. Press . Format displays.
5. Press . Split Mode displays.
6. Press . The setting options for split mode displays.
7. Press and to select Multi-Range or Multi-Interval.
8. Press . Range 1 Capacity displays. See Section 5.0 on page 54 for more information on split mode.
9. Press . The current Range 1 weight value displays.
10. Use the numeric keypad to enter a new value, if necessary.
11. Press to accept value. Range 1 Format displays.
12. Press . The current Range 1 Format setting displays.
13. Use and to move to a new setting, if necessary.
14. Press to accept format setting. Range 2 Capacity displays.



NOTE: A Range 1 Capacity must be set for a Range 2 Capacity to appear as an option. The full scale capacity is the second range/interval when just Range 1 is set or the third range/interval when Range 1 and Range 2 are set.

15. Repeat previous steps for Range 2, if necessary.
16. Press to return to *Weigh* mode.

Figure 5-2. Split Mode Multi-Range Example



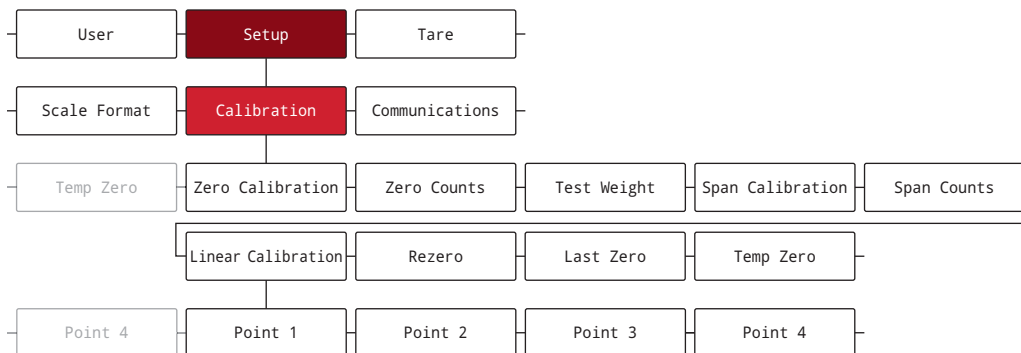
NOTE: When using Multi-Range, the last range/count by reached is held until returning to zero, even when descending through other ranges. When using Multi-Interval, range/count by changes both when ascending and descending.

6.0 Calibration

The 682 can be calibrated using the front panel and EDP commands. The following sections describe the procedures required for these calibration methods.

 **NOTE:** The 682 requires a Zero Calibration and Span Calibration to be calibrated. The Linear Calibration points are optional; they must fall between zero and span, but must not duplicate zero or span.



Figure 6-1. Setup – Calibration Menu










6.1 Front Panel Calibration


6.1.1 Span Calibration


Use the following procedure to perform a standard span calibration on a connected scale. Access to *Setup* mode (Section 4.1 on page 29) is required.

1. Navigate to the Configuration menu within the Setup menu. Configuration displays.
2. Press  twice. Calibration displays.
3. Press . Zero Calibration displays.

 **NOTE:** See Section 6.2 on page 57 if the application requires a rezero, last zero or temporary zero.










4. Ensure there is no weight on the scale.
5. Press  to perform a zero calibration. Please Wait displays briefly and then Zero Calibration Complete displays.
6. Press . Zero Counts displays. See Section 4.5.3 on page 35 for more information on zero counts.
7. Press . Test Weight displays.
8. Press . The current test weight value displays.
9. Use the numeric keypad to enter a new value, if necessary.
10. Press  to accept value. Span Calibration displays.
11. Place the specified amount of test weight on the scale.
12. Press  to perform a span calibration. Please Wait displays briefly and then Span Calibration Complete displays.
13. Press . Span Counts displays. See Section 4.5.3 on page 35 for more information on span counts.

 **NOTE:** Span calibration is complete. To continue with a linear calibration, see Section 6.1.2 on page 57 before returning to Weigh mode.

14. Press  to return to Weigh mode.


6.1.2 Linear Calibration

Linear calibration points provide increased scale accuracy by calibrating the indicator at up to four additional points between the zero and span calibrations. Access to *Setup* mode (Section 4.1 on page 29) is required.

1. Complete steps 1–13 in Section 6.1.1 on page 56.
2. Press . Linear Calibration displays.
3. Press . Point 1 displays.
4. Press . Linear Point 1 Weight displays.
5. Press . The current test weight value for point 1 displays.
6. Use the numeric keypad to enter a new value, if necessary.
7. Press  to accept value. Calibrate Linear Point 1 displays.
8. Place the specified amount of test weight on the scale.
9. Press  to perform a linear point calibration. Please Wait displays briefly and then Point Calibration Complete displays.
10. Press . Linear Point 1 Counts displays. See Section 4.5.3 on page 35 for more information on linear point counts.
11. Press . Point 1 displays.
12. Press . Point 2 displays.
13. Repeat previous steps for points 2-4, if necessary.



NOTE: The linear calibration for a point is saved once point is calibrated.

14. Press  to return to *Weigh* mode.

6.2 Alternative Zero Calibrations

During a calibration, the zero value can be replaced with a temporary zero or last zero.

A rezero can be done after calibration. See below for information on alternative zeros.

6.2.1 Last Zero

This takes the last push-button zero in the system (from *Weigh* mode) and uses it as the new zero reference point, after which a new span calibration must be performed. This calibration cannot be performed when calibrating a scale for the first time.

A last zero calibration is typically used on truck scales to allow a scale verification to become a calibration without having to remove the test weights.

6.2.2 Temporary Zero

A temporary zero calibration temporarily zeros the displayed weight of a non-empty scale. After span calibration, the difference between the temporary zero and the previously calibrated zero value is used as an offset.

A temporary zero calibration is typically used on hopper scales to calibrate the span without losing the original zero calibration.

6.2.3 Rezero

A rezero calibration is needed to remove a calibration offset when hooks or chains are required to suspend the test weights.

Once a span calibration is complete, remove the hooks or chains and the test weights from the scale. With all the weight removed, a rezero calibration is used to adjust the zero and span calibration values.

6.3 EDP Command Calibration

Use the following instructions to calibrate the 682 using EDP commands. For information on the EDP commands of the 682, see [Section 12.0 on page 84](#). Access to *Setup* mode ([Section 4.1 on page 29](#)) is required.



NOTE: *The indicator must respond with OK after each step or the calibration procedure must be done again. For commands ending with #s, s is the scale number (1).*

1. Put the indicator in *Setup* mode ([Section 4.1 on page 29](#)).
2. For a standard calibration, remove all weight from scale (except hooks or chains which are needed to attach weights).
3. Send the command **SC.WZERO#s** to perform a standard calibration of the zero point.
 - Send **SC.TEMPZERO#s** to perform a temporary zero calibration
 - Send **SC.LASTZERO#s** to perform a last zero calibration
4. Apply the span calibration weight to the scale.
5. Send the command **SC.WVAL#s=xxxxx**, where **xxxxx** is the value of the span calibration weight applied to the scale.
6. Send the command **SC.WSPAN#s** to calibrate the span point. Continue on to [step 7](#) to calibrate additional linear points, or proceed to [step 11](#).
7. Apply weight equal to the first linear point to the scale.
8. Send the command **SC.WLIN.Vn#s=xxxxx**, where **n** is the linear point number (1-4) and **xxxxx** is the exact value of the weight applied.
9. Send the command **SC.WLIN.Cn#s** to calibrate the linear point, where **n** is the linear point number (1-4).
10. Repeat [steps 7–9](#) for up to four total linear points.
11. If hooks or chains were used to attach the weights, remove all weight, including the hooks and chains, and send the command **SC.REZERO#s** to remove the zero offset.
12. Send the command **KSAVEEXIT** to return to *Weigh* mode.

7.0 Truck Modes

The truck in/out modes are used to handle multiple truck IDs and weights. Truck IDs can be up to 16 alphanumeric characters in length. Six available truck modes combine stored truck IDs, keyed tares and value swapping features in various ways.



NOTE: A microSD card must be installed memory card slot in order for the indicator to store truck IDs in a truck mode. The 682 indicator comes with an 8 GB microSD card installed.

Figure 7-1. Program Menu – Truck Program

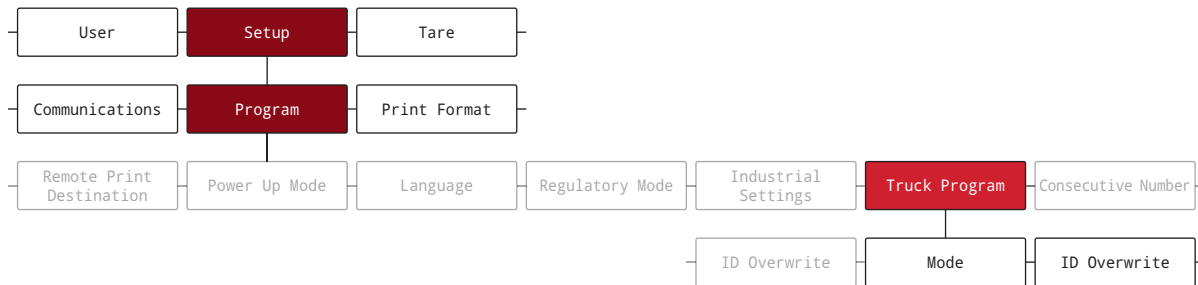


Table 7-1. Available Truck Modes

| Mode | Stored IDs | Keyed Tares | Value Swapping |
|--------|------------|-------------|----------------|
| Mode 1 | No | Yes | Yes |
| Mode 2 | No | No | Yes |
| Mode 3 | Yes | Yes | Yes |
| Mode 4 | Yes | No | Yes |
| Mode 5 | Yes | Yes | No |
| Mode 6 | Yes | No | No |
| Off | | | |

Stored IDs – Keeps a database of truck IDs and weigh-in weights in the indicator’s memory. The indicator can automatically store up to 1,000 truck IDs and tares or it can clear the information after printing a weigh-out ticket. For example, if the same truck seldom crosses the scale, it may not be practical to save its truck ID and weigh-in weight. However, if that same truck crosses the scale many times each day, it’s more convenient to store the information in the indicator memory and recall it when needed. Stored truck IDs and weights are available in modes 3, 4, 5 and 6.



NOTE: By default, Stored IDs can not be entered a second time for duplicate weigh-ins. The ID Overwrite parameter can be Enabled to allow duplicate Truck IDs to replace Stored IDs.

Keyed Tares – Allows manual entering of the tare weight using the numeric keypad and the **Tare** key. Keyed tares are available in modes 1, 3 and 5. To use keyed tares, an incoming truck must be empty at weigh-in, full at weigh-out.












NOTE: Some local regulations require the tare weight to be read from the scale. If so, don’t use the keyed tares feature.

Value Swapping – Ensures that the lowest of the two associated weight values of a truck ID is used as the tare weight. For example, if a truck crosses the scale fully loaded at weigh-in, then unloads and crosses the scale empty at weigh-out, the indicator automatically assigns the lesser (empty truck) weight as the tare. Value swapping is available in modes 1, 2, 3 and 4.

7.1 Using the Truck Modes

Configuring a truck in/out mode requires access to *Setup* mode ([Section 4.1 on page 29](#)).

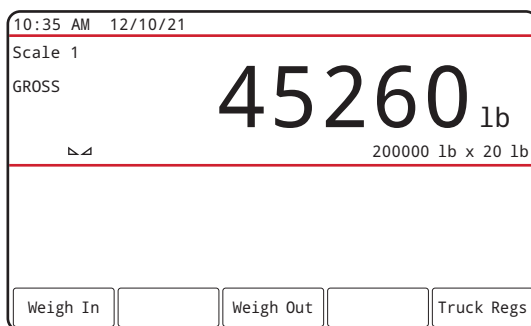
1. Navigate to the Configuration menu within the Setup menu. Configuration displays.
2. Press or until Program displays.
3. Press . Power Up Mode displays.
4. Press or until Truck Program displays.

5. Press . Mode displays.
6. Press . The current truck mode setting is highlighted.
7. Press  or  to navigate to the desired truck mode, if necessary.
8. Press  to accept the highlighted truck mode.
9. Press  twice to navigate back up to the Setup menu level. Program displays.
10. Press  or  until Softkey displays.
11. Press  and configure softkeys to **Weigh In**, **Weigh Out** and **Truck Regs**. See [Section 3.4.19 on page 27](#) for procedure on configuring softkeys. These three softkeys are required when using the truck modes.



NOTE: Softkey 2 and Softkey 4 must be set to Blank in order to achieve the softkey arrangement in [Figure 7-2](#).

Figure 7-2. Truck Mode Softkeys



12. Once softkeys are configured, press  to return to *Weigh* mode.

7.2 Using the Truck Register Display

The **Truck Regs** display is shown by pressing the **Truck Regs** softkey in *Weigh* mode. The display contains an alphabetical list of stored truck IDs, weigh-in weights (in primary units), and the time and date of the weigh-in transaction.

Figure 7-3. Truck Register Display

| 10:38 AM 12/10/21 | | Truck IDs | |
|-------------------|---|-----------|----------------------|
| ACME 155 | : | 45120 lb | 10:50 AM 11/11/21 |
| ACME 160 | : | 32240 lb | 02:32 PM 12/09/21 |
| Green 11 | : | 32320 lb | 08:55 AM 10/14/21 |
| RLWS 123 | : | 41420 lb | 12:24 PM 10/28/21 |
| Truck 01 | : | 34560 lb | 09:08 AM 12/02/21 |
| Page Up | | Page Down | Cancel |
| | | Delete | Delete All |

Softkeys shown at the bottom of the **Truck Regs** display are described below.

- **Page Up** – Displays previous page of the truck register.
- **Page Down** – Displays next page of the truck register.
- **Cancel** – Exits to *Weigh* mode.
- **Delete** – Deletes the highlighted truck ID from the truck register.
- **Delete All** – Deletes all truck IDs from the truck register.

The truck register, for the highlighted entry, can be printed to an attached printer by pressing the **Print** key while the Truck Regs display is shown. The printed register uses the **Truck Format** print format ([Section 4.5.6 on page 45](#)).

7.3 Weigh-In Procedure

In modes 1 and 2, the indicator erases truck ID numbers and tare weights from memory after the transaction. In modes 3–6, the truck ID and weigh-in weight values are saved after the weigh-out ticket has been processed.

The general weigh-in procedure is as follows:

1. The empty truck moves onto the scale for weigh-in.
2. Press the **Weigh In** softkey. The keyboard truck ID entry screen displays.
3. Enter the truck ID (up to 16 characters) using the alphanumeric entry procedure ([Section 3.3.2 on page 20](#)).



NOTE: The numeric keypad can be used to enter numbers for truck IDs.

4. Press **✕ Cancel** softkey to exit without saving.
- Or -
Press **✓ Save** softkey to save and exit when the truck ID is correct.
5. Display returns to *Weigh* mode and the indicator prints a weigh-in ticket.
ID 304812
GROSS 15000 LB INBOUND
01/14/2022 10:24 AM
6. Truck leaves the scale.

7.4 Weigh-Out Procedure

The general weigh-out procedure is as follows:

1. The loaded truck moves onto the scale for weigh-out.
2. If truck ID is known, press the **Weigh Out** softkey, enter the truck ID, and press **✓ Save** softkey.
If truck ID is not known, press the **Truck Regs** softkey to view list of stored truck IDs ([Figure 7-3 on page 60](#)). Scroll to the correct truck ID, note the truck ID, then press the **Cancel** softkey to return to the *Weigh* mode. From *Weigh* mode, press **Weigh Out** softkey, key in the truck ID, then press **✓ Save** softkey.
3. Display returns to *Weigh* mode and the indicator prints a weigh-out ticket. In modes 1 and 2, the truck ID is deleted once the weigh-out ticket is processed.

7.5 Single-Transaction Tare Weights and IDs

One-time transactions are supported in all modes that can be configured to use stored Truck IDs (modes 3–6). This function allows one-time weighing of trucks without adding the truck ID and weigh-in weight to the permanent truck register.

To use this function, press the **Weigh In** or **Weigh Out** softkey, then enter a truck ID containing a decimal point. Truck IDs entered with a decimal point as part of the truck ID are erased from the truck register when the transaction is complete.

8.0 HTTP Web Server

The 682 web server allows for remote viewing of the current 682 *Weigh* mode values through a web browser. The web server also allows for the use of certain 682 function keys and the ability to view and update active setpoint values.

8.1 Access Procedure

Configuring the HTTP Web Server requires access to *Setup* mode ([Section 4.1 on page 29](#)).

1. Connect the 682 Ethernet port (J8) directly to a PC or through a network router or switch.



NOTE: The web server is not available through Wi-Fi.

2. Navigate to the Configuration menu within the Setup menu. Configuration displays.
3. Press . Serial displays.
4. Press or until Ethernet displays.
5. Press . Ethernet MAC ID displays.
6. Press . Http Server displays.
7. Press . The current setting for Http Server is highlighted. Make sure **On** is selected and press .
8. Press or until Enabled displays.
9. Press . The current setting for Enabled is highlighted. Make sure **On** is selected and press .
10. Press to return to *Weigh* mode to allow the indicator to initialize the updated settings.
11. Reenter the Setup menu in *Setup* mode and navigate to the Communications menu. Communications displays.
12. Press . Serial displays.
13. Press or until Ethernet displays.
14. Press . Ethernet MAC ID displays.
15. Press or until IP Address displays.
16. Press . The current IP Address displays.
17. Type the current IP Address into a web browser to access the 682 web server.
18. Press twice to return to *Weigh* mode.

8.2 Browser Display

This section provides an example of the 682 web server browser display and describes all the features and their functions.

Figure 8-1. Web Server Browser Display

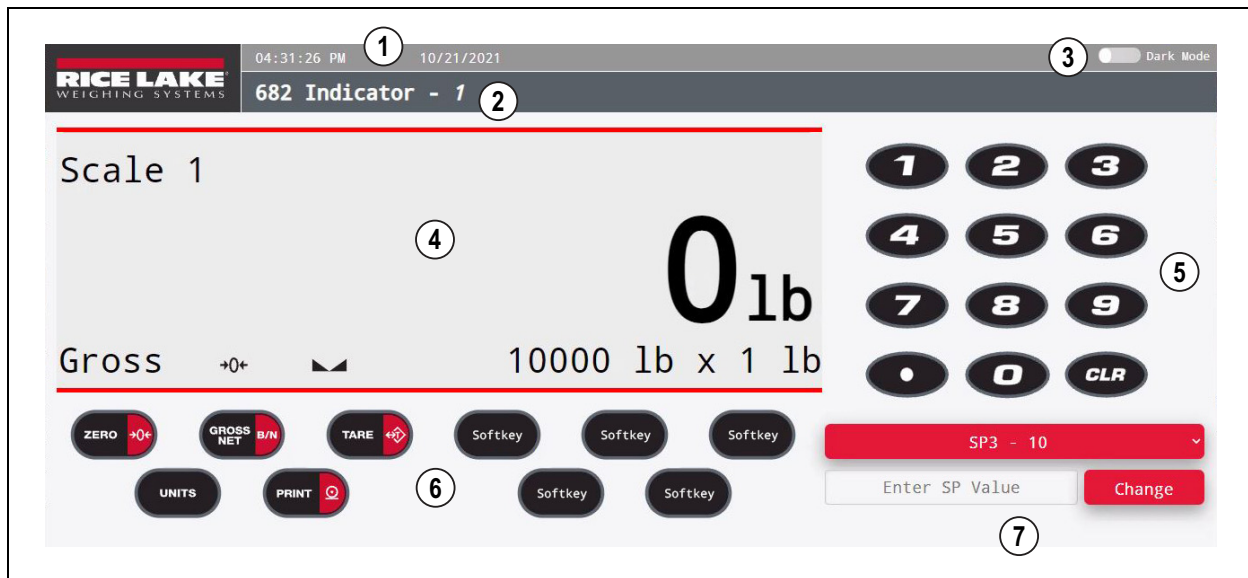


Table 8-1. Web Server Display Descriptions

| Item No. | Description |
|----------|--|
| 1 | Current time and date |
| 2 | Unit ID location |
| 3 | Dark mode display option toggle; adjusts display for lowlight or nighttime viewing |
| 4 | Current 682 weight display area |
| 5 | Remote numeric keypad |
| 6 | Remote function keys and softkeys |
| 7 | Ability to view and update setpoint values if Access is set to On for the selected setpoint, otherwise selecting the Change button has no effect |



NOTE: Text that appears in the message display area of the 682 is not shown via the web server.

9.0 Wi-Fi & Bluetooth® Communications

The 682 is a Wi-Fi and/or Bluetooth® device. The following sections provide details on Wi-Fi and Bluetooth® communications and describe the procedures required to configure these features.

The 682 features a Lantronix® xPico 200 Series wireless module. Visit www.lantronix.com to view the xPico 200 Series User Guide for detailed instructions on the module.



NOTE: The use of a web browser on a computer or handheld device is needed to access the wireless module's built-in Web Manager. See [Section 3.4.17 on page 26](#) to view the Wi-Fi and Bluetooth® MAC Addresses from the 682 display.

Soft AP (Access Point) Details

- Name: **RLWS_XXXXXX**
- Password: **PASSWORD**
- Configuration Page: **http://192.168.0.1**



NOTE: The Soft AP only shows up as a 5-GHz network. The connecting device must be capable of using the 5 GHz band to connect to the Soft AP. Setup → Communications → WiFi & Bluetooth → Enabled defaults to Off and must be set to WiFi, Bluetooth or Both to enable Wi-Fi & Bluetooth communications and allow the Soft AP to be available.

9.1 Bluetooth® Communications

To enable Bluetooth® for the 682 indicator, navigate to Setup → Communications → WiFi & Bluetooth → Enabled, and select Bluetooth or Both. This parameter is only accessible in Setup mode ([Section 4.1 on page 29](#)).

Once enabled, scan for available Bluetooth® devices on the device that is intended to be paired with the 682 and pair the intended Bluetooth® device with the 682 wireless module's Bluetooth® connection. The 682 wireless module's Bluetooth® device name is **RLWS_XXXXXXXXXXXX**.



NOTE: The X's in the name represent the entire Bluetooth® MAC address.

9.2 Wi-Fi Communications

The 682 creates a Wi-Fi network that can be connected to with a computer or the location's network. Configuration of the wireless settings is done through the built-in Web Manager. The Web Manager can be accessed through the built-in Soft AP (Access Point). The Soft AP can be used to connect to a location's network using the Web Manager. In applications that don't have a local network to connect to or if the network is not in range, the Soft AP connection can also be used to talk to a 682 by connecting to IP 192.168.0.1, port 10001.

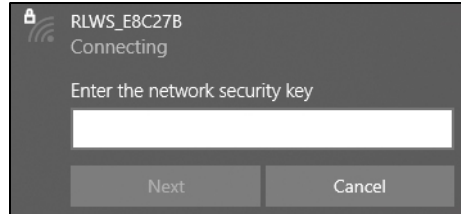
9.2.1 Wi-Fi Setup

The following procedure is for setting up the Wi-Fi network using the wireless module's built-in Web Manager.

1. Power on the 682 indicator.
2. To enable the wireless module and specify wireless communications in the 682 menu:
 - In Setup mode ([Section 4.1 on page 29](#)), navigate to Setup → Communications → WiFi & Bluetooth → Enabled, and set to WiFi or Both.
 - Return to *Weigh* mode to allow the change to initialize.

3. Scan for available Wi-Fi networks using a computer or handheld device and connect to the Soft AP. It might take a few attempts before the Soft AP appears on the computer or device. The Soft AP only shows up as a 5-GHz network.
 - Soft AP Name: **RLWS_XXXXXX**
 - Soft AP Password: **PASSWORD**

! *IMPORTANT: It is recommended to change default passwords to limit access and for security.*



✍ *NOTE: The X's in the name represent the last 6 digits of the Wi-Fi MAC address. The serial number on the wireless module's label is almost the same, other than the last digit being one number/character less than the Wi-Fi MAC address. FOR EXAMPLE: If the module's serial number is "0080A3E8C27A", then the SSID would be "RLWS_E8C27B". The MAC address is a Hexadecimal value, so the letter A follows the number 9, and this continues to F before incrementing the next most significant digit and returning to 0.*

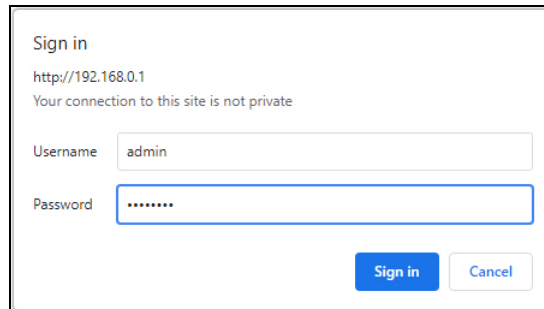
NOTE: The wireless module's serial number is the same as the Bluetooth® MAC address.

4. Once connected to the Soft AP, use a web browser and enter **192.168.0.1** as the URL address and press **Enter**.

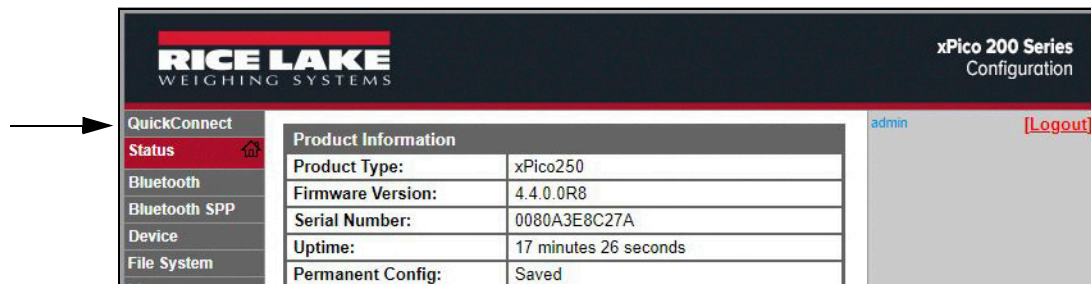
✍ *NOTE: Once connected to a network, a web browser on that network can connect to the Web Manager by simply navigating to the wireless module's IP Address (available on the Status page of the Web Manager).*

5. Enter the default login credentials for the Web Manager.
 - Username: **admin**
 - Password: **PASSWORD**

! *IMPORTANT: It is recommended to change default passwords to limit access and for security.*



6. Press **Sign in**. The Web Manager loads in the browser and the **Status** page appears.
7. Click **QuickConnect** at the top of the left navigation panel.



8. A list of wireless networks appear. Click the network name intended to connect the wireless module's Wi-Fi network to.



NOTE: If the necessary network does not display, click the **Scan** button again. It may take a few tries to show the network. If the network is hidden, enter the network name in the box provided.



NOTE: The Web Manager provides notes and information related to the current page in the far right column. Descriptions for options and settings are also provided when hovering over the item in question.

9. The wireless network information page appears. Enter the network password (if applicable).



NOTE: Contact location's IT administrator to obtain network credentials as needed based on the security in place.

10. Click **Submit** to apply and save the settings. A message displays at the top of the page to indicate if the new network's Profile saved successfully. It does not necessarily mean it is connected to the network.



NOTE: The **Apply** button only applies the settings for the current session, but does NOT save them.

11. To verify wireless module is connected to the location's network, click **Status** near the top of the left navigation panel.

12. The **Status** page displays the network connections on the device under **Network Settings**.

| Line | Network Settings | |
|---------------|----------------------|-------------------|
| Network | Interface ap0 | |
| Radio | MAC Address: | 02:80:A3:E8:C2:7B |
| Tunnel | State: | Up |
| User | SSID: | xPico250_E8C27A |
| WLAN Profiles | Security Suite: | WPA2 |
| | IP Address: | 192.168.0.1/24 |
| | Interface eth0 | |
| | MAC Address: | 00:80:A3:E8:C2:7A |
| | State: | Down |
| | Interface wlan0 | |
| | MAC Address: | 00:80:A3:E8:C2:7B |
| | Connection State: | Connected |
| | Active WLAN Profile: | ABC_Wifi |
| | Hostname: | |
| | IP Address: | 192.168.50.24/24 |
| | Default Gateway: | 192.168.50.1 |

- **If Connected:** Interface wlan0 is listed with **Connection State** showing **Connected** and the **IP Address** populated.



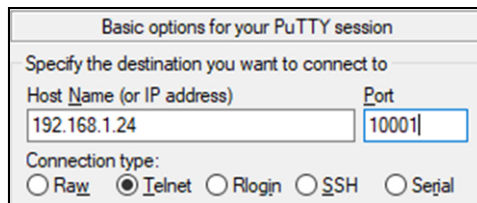
NOTE: The “/24” at the end of the IP Address indicates the number of bits set for the network subnet mask and is not part of the IP Address itself. There are 32 bits in a subnet mask and “/24” indicates the subnet mask is 255.255.255.0.

- **If Not Connected:** First try refreshing the browser to see if the information populates, then click **WLAN Profiles** at the bottom of the left navigation panel to change the network settings and try again.

13. Connecting to the wireless module’s server with a remote client is now possible.

14. Using a Terminal Emulation program, such as PuTTY, as a remote client connection to the wireless module’s server over Telnet is possible using the IP Address that was noted in [Step 12 on page 67](#) and the Local Port number, which by default is 10001.

Figure 9-1. PuTTY Example



NOTE: If the card’s IP address changed and there is no longer access to the card through the location’s wireless network, connect to the Soft AP and use the Web Manager to learn the new IP Address.

For more information on features of this card, visit www.lantronix.com to view the xPico 200 Series User Guide.

9.2.2 Server Configuration

The wireless module is configured to be a server by default, with the ability to accept the connection of a client to it.

- A **Server** is waiting to **Accept** a connection from a Client.
- A **Client** is looking to **Connect** to a remote Server (host).



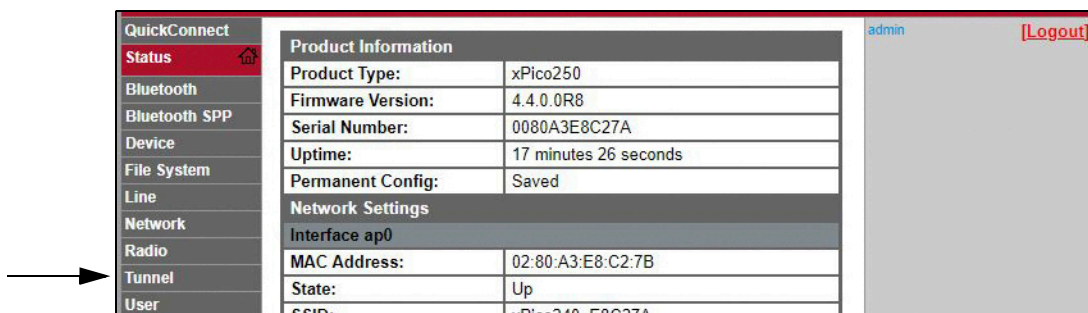
NOTE: Even though a device can be set up for both, typically it is only set up as one or the other.

The following procedure shows where the wireless module's server settings are found using the Web Manager.

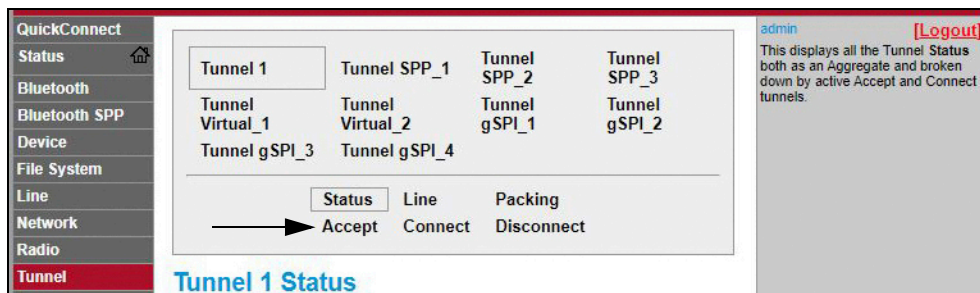


NOTE: Making changes to the Tunnel 1 Accept Configuration settings may impact the wireless module's connection to the location's network, established in Wi-Fi Setup (Section 9.2.1 on page 64).

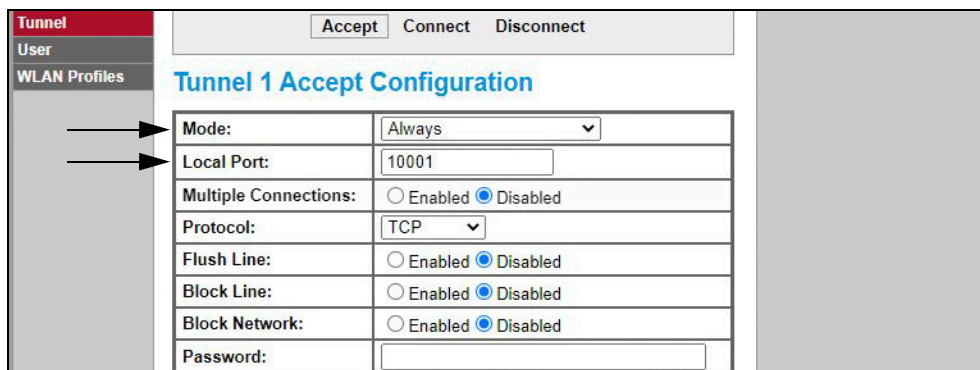
1. Refer to Steps 1-6 in Section 9.2.1 on page 64 to sign in to the Web Manager.
2. Click **Tunnel** in the left navigation panel.



3. Click **Accept** towards the top of the **Tunnel 1 Status** page.



4. Change the **Mode** and **Local Port** settings if needed.



5. Click **Submit** at the bottom of the page to apply and save the settings. A message displays at the top of the page to confirm the changes have been saved permanently.

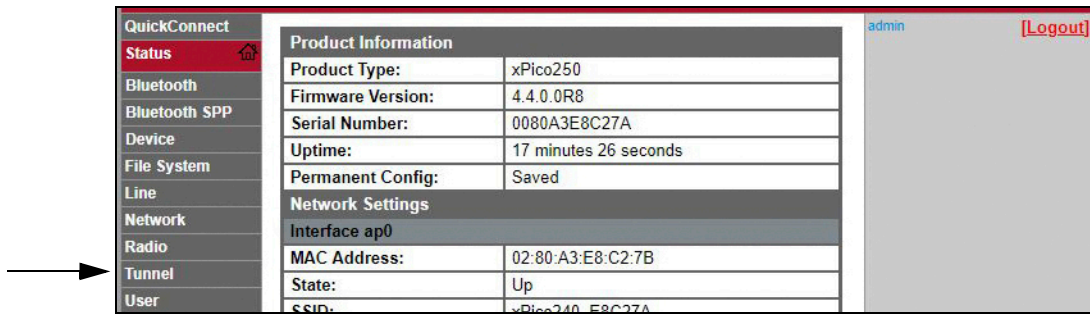
9.2.3 Client Configuration

The wireless module is configured to be a server by default, with the ability to accept the connection of a client to it.

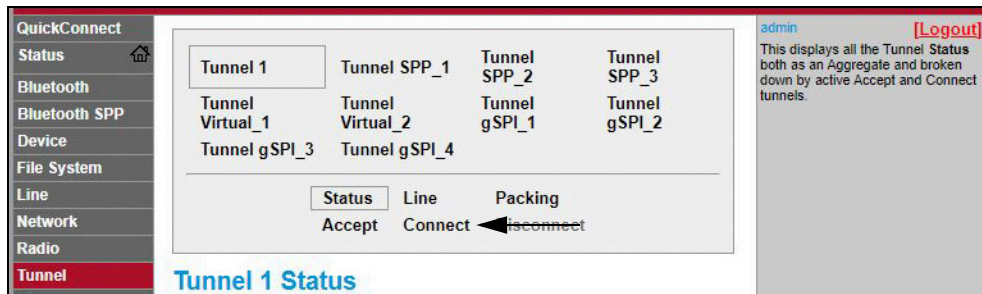
- A **Server** is waiting to **Accept** a connection from a Client.
- A **Client** is looking to **Connect** to a remote Server (host).

The following procedure is for configuring the wireless module as a client, using the Web Manager, to be able to connect the wireless module to an available server connection.

1. Refer to [Steps 1-6 in Section 9.2.1 on page 64](#) to sign in to the Web Manager.
2. Click **Tunnel** in the left navigation panel.



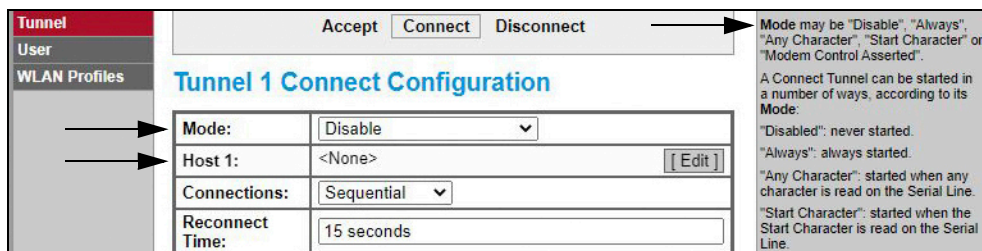
3. Click **Connect** towards the top of the **Tunnel 1 Status** page.



4. Use the drop-down to change the **Mode** setting, and then click **[Edit]** to display available **Host 1** settings.



NOTE: The Web Manager provides notes and information related to the current page in the far right column. Descriptions for options and settings are also provided when hovering over the item in question.



- Set the **Address** and **Port** as needed to connect to the intended available server connection.

- Click **Submit** at the bottom of the page to apply and save the settings. A message displays at the top of the page to confirm the changes have been saved permanently.



NOTE: While the wireless module's server is still available, it is necessary to adjust the server and client mode settings to allow both to function in unison. Even though a device can be set up for both, typically it is only set up as one or the other. Refer to the xPico 200 Series User Guide at www.lantronix.com for more information.

9.2.4 Timeout Configuration

The wireless module has an optional Disconnect feature that can be configured to break a connection after a set amount of time. This feature applies to both server and client connections.

The following procedure shows where the wireless module's timeout setting is found using the Web Manager.

- Refer to [Steps 1-6 in Section 9.2.1 on page 64](#) to sign in to the Web Manager.
- Click **Tunnel** in the left navigation panel.

- Click **Disconnect** towards the top of the **Tunnel 1 Status** page.

4. Enter the desired value in milliseconds for the **Timeout** setting. A value entry of 0 disables the Disconnect feature.

| Tunnel 1 Disconnect Configuration | |
|-----------------------------------|---|
| Stop Character: | <None> |
| Modem Control: | <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled |
| Timeout: | <Disabled> milliseconds |
| Flush Line: | <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled |

5. Click **Submit** at the bottom of the page to apply and save the settings. A message displays at the top of the page to confirm the changes have been saved permanently.

9.3 Wireless Module Specifications

The 682 features a Lantronix® xPico 200 Series wireless module. Visit www.lantronix.com to view the latest list of technical specifications on the wireless module.

Wireless Specifications

- IEEE 802.11 a/b/g up to 54 Mbps; 802.11 n (1×1) up to 150 Mbps
- 20 and 40 MHz channel width with optional SGI
- Dual Band 2.4 GHz and 5 GHz, Channels 1-13, UNII-1, 2a, 2e and 3
- Supports IEEE 802.11 d/h/i
- Bluetooth®/WLAN Coexistence
- 802.11r fast roaming

Bluetooth® Specifications

- Compliant to Bluetooth® Core Specification version 4.2 (BR/EDR/Bluetooth® LE)
- Bluetooth® LE Central and Peripheral Roles
- Support for Generic Access Profile (GAP), Generic Attribute Profile (GATT), Device ID Profile
- Serial Port Profile (SPP)

Data Communication

- TruPort® Serial Technology – TCP and UDP Server Mode, TCP and UDP Client Mode, Multi-host Connect; TLS Client and Server
- TruPort® Socket – Multi-host Client and Server Modes, HTTP(S), Sockets, TLS
- Authenticated SMTP Support – Send email directly from device

Security and Authentication

- TruPort® Security Software
 - Secure Boot, Secure Firmware-Over-the-Air (FOTA) Updates
 - Secure Key Storage, Encrypted Configuration
 - Secure Connections with SSL/TLS, HTTPS
 - Software Controlled Network Service Ports Enable/Disable
 - Role Based Access Control
- AES/CCMP and TKIP encryption, WPA/WPA2 Personal
- WPA2 Enterprise (EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-FAST)
- SSLv3/TLS 1.2 with PKI and X.509 Certificates (up to 4096-bit Keys)
- AES Algorithm, 256-bit, 192-bit, 128-bit

Management Interfaces

- Lantronix ConsoleFlow™ Cloud Software Platform, REST, MQTT
- Lantronix Discovery Protocol (77FE)
- Serial Port, Internal Web Server (HTTP/HTTPS)
- XML Configuration and XML Status (CLI, API)
- Secure Firmware Upgrade via HTTPS, ConsoleFlow™

Wireless Module Specifications Continued

Protocol Support

- DHCP Client, Server (Soft AP), HTTP Server/Client
- IPv4, TCP/IP, UDP/IP, ARP, ICMP, Auto-IP, DNS
- SNMP v1/v2
- IPv6

Wireless Features

- Concurrent Soft AP + STA (Client), Client, Soft AP
- Up to 5 simultaneous client connections to Soft AP interface
- Up to 4 in Concurrent Mode
- Connect to multiple WLAN networks, WLAN QuickConnect

Certifications & Compliance

- Type Approvals: USA (FCC Part 15), Canada (IC RSS), EU (RED), Japan (MIC), China (SRRC), AU/NZS
- Safety: IEC 62368 EN 62368, EN 62311, UL 60950
- RoHS, REACH
- FCC ID: R68XPICO200
- Canada IC: 3867A-XPICO200
- CMIIT ID: 2017AJ6663(M)

10.0 Fieldbus Options Configuration

The 682 can be connected to SCT-2200 Fieldbus options to allow the 682 to communicate with a PLC with the necessary network protocol. The following sections provide details on Fieldbus communications and describe the procedures required to configure the available network protocols.

 **NOTE:** The SCT-2200 Fieldbus options must be running firmware version 1.25 or higher to communicate with the 682.

Table 10-1. Available SCT-2200 Fieldbus Options for the 682 Indicator



| Part No. | Description |
|----------|---------------------------------------|
| 182591 | Fieldbus, SCT-2200 EtherNet/IP Module |
| 182592 | Fieldbus, SCT-2200 PROFINET Module |
| 212772 | Fieldbus, SCT-2200 PROFIBUS DP Module |
| 182596 | Fieldbus, SCT-2200 DeviceNet Module |
| 182597 | Fieldbus, SCT-2200 CANopen Module |
| 182598 | Fieldbus, SCT-2200 EtherCAT Module |
| 196694 | Fieldbus, SCT-2200 Modbus TCP Module |

10.1 Fieldbus Option Installation

1. Remove the backplate of the 682 ([Section 2.3 on page 5](#)).
2. Wire an RJ45 to blunt-end cable (not provided) to the J4 connector on the 682 CPU board.

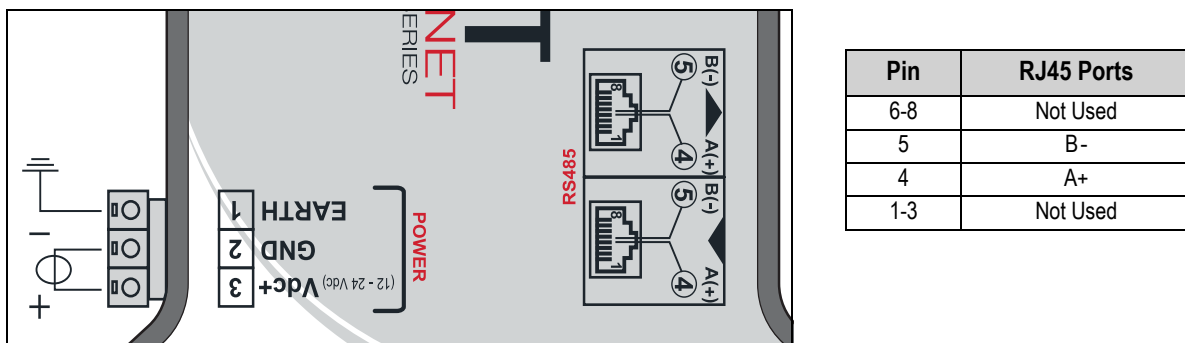
 **NOTE:** Maximum RJ45 cable length is 4,000 ft.

Table 10-2. Pin Assignments

| 682 J4 Pins | SCT-2200 Fieldbus Module RJ45 Pins | Wire Color | Wire Diagram |
|----------------|------------------------------------|------------|---|
| 1-3 (Not Used) | 6-8 (Not Used) | – | – |
| 4 (Z) | 5 (B-) | Blue |  |
| 5 (Y) | 4 (A+) | White/Blue |  |
| – | 1-3 (Not Used) | – | – |








3. Connect the other end of the cable to one of the RS-485 RJ45 ports on the SCT-2200 Fieldbus module.

Figure 10-1. SCT-2200 Fieldbus Module Wiring










10.2 682 Fieldbus Configuration

The following procedure details how to configure the 682 for Fieldbus. Once the necessary 682 parameters are configured and installation complete, communication with the SCT-2200 Fieldbus option (firmware version 1.25 or higher) is ready.

1. Navigate to the Communications menu in *Setup* mode (Section 4.1 on page 29). Communications displays.
2. Press . Serial displays.
3. Press . RS-232 Port 1 displays.
4. Press  or  until RS-485 displays.
5. Press . Trigger displays.
6. Press . The current setting for the RS-485 Trigger is highlighted.
7. Ensure **Fieldbus** is selected and press .



NOTE: The Trigger parameter for the Serial Option Card Port would be set to Fieldbus when using a serial option card.

8. Press  twice. Serial displays.
9. Press . Fieldbus displays.
10. Press . Network Protocol displays.
11. Press . The current set Network Protocol is highlighted. Select needed protocol and press .
12. Press . Protocol Parameters displays. Edit the protocol specific parameters if necessary.
13. Press  to return to *Weigh* mode.



If the Fieldbus option is not communicating the correct data, adjust the Byte/Word Swap parameter in the indicator.
See Section 4.5.4.5 on page 41 for the Fieldbus menu structure and parameter descriptions.

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After configuring the 682 parameters, cycle power to the module if it is wired to the 682.

The EtherNet/IP, Modbus TCP, PROFINET, DevicNet, and CANopen modules have three status LEDs:

- Green LED = Power — Green Power LED is on when there is power to the module
- Yellow LED = Status — Yellow Status LED is the RS-485 communication to the 682
If the module is not communicating, the yellow LED blinks rapidly for ~15 seconds then turns off for 1 second.
If the module is communicating with the 682, the yellow LED blinks rapidly and does not turn off after ~15 seconds.
- Red LED = Error — Red Error LED blinks until PLC is connected and communicating with the module, then turns off

The PROFIBUS module has four status LEDs that function differently than the above modules:

- Red LED = Power — Red Power LED stays on when there is power to the module
- Yellow LED = PROFIBUS — Yellow PROFIBUS LED stays on once module is connected to the PLC
If the module is not connected to the 682, the Yellow PROFIBUS LED blinks rapidly for ~15 seconds, then the Green RX LED blinks 3 times, followed by the Yellow TX LED blinking 3 times. This cycle repeats until module connects.
- Green LED = RX — Green RX LED and Yellow TX LED blink alternately when module is communicating with the 682
- Yellow LED = TX — Yellow TX LED and Green RX LED blink alternately when module is communicating with the 682

10.3 EtherNet/IP Configuration



NOTE: The 682 must be configured for Fieldbus and EtherNet/IP:

- Setup → Communications → Serial → RS-485 or Serial Option Card Port set to Fieldbus
- Setup → Communications → Fieldbus → Network Protocol set to EtherNet/IP

10.3.1 EDS File Setup

This procedure walks through setting up the EtherNet/IP with an EDS file, preferred method. Use RXLogix to import EDS files.

1. Select the **Module Type Vendor Filter**.
2. Select **Hilsher GmbH**.
3. Select the catalog number **NIC 52-RE/EIS** and click Change.
4. Select **Exclusive Owner** from the drop down list and click **OK**.

10.3.2 Generic Module Setup

Use the following settings to setup a generic module.

- **Comm Format:** Data - DINT
- **Input:** Assembly Instance: 101 | Size: 33
- **Output:** Assembly Instance: 100 | Size: 32
- **Configuration:** Assembly Instance: 8 | Size: 0

10.4 PROFINET Configuration



NOTE: The 682 must be configured for Fieldbus and PROFINET:

- Setup → Communications → Serial → RS-485 or Serial Option Card Port set to Fieldbus
- Setup → Communications → Fieldbus → Network Protocol set to PROFINET

Download GSDML files from the Rice Lake Weighing Systems website and configure PROFINET based on [Figure 10-2](#).

Figure 10-2. PROFINET Device Overview

| Module | Rack | Slot | I address | Q address | ... |
|-------------------|------|------|-----------|-----------|-----|
| ▼ dini_1 | 0 | 0 | | | ... |
| ▶ PN-IO | 0 | 0 X1 | | | ... |
| 64 Bytes Output_1 | 0 | 1 | | 64...127 | ... |
| 64 Bytes Output_2 | 0 | 2 | | 128...191 | ... |
| | 0 | 3 | | | |
| | 0 | 4 | | | |
| 64 Bytes Input_1 | 0 | 5 | 68...131 | | ... |
| 64 Bytes Input_2 | 0 | 6 | 132...195 | | ... |
| | 0 | 7 | | | |
| | 0 | 8 | | | |



NOTE: The following sections apply for both EtherNet/IP and PROFINET.

10.5 Data From the PLC to the Indicator

Table 10-3. PLC to Indicator Data

| Register No. | Data Registers | Byte Order | Byte No |
|--------------|--------------------|------------|---------|
| 0 | Command Register | 3 | 0 |
| | | 2 | 1 |
| 1 | | 1 | 2 |
| | | 0 | 3 |
| 2 | Parameter 1 | 3 | 4 |
| | | 2 | 5 |
| 3 | | 1 | 6 |
| | | 0 | 7 |
| 4 | Parameter 2 | 3 | 8 |
| | | 2 | 9 |
| 5 | | 1 | 10 |
| | | 0 | 11 |
| 6 | Parameter 3 | 3 | 12 |
| | | 2 | 13 |
| 7 | | 1 | 14 |
| | | 0 | 15 |
| 8 | Capacity | 3 | 16 |
| | | 2 | 17 |
| 9 | | 1 | 18 |
| | | 0 | 19 |
| 10 | Units | 3 | 20 |
| | | 2 | 21 |
| 11 | | 1 | 22 |
| | | 0 | 23 |
| 12 | Format | 3 | 24 |
| | | 2 | 25 |
| 13 | | 1 | 26 |
| | | 0 | 27 |
| 14 | Calibration Point | 3 | 28 |
| | | 2 | 29 |
| 15 | | 1 | 30 |
| | | 0 | 31 |
| 16 | Calibration Weight | 3 | 32 |
| | | 2 | 33 |
| 17 | | 1 | 34 |
| | | 0 | 35 |

10.5.1 Commands

Table 10-4. Command Values

| Command | Decimal | Description |
|--------------------------|---------|---|
| No Command | 0 | No action |
| Zero Scale | 1 | Zero the scale |
| Tare Scale | 2 | Tare the current weight if parameter 1=0, otherwise tare the value that is in parameter 1 |
| Clear Tare | 3 | Clear a tare if one exists |
| Display Net Mode | 4 | Switch the scale from gross mode to net mode |
| Display Gross Mode | 5 | Switch the scale from net mode to gross mode |
| Write Setpoint | 10 | Parameter 1 = setpoint # parameter 2 = value |
| Read Setpoint | 11 | Parameter 1 = setpoint # |
| Read IO Points | 12 | Parameter 1 = IO slot number |
| Set Output On | 24 | Parameter 1 = slot parameter 2 = bit |
| Set Output Off | 25 | Parameter 1 = slot parameter 2 = bit |
| Write Setup | 27 | Write calibration settings and enter calibration mode |
| Restart Instrument | 34 | Restarts the indicator |
| Perform Zero Calibration | 35 | Performs a zero calibration |
| Perform Span Calibration | 36 | Performs a span calibration |
| Point Calibration | 37 | Point value found in parameter 1 (1-3) |
| Save Calibration | 38 | Save the calibration and exit calibration mode |
| Abort Calibration | 39 | Aborts a calibration and clears any errors |
| Keyboard Enable/Disable | 40 | Disable keys (parameter 1 = 0) Enable keys (parameter 1 = 1) |
| Read Accumulator | 41 | Multivalued 1 = returned accumulator value |

10.6 Data From the Indicator to the PLC



NOTE: For EtherNet/IP options ONLY, if a generic module is setup, Header information occupies the first four bytes of data and pushes other data registers down.

Table 10-5. Indicator to PLC Data

| Register No. | Data Registers | Byte Order | Byte No |
|--------------|----------------------------|------------|---------|
| 0 | Gross Weight | 3 | 0 |
| | | 2 | 1 |
| 1 | | 1 | 2 |
| | | 0 | 3 |
| 2 | Net Weight | 3 | 4 |
| | | 2 | 5 |
| 3 | | 1 | 6 |
| | | 0 | 7 |
| 4 | Scale Status | 3 | 8 |
| | | 2 | 9 |
| 5 | | 1 | 10 |
| | | 0 | 11 |
| 6 | Onboard Digital I/O Status | 3 | 12 |
| | | 2 | 13 |
| 7 | | 1 | 14 |
| | | 0 | 15 |
| 8 | Last Command Processed | 3 | 16 |
| | | 2 | 17 |
| 9 | | 1 | 18 |
| | | 0 | 19 |
| 10 | Command Status | 3 | 20 |
| | | 2 | 21 |
| 11 | | 1 | 22 |
| | | 0 | 23 |
| 12 | Calibration Status | 3 | 24 |
| | | 2 | 25 |
| 13 | | 1 | 26 |
| | | 0 | 27 |
| 14 | Multi-use Value 1 | 3 | 28 |
| | | 2 | 29 |
| 15 | | 1 | 30 |
| | | 0 | 31 |
| 16 | Multi-use Value 2 | 3 | 32 |
| | | 2 | 33 |
| 17 | | 1 | 34 |
| | | 0 | 35 |

10.6.1 Onboard Digital I/O Status

Table 10-6. Onboard Digital I/O Status

| Bit | Description | Bit Status | |
|------|-----------------|------------|--------|
| 0 | Digital I/O Bit | 0 = Off | 1 = On |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4-31 | Future Use | | |

10.6.2 Calibration Status

Table 10-7. Calibration Status

| Value | Description |
|-------|------------------------------------|
| 0 | Calibration not started |
| 1 | Calibration Acquisition in process |
| 2 | Calibration Acquisition OK |
| 3 | Calibration error |

10.6.3 Command Status

Table 10-8. Command Status

| Bytes | Description |
|-------|-------------------------------|
| 0-3 | Current command status result |

The following values named **Result of last command received**, needs updating after the **last command processed** value is updated.

Table 10-9. Command Descriptions

| Value | Description |
|-------|---|
| 0 | Command successfully performed |
| 1 | Not a valid command |
| 2 | General error; Trying to tare or zero while scale is in motion |
| 3 | Setpoint number does not exist; When trying to read or write to a setpoint but the setpoint value does not exist |
| 4 | Setpoint Kind set to OFF; When trying to read or write to a setpoint, but that setpoint is not configured |
| 5 | Setpoint not enabled; When trying to read or write to a setpoint but the setpoint is not enabled |
| 6 | Invalid IO; When trying to set any output on or off and that output is not configured |
| 7 | Not in <i>Setup</i> mode; When trying to use write setup, zero calibration, span calibration, point calibration, save calibration or abort calibration commands |
| 8 | Wrong command; Non-calibration command used during calibration |
| 9 | Invalid unit selection |
| 10 | Invalid decimal selection |
| 11 | Invalid display division selection |
| 12 | Calibration point out of range (1–4) |
| 13 | Invalid grads value |
| 14 | Calibration not allowed for MRMI or serial scale |
| 15 | Calibration weight out of range |
| 16 | Accumulator is not enabled |
| 17 | Audit trail is not enabled; Check the jumper to see that it is in the correct position |

Unit Values

Table 10-10. Values and Units

| Value | Unit |
|-------|------|
| 0 | Lb |
| 1 | Kg |
| 2 | Oz |
| 3 | Tn |
| 4 | T |
| 5 | G |
| 6 | None |

Decimal Point Values

Table 10-11. Decimal Point Values

| Value | Decimal Point |
|-------|------------------------------|
| 0 | Use configured decimal point |
| 1 | 88.88881 |
| 2 | 88.88882 |
| 3 | 88.88885 |
| 4 | 888.8881 |
| 5 | 888.8882 |
| 6 | 888.8885 |
| 7 | 8888.881 |
| 8 | 8888.882 |
| 9 | 8888.885 |
| 10 | 88888.81 |
| 11 | 88888.82 |
| 12 | 88888.85 |
| 13 | 888888.1 |
| 14 | 888888.2 |
| 15 | 888888.5 |
| 16 | 8888881 |
| 17 | 8888882 |
| 18 | 8888885 |
| 19 | 8888810 |
| 20 | 8888820 |
| 21 | 8888850 |
| 22 | 8888100 |
| 23 | 8888200 |
| 24 | 8888500 |

10.6.4 Scale Status

Table 10-12. Status Descriptions

| Bit | Description | Bit Status | |
|-------------------|--|--------------|--------------|
| 0 | Net Weight Polarity | 0 = Positive | 1 = Negative |
| 1 | Gross Weight Polarity | | |
| 2 | Weight Stability | 0 = Stable | 1 = Motion |
| 3 | Underload Condition | 0 = OK | 1 = Under |
| 4 | Overload Condition | 0 = OK | 1 = Under |
| 5 | Push Button Tare Condition | 0 = No | 1 = Yes |
| 6 | Keyed Tare Condition | 0 = No | 1 = Yes |
| 7 | Gross Center of Zero | 0 = COZ** | 1 = COZ** |
| 8 | Display Mode | 0 = Net | 1 = Gross |
| 9 | Current Units | 0 = Primary | 1 = Other |
| 10 | Heartbeat - delay of 500 ms between on and off | 0 = Off | 1 = On |
| 11 | Scale Error | 0 = Error | 1 = OK |
| 12 | Accumulator Weight Polarity | 0 = Positive | 1 = Negative |
| 12-31 | Future Use | | |
| ** Center of Zero | | | |

10.6.5 Scale Error



NOTE: The scale error bit is always set to 1 unless one of the following errors occurs. At that time, the error bit is set to 0 until the error is cleared.

Table 10-13. Error Conditions

| Error Condition |
|--|
| Configuration signature error |
| General configuration checksum error |
| Load cell data checksum error |
| Backup battery voltage low |
| Battery backed memory corrupt |
| Load cell A/D error |
| Tare data checksum error |
| Accumulator overflow error |
| Unable to write to non-volatile memory |

10.7 Standard Calibration Process

Refer to [Table 10-3 on page 76](#) for parameter data information and [Table 10-4 on page 77](#) for descriptions of calibration commands. See [Section 10.6.2 on page 79](#) and [Section 10.6.3 on page 79](#) for possible command responses during the calibration process.

The standard calibration process requires access to *Setup* mode ([Section 4.1 on page 29](#)).

1. Set Capacity, Units and Format parameter data values ([Table 10-3 on page 76](#)).
2. Send command 27 to write Capacity, Units and Format parameter data values.



NOTE: No external button presses are needed to put the indicator into calibration mode with command 27 as long as the Audit Jumper is in the ON position ([Section 4.1.1 on page 29](#)).

3. Remove all weight from the scale.
4. Send command 35 to perform a zero calibration.
5. Set the Calibration Weight parameter data value to the needed span weight.
6. Set the Calibration Point parameter data value to 1.
7. Place the specified calibration weight on the scale.
8. Send command 36 to perform a span calibration.
9. Send command 38 to save and exit calibration mode.

11.0 Revolution

The Revolution utility provides a suite of functions used to support configuration, calibration, customization and backup of the 682 software.

Calibration values and scale configuration can both be saved and restored to the 682 using Revolution.



NOTE: For system requirements visit the Revolution product page on [Rice Lake Weighing Systems website](#).

11.1 Connecting to the Indicator

Connect the PC serial port to a 682 comm port, then click **Connect** in the toolbar. Revolution attempts to establish communications to the indicator. If communication settings need to be adjusted, select **Options...** from the Tools menu.

Downloading to the Indicator

The **Send Configuration to Device** function in the Revolution Communications menu allows a Revolution configuration file (with or without scale calibration data) or ticket formats to be sent/downloaded to a connected indicator in *Setup* mode.

The **Send Section to Device** function in the Communications menu allows the download of only the currently displayed object, such as a scale configuration.

Because less data is transferred using the **Send Section to Device**, it is typically faster than a full configuration download, but there is an increased possibility the download fails due to dependencies on other objects. If the download fails, try performing a complete download using the **Send Configuration to Device** function.

Uploading Configuration to Revolution

The **Get Configuration from Device** function in the Revolution Communications menu allows the existing configuration of a connected indicator to be saved to a file on the PC. Once saved, the configuration file provides a backup which can be quickly restored to the indicator if needed. Alternatively, the file can be edited within Revolution and sent back to the indicator.

11.2 Saving and Transferring Data



NOTE: Revolution has a module to save and transfer data. It is the preferred method over using ProComm or Hyper Terminal.

11.2.1 Saving Indicator Data to a PC

Configuration data can be saved to a computer connected to the selected port. The PC must be running a communications program such as *PROCOMMPLUS*®.

When configuring the indicator, ensure the values set for the baud and bits parameters on the serial menu match the baud rate, bits and parity settings configured for the serial port on the PC.

To save all configuration data, first put the communications program into data capture mode, then place the indicator in *Setup* mode and send the DUMPALL command to the indicator. The 682 responds by sending all configuration parameters to the PC as ASCII-formatted text.

11.2.2 Downloading Configuration Data from PC to Indicator

Configuration data saved on a PC or disc can be downloaded from the PC to an indicator. This procedure is useful when a number of indicators with similar configurations are set up or when an indicator is replaced.

To download configuration data, connect the PC to the selected port as described in [Section 11.2.1](#). Place the indicator in *Setup* mode and use the PC communications software to send the saved configuration data to the indicator. When transfer is complete, calibrate the indicator as described in [Section 6.0 on page 56](#).

11.3 Updating Firmware

Revolution is used to update the firmware of the 682 indicator. The link to begin this process is available on the Revolution home screen. Updating the firmware defaults the configuration settings.

12.0 EDP Commands

The 682 indicator can be controlled by a personal computer connected to one of the indicator communication ports. Control is provided by a set of commands which can simulate front panel key press functions, return and change setup parameters, and perform reporting functions. The commands provide the capability to print configuration data or to save data to an attached personal computer. This section describes the EDP command set and procedures for saving and transferring data using the communication ports. The EDP command set is divided into several groups.

When the indicator processes a command, it either responds with a value (for reporting commands, or when querying parameter settings), or with the message **OK**. The **OK** response verifies the command was received and has been executed. If the command is unrecognized, the indicator responds with **?? invalid command**. If the command cannot be executed in the current mode, the indicator responds with **?? invalid mode**. If the command is recognized, but the value is out of range or an invalid type, the indicator responds with **??** followed by the type and the range.

12.1 Key Press Commands

Key press serial commands simulate pressing keys on the front panel of the indicator. These commands can be used in both setup and *Weigh* mode. Several of the commands serve as pseudo keys, providing functions which are not represented by a key on the front panel.

For example, to enter a 15 lb tare weight using serial commands:

1. Type **K1** and press **Enter** (or **Return**).
2. Type **K5** and press **Enter**.
3. Type **KTARE** and press **Enter**.

Table 12-1. Key Press Commands

| Command | Function |
|-------------|---|
| KZERO | In <i>Weigh</i> mode, this command acts like pressing the Zero key |
| KGROSSNET | In <i>Weigh</i> mode, this command acts like pressing the Gross/Net key |
| KGROSS | Displays Gross mode (pseudo key) |
| KNET | Displays Net mode (pseudo key) |
| KTARE | In <i>Weigh</i> mode, this command acts like pressing the Tare key |
| KUNITS | In <i>Weigh</i> mode, this command acts like pressing the Units key |
| KPRIM | Displays primary units (pseudo key) |
| KSEC | Displays secondary units (pseudo key) |
| KTER | Displays tertiary units (pseudo key) |
| KPRINT | In <i>Weigh</i> mode, this command acts like pressing the Print key |
| KSOFT1-5 | In <i>Weigh</i> mode, this command acts like pressing the associated softkey |
| KPRINTACCUM | Prints the accumulator value |
| KDISPACCUM | Displays the accumulator value |
| KDISPTARE | Displays the tare value |
| KCLR | In <i>Weigh</i> mode, this command acts like pressing the Clear key |
| KCLR CN | Clears consecutive number |
| KCLRTAR | Clears the tare from the system (pseudo key) |
| KLEFT | In <i>Setup</i> mode, this command moves Left in the menu |
| KRIGHT | In <i>Setup</i> mode, this command moves Right in the menu |
| KUP | In <i>Setup</i> mode, this command moves Up in the menu |
| KDOWN | In <i>Setup</i> mode, this command moves Down in the menu |
| KEXIT | In <i>Setup</i> mode, this command exits to <i>Weigh</i> mode |
| KSAVE | In <i>Setup</i> mode, this command saves the current configuration |
| KSAVEEXIT | In <i>Setup</i> mode, this command saves the current configuration and exits to <i>Weigh</i> mode |
| KTIME | Displays the Set System Time screen |
| KDATE | Displays the Set System Date screen |
| KTIMEDATE | Displays the Set System Time screen |
| KCLRACCUM | Clears the accumulator |

Table 12-1. Key Press Commands (Continued)

| Command | Function |
|-----------|--|
| Kn | This command acts like pressing numbers 0 (zero) through 9 |
| KDOT | This command acts like pressing the decimal point (.) |
| KENTER | This command acts like pressing the Enter key |
| KLOCK=x | In <i>Weigh</i> mode, this command locks specified front panel key; x = KPRINT, KUNITS, KTARE, KGROSSNET, KZERO, K0-K9, KDOT, KCLEAR (example: to lock the Zero key, enter KLOCK=KZERO) |
| KUNLOCK=x | In <i>Weigh</i> mode, this command unlocks specified front panel key; x = KPRINT, KUNITS, KTARE, KGROSSNET, KZERO, K0-K9, KDOT, KCLEAR (example: to unlock the Print key, enter KUNLOCK=KPRINT) |

12.2 Reporting Commands

Reporting commands send specific information to the communications port. The commands listed in Table 12-2 can be used in either *Setup* mode or *Weigh* mode.

Table 12-2. Reporting Commands

| Command | Function |
|------------------|---|
| DUMPALL | Returns a list of all parameter values |
| DUMPAUDIT | Returns the Audit Trail information |
| KDUMPAUDIT | Returns the Audit Trail information on the same port which the EDP command was sent |
| AUDIT.LRVERSION | Returns the legally relevant firmware version |
| AUDIT.CONFIG | Returns the number of times configuration has changed |
| AUDIT.CALIBRATE | Returns the number of calibrations |
| AUDITJUMPER | Returns the position of the audit jumper: OK (if the audit jumper is ON) or ?? (if the audit jumper is OFF) |
| SPDUMP | Returns a list of the setpoint parameter values |
| VERSION | Returns the installed firmware version |
| FIELDBUS.VERSION | Returns the installed Fieldbus card's firmware version; returns V0.00.00 if no Fieldbus card is installed |
| BUILD | Returns the firmware version and build number |
| HARDWARE | Returns the option card installed |
| HWSUPPORT | Returns the CPU board part number |
| RTCBATTERYSTATUS | Returns the status of the real time clock battery: GOOD or BAD |

12.3 SD Card Commands

The following commands can be used to store or restore a backup copy of the indicator configuration to an SD Card. Indicator must be in *Setup* mode.

Table 12-3. Reset Configuration Command

| Command | Function |
|--------------|--|
| SDCARD.STORE | Store (backup) the current configuration to the installed microSD card; Answers OK if successful |
| SDCARD.LOAD | Loads a stored backup configuration from the installed microSD card; Answers OK if successful |



NOTE: Backing up or restoring indicator configuration to/from a microSD card only works if a microSD card is installed.

12.4 Reset Configuration Command

The following command can be used to reset the configuration parameters of the 682.

Table 12-4. Reset Configuration Command

| Command | Function |
|--------------------|---|
| RESETCONFIGURATION | Restores all configuration parameters to default values (<i>Setup</i> mode only) |



NOTE: All scale calibration settings are lost when the **RESETCONFIGURATION** command is run.

12.5 Scale Parameter Setting Commands

Parameter setting commands allow the current value for a configuration parameter to be displayed or changed. Current configuration parameter settings can be displayed in *Setup* mode or *Weigh* mode using the following syntax:
command<ENTER>

Most parameter values can be changed in *Setup* mode only; setpoint parameters listed in [Table 12-15 on page 92](#) can be changed when in normal *Weigh* mode.



NOTE: The user must stop the current batch for new values to take effect.

Use the following command syntax when changing parameter values: command=value<ENTER>, where **value** is either a number or a parameter value. Use no spaces before or after the equal (=) sign. If an incorrect command is typed or an invalid value is specified, the indicator returns ?? followed by the error message.

Example: to set the motion band parameter on Scale #1 to 5 divisions, type the following:

SC.MOTBAND#1=5<ENTER>

To return a list of the available values for parameters with specific values, enter the command and equal sign, followed by a question mark (command=?<ENTER>). The indicator must be in *Setup* mode to use this function.

After changes are made to configuration parameters using EDP commands, use the **KSAVE** or **KSAVEEXIT** commands to commit the changes to memory.

Table 12-5. Scale Parameter Setting Commands

| Command | Description | Values |
|--|--|--|
| SC.CAPACITY#n | Scale capacity | 0.0000001–9999999.0, 10000.0 (default) |
| SC.ZTRKBND#n | Zero track band (in display divisions) | 0.0–100.0, 0.0 (default) |
| SC.ZRANGE#n | Zero range (%) | 0.0–100.0, 1.9 (default) |
| SC.SPLIT#n | Enables Multi-Range or Multi-Interval modes | OFF (default), MULTIRANGE, MULTIINTERVAL |
| SC.RANGE1#n SC.RANGE2#n | Sets the capacity of Range 1-2 for the scale in primary units | 0.0–9999999.0, 0.0 (default) |
| SC.RANGE1.FMT#n SC.RANGE2.FMT#n | Sets the Range 1-2 units format (decimal point and display divisions) | 8888100, 8888200, 8888500, 8888810, 8888820, 8888850, 8888881 (default), 8888882, 8888885, 888888.1, 888888.2, 888888.5, 88888.81, 88888.82, 88888.85, 8888.881, 8888.882, 8888.885, 888.8881, 888.8882, 888.8885, 88.88881, 88.88882, 88.88885 |
| SC.MOTBAND#n | Motion band (in display divisions) | 0–100, 1 (default) |
| SC.SSTIME#n | Standstill time (in 0.1 second intervals; 10 = 1 second) | 0–600, 10 (default) |
| SC.SENSE#n | Sets the type of load cell cable connected | 4-WIRE (default), 6-WIRE |
| SC.OVERLOAD#n | Overload | FS+2% (default), FS+1D, FS+9D, FS |
| SC.WMTTHR#n | Weightment threshold | 0.0–9999999.0, 1000.0 (default) |
| SC.NUMWEIGH#n | Number of weighments | 0–4294967295 (UINT32) |
| SC.MAX_WEIGHT#n | Maximum weightment | -9999999–9999999 |
| SC.MAX_DATE#n | Date of maximum weightment | Up to 25 alphanumeric characters |
| SC.DIGFLTR1#n SC.DIGFLTR2#n SC.DIGFLTR3#n | Number of A/D samples averaged for the individual stages (1-3) of the three stage digital filter | 1, 2, 4 (default), 8, 16, 32, 64, 128, 256 |
| SC.DFSENS#n | Digital filter cutout sensitivity | 2OUT (default), 4OUT, 8OUT, 16OUT, 32OUT, 64OUT, 128OUT |
| SC.DFTHR#n | Digital filter cutout threshold | NONE (default), 2D, 5D, 10D, 20D, 50D, 100D, 200D, 250D |
| SC.RATLTRAP#n | Rattletrap filtering | OFF (default), ON |
| SC.SMPRAT#n | Scale A/D sample rate | 6.25HZ, 7.5HZ, 12.5HZ, 15HZ, 25HZ, 30HZ (default), 50HZ, 60HZ, 100HZ, 120HZ |
| SC.PWRUPMD#n | Power up mode | GO (default), DELAY |
| SC.TAREFN#n | Tare function | BOTH (default), KEYED, NOTARE, PBTARE |
| For commands ending with #n, n is the scale number (1) | | |

Table 12-5. Scale Parameter Setting Commands (Continued)

| Command | Description | Values |
|--|---|--|
| SC.PRI.FMT# <i>n</i> | Primary units format (decimal point and display divisions) | 8888100, 8888200, 8888500, 8888810, 8888820, 8888850, 8888881 (default), 8888882, 8888885, 888888.1, 888888.2, 888888.5, 88888.81, 88888.82, 88888.85, 8888.881, 8888.882, 8888.885, 888.8881, 888.8882, 888.8885, 88.88881, 88.88882, 88.88885 |
| SC.PRI.UNITS# <i>n</i> | Primary units | LB (default), KG, OZ, TN, T, G, NONE |
| SC.SEC.FMT# <i>n</i> | Secondary units format (decimal point and display divisions) | 8888100, 8888200, 8888500, 8888810, 8888820, 8888850, 8888881, 8888882, 8888885, 888888.1, 888888.2, 888888.5 (default), 88888.81, 88888.82, 88888.85, 8888.881, 8888.882, 8888.885, 888.8881, 888.8882, 888.8885, 88.88881, 88.88882, 88.88885 |
| SC.SEC.UNITS# <i>n</i> | Secondary units | LB, KG (default), OZ, TN, T, G, NONE |
| SC.SEC.ENABLED# <i>n</i> | Enable the Secondary Units | ON (default), OFF |
| SC.TER.FMT# <i>n</i> | Tertiary units format (decimal point and display divisions) | 8888100, 8888200, 8888500, 8888810, 8888820, 8888850, 8888881, 8888882, 8888885, 888888.1, 888888.2, 888888.5 (default), 88888.81, 88888.82, 88888.85, 8888.881, 8888.882, 8888.885, 888.8881, 888.8882, 888.8885, 88.88881, 88.88882, 88.88885 |
| SC.TER.UNITS# <i>n</i> | Tertiary units | LB, KG (default), OZ, TN, T, G, NONE |
| SC.TER.ENABLED# <i>n</i> | Enable the Tertiary Units | OFF (default), ON |
| SC.CUNITS1# <i>n</i> SC.CUNITS2# <i>n</i> SC.CUNITS3# <i>n</i> | Sets label for available custom units; maximum length is 2 alphanumeric characters | "blank" (default) |
| SC.CUNITSMULT1# <i>n</i> SC.CUNITSMULT2# <i>n</i> SC.CUNITSMULT3# <i>n</i> | Sets conversion factor/multiplier applied to the primary units to convert weight for custom units | 0.0000001 to 9999999.0, 1.0 (default) |
| SC.FILTERCHAIN# <i>n</i> | Defines what filter to use | AVGONLY (default), ADPONLY, DMPONLY, RAW |
| SC.DAMPINGVALUE# <i>n</i> | Sets the damping time constant | 0–2560 (in 0.1 second intervals), 0 (default) |
| SC.ADTHRESHOLD# <i>n</i> | Adaptive filter weight threshold value | 0–2000 (in display divisions), 10 (default) |
| SC.ADSENSITIVITY# <i>n</i> | Adaptive filter sensitivity | LIGHT (default), MEDIUM, HEAVY |
| SC.ACCUM# <i>n</i> | Accumulator enable | OFF (default), ON |
| SC.WZERO# <i>n</i> | Perform zero calibration | — |
| SC.TEMPZERO# <i>n</i> | Perform temporary zero calibration | — |
| SC.LASTZERO# <i>n</i> | Perform last zero calibration | — |
| SC.WVAL# <i>n</i> | Test weight value | 0.000001–9999999.999999, 10000.0 (default) |
| SC.WSPAN# <i>n</i> | Perform span calibration | — |
| SC.WLIN.F1# <i>n</i> – SC.WLIN.F4# <i>n</i> | Actual raw count value for linear points 1–4 | 0–16777215, 0 (default) |
| SC.WLIN.V1# <i>n</i> – SC.WLIN.V4# <i>n</i> | Test weight value for linear points 1–4 (A setting of 0 indicates the linear point is not used) | 0.000001–9999999.999999, 0.0 (default) |
| SC.WLIN.C1# <i>n</i> – SC.WLIN.C4# <i>n</i> | Perform linear calibration on points 1–4 | — |
| SC.LC.CD# <i>n</i> | Deadload coefficient raw count value | 0–16777215, 8386509 (default) |
| SC.LC.CW# <i>n</i> | Span coefficient raw count value | 0–16777215, 2186044 (default) |
| SC.LC.CZ# <i>n</i> | Temporary zero raw count value | 0–16777215, 2186044 (default) |
| SC.REZERO# <i>n</i> | Perform the Rezero calibration function | — |
| SC.INITIALZERO# <i>n</i> | Initial Zero range in % of full scale | 0.0–100.0, 0.0 (default) |
| SC.RTZGRAD# <i>n</i> | Number of graduations from the zero base at which the accumulator re-arms itself | 0.0–100.0, 0.4 (default) |
| For commands ending with # <i>n</i> , <i>n</i> is the scale number (1) | | |

12.6 Serial Port Setting Commands

The following commands can be used to configure serial port parameters.

Table 12-6. Serial Port Commands

| Command | Description | Values |
|---|---|---|
| EDP.TRIGGER#p | Port serial input trigger function | CMD (default), STRIND, STRLFT, REMOTE |
| EDP.BAUD#p | Port baud rate | 1200, 2400, 4800, 9600 (default), 19200, 28800, 38400, 57600, 115200 |
| EDP.BITS#p | Port data bits/parity | 8NONE (default), 8EVEN, 8ODD, 7EVEN, 7ODD |
| EDP.TERMIN#p | Port line termination character | CR/LF (default), CR |
| EDP.STOPBITS#p | Port stop bits | 1 (default), 2 |
| EDP.ECHO#p | Port echo | ON (default), OFF |
| EDP.RESPONSE#p | Port response | ON (default), OFF |
| EDP.EOLDLY#p | Port end-of-line delay | 0–255 (0.1-second intervals), 0 (default) |
| EDP.ADDRESS#p | Port RS-485 address (ports 3-5 only) | 0–255, 0 (default) |
| EDP.DUPLEX#p | Port duplex setting for RS-485 ports (ports 3-5 only) | FULL (default), HALF |
| EDP.TYPE#p | Serial option card port type (ports 4-5 only) | RS232 (default), RS485 |
| For commands ending with #p, p is the port number (1-5) | | |

12.6.1 Serial Ports

- Ports 1 and 2 are the two RS-232 ports
- Port 3 is the RS-485/422 port
- Port 4 and 5 are the two RS-232 or RS-485/422 ports on the optional Dual Serial Option Card

12.7 Ethernet and USB Setting Commands

The following commands can be used to configure Ethernet and USB parameters.

Table 12-7. Ethernet TCP/IP and USB Commands

| Command | Description | Values |
|--|---|---|
| WIRED.MACID | Ethernet hardware MAC ID (read only) | xx:xx:xx:xx:xx:xx |
| WIRED.DHCP | Enable Ethernet DHCP | ON (default), OFF |
| WIRED.ENABLED | Enable wired Ethernet adapter | ON, OFF (default) |
| WIRED.IPADDR | Ethernet IP address | Valid IP xxx.xxx.xxx.xxx*, 0.0.0.0 (default) |
| WIRED.SUBNET | Ethernet subnet mask | Valid IP xxx.xxx.xxx.xxx*, 255.255.255.0 (default) |
| WIRED.GATEWAY | Ethernet gateway | Valid IP xxx.xxx.xxx.xxx*, 0.0.0.0 (default) |
| TCPC1.ECHO | TCP Client 1 echo | ON (default), OFF |
| TCPC1.EOLDLY | TCP Client 1 end-of-line delay | 0–255 (in 0.1 sec intervals), 0 (default) |
| TCPC1.IPADDR | TCP Client 1 remote server IP | Valid IP xxx.xxx.xxx.xxx*, 0.0.0.0 (default) |
| TCPC1.LINETERM | TCP Client 1 line termination | CR/LF (default), CR |
| TCPC1.PORT | TCP Client 1 remote server port | 1025–65535, 10001 (default) |
| TCPC1.RESPONSE | TCP Client 1 response | ON (default), OFF |
| TCPC1.TRIGGER | TCP Client 1 input trigger type | CMD (default), STRIND, STRLFT, REMOTE |
| TCPC1.DISCTIME | TCP Client 1 disconnect time (in seconds) | 0–60 (0 = do not disconnect), 0 (default) |
| TCPS.PORT | TCP Server port number | 1025–65535, 10001 (default) |
| TCPS.HOSTNAME | TCP Server host name | Up to 30 alphanumeric characters, 0 (default) |
| TCPS.TRIGGER | TCP Server input trigger type | CMD (default), STRIND, STRLFT, REMOTE |
| TCPS.ECHO | TCP Server echo | ON (default), OFF |
| TCPS.LINETERM | TCP Server line termination | CR/LF (default), CR |
| TCPS.RESPONSE | TCP Server response | ON (default), OFF |
| USB.TRIGGER | USB input trigger type | CMD (default), STRIND, STRLFT, REMOTE |
| USB.LINETERM | USB line terminator | CR/LF (default), CR |
| * A valid IP consists of four numbers, in the range of 0 to 255, separated by a decimal point (127.0.0.1 and 192.165.0.230 are valid IP addresses) | | |

Table 12-7. Ethernet TCP/IP and USB Commands (Continued)

| Command | Description | Values |
|--------------|-----------------------|---------------------------|
| USB.ECHO | USB echo | ON (default), OFF |
| USB.RESPONSE | USB response | ON (default), OFF |
| USB.EOLDLY | USB end of line delay | 0–255, 0 (default) |

* A valid IP consists of four numbers, in the range of 0 to 255, separated by a decimal point (127.0.0.1 and 192.165.0.230 are valid IP addresses)

12.8 Wi-Fi and Bluetooth® Setting Commands

The following commands can be used to configure Wi-Fi and Bluetooth® parameters.

Table 12-8. Wi-Fi and Bluetooth® Commands

| Command | Description | Values |
|-----------------|--|---|
| WIFIBT.ENABLED | Enables the wireless module and sets Wi-Fi and/or Bluetooth® | OFF (default), WIFI, BLUETOOTH, BOTH |
| WIFIBT.TRIGGER | Wi-Fi/Bluetooth® input trigger type | CMD (default), STRIND, STRLFT, REMOTE |
| WIFIBT.TERMIN | Wi-Fi/Bluetooth® line terminator | CR/LF (default), CR |
| WIFIBT.ECHO | Wi-Fi/Bluetooth® echo | ON (default), OFF |
| WIFIBT.RESPONSE | Wi-Fi/Bluetooth® response | ON (default), OFF |
| WIFIBT.EOLDLY | Wi-Fi/Bluetooth® end of line delay | 0–255 (in 0.1 second intervals), 0 (default) |
| BLUETOOTH.MACID | Returns MAC address of the Bluetooth® radio (read only) | xx:xx:xx:xx:xx:xx |
| WIFI.MACID | Returns MAC address of the Wi-Fi radio (read only) | xx:xx:xx:xx:xx:xx |

12.9 Fieldbus Setting Commands

The following commands can be used to configure Fieldbus parameters.

Table 12-9. Fieldbus Commands

| Command | Description | Values |
|--------------------------------|--|--|
| FIELDBUS.NETWORK | Fieldbus network protocol | ETHERNET_IP (default), MODBUS, PROFIBUS, PROFINET, CANOPEN, DEVICENET, ETHERCAT |
| FIELDBUS.SWAP | Byte or Word swap, Both enables Byte and Word | NONE (default), BYTE, WORD, BOTH |
| FIELDBUS.AUTOIP | Automatically get network parameters from the network (DHCP) | OFF (default), ON |
| FIELDBUS.CANOPEN.NETWORKRATE | CANopen network node rate | 1MB (default), 10 KB, 20KB, 50KB, 100KB, 125KB, 250KB, 500KB, 800KB |
| FIELDBUS.CANOPEN.NODE | CANopen node address | 1-128, 1 (default) |
| FIELDBUS.DEVICENET.NETWORKRATE | DeviceNet network node rate | 500KB (default), 125KB, 250KB |
| FIELDBUS.DEVICENET.NODE | DeviceNet node address | 1-64, 1 (default) |
| FIELDBUS.ETHERNET_IP.GATEWAY | EtherNet/IP gateway; disabled if Auto IP is ON | 0.0.0.0 (default) |
| FIELDBUS.ETHERNET_IP.IPADDR | EtherNet/IP IP address; disabled if Auto IP is ON | 0.0.0.0 (default) |
| FIELDBUS.ETHERNET_IP.SUBNET | EtherNet/IP subnet; disabled if Auto IP is ON | 255.255.255.0 (default) |
| FIELDBUS.MODBUS.GATEWAY | Modbus TCP gateway; disabled if Auto IP is ON | 0.0.0.0 (default) |
| FIELDBUS.MODBUS.IPADDR | Modbus TCP IP address; disabled if Auto IP is ON | 0.0.0.0 (default) |
| FIELDBUS.MODBUS.SUBNET | Modbus TCP subnet; disabled if Auto IP is ON | 255.255.255.0 (default) |
| FIELDBUS.PROFIBUS.NODE | PROFIBUS node address | 1-126, 1 (default) |
| FIELDBUS.PROFINET.GATEWAY | PROFINET gateway; disabled if Auto IP is ON | 0.0.0.0 (default) |
| FIELDBUS.PROFINET.IPADDR | PROFINET IP address; disabled if Auto IP is ON | 0.0.0.0 (default) |
| FIELDBUS.PROFINET.SUBNET | PROFINET subnet; disabled if Auto IP is ON | 255.255.255.0 (default) |

12.10 Alibi Setting Commands

The following command can be used to configure Alibi parameters.

Table 12-10. Alibi Commands

| Command | Description | Values |
|---|---|-------------------|
| ALIBI.ENABLED | Enables the storage of print transactions in the Alibi database | OFF (default), ON |
| ALIBI.COUNT | Returns number of records present | - |
| ALIBI.PRINT | Prints the alibi record at the specified record number; returns ?? <i>Invalid Index</i> if record doesn't exist and OK if successful For Example: ALIBI.PRINT=5 or ALIBI.PRINT=287 | - |
| ALIBI.PURGE | Deletes the oldest 4 KB of records; returns how many records were deleted | - |
| For commands ending with #s, s is the softkey number (1-15) | | |

12.11 Truck Mode Setting Commands

The following commands can be used to configure truck mode parameters.

Table 12-11. Truck Mode Commands

| Command | Description | Values |
|----------------|--|---|
| TRUCK.MODE | Six available preset truck modes, see Section 7.0 on page 59 | OFF (default), MODE1, MODE2, MODE3, MODE4, MODE5, MODE6 |
| TRUCK.IDOVRWRT | Allows duplicate Truck IDs to overwrite stored Truck IDs | DISABLE (default), ENABLE |

12.12 Stream Setting Commands

The following commands can be used to configure stream format parameters.

Table 12-12. Stream Formatting Commands

| Command | Description | Values |
|--|--|--|
| STRM.FORMAT#n | Stream format | RLWS (default), CARDNAL, WTRONIX, TOLEDO, CUSTOM |
| STRM.CUSTOM#n | Custom stream definition | Up to 1,000 alphanumeric characters |
| STRM.GROSS#n | Mode token when streaming the Gross weight | Up to 8 alphanumeric characters, G (default) |
| STRM.NET#n | Mode token when streaming the Net weight | Up to 8 alphanumeric characters, N (default) |
| STRM.PRI#n | Units token when streaming Primary units | Up to 8 alphanumeric characters, L (default) |
| STRM.SEC#n | Units token when streaming Secondary units | Up to 8 alphanumeric characters, K (default) |
| STRM.TER#n | Units token when streaming Tertiary units | Up to 8 alphanumeric characters, K (default) |
| STRM.INVALID#n | Status token when streaming an Invalid weight | Up to 2 alphanumeric characters, I (default) |
| STRM.MOTION#n | Status token when the weight is in motion | Up to 2 alphanumeric characters, M (default) |
| STRM.POS#n | Polarity token when the weight is positive | SPACE (default), NONE, + |
| STRM.NEG#n | Polarity token when the weight is negative | SPACE, NONE, - (default) |
| STRM.OK#n | Status token when the weight is OK (not invalid, out of range, at zero or in-motion) | Up to 2 alphanumeric characters (default is a space) |
| STRM.TARE#n | Mode token when streaming the tare weight | Up to 8 alphanumeric characters, T (default) |
| STRM.RANGE#n | Status token when the weight is Out of Range | Up to 2 alphanumeric characters, O (default) |
| STRM.ZERO#n | Status token when the weight is at Center of Zero | Up to 2 alphanumeric characters, Z (default) |
| For commands ending with #n, n is the stream format number (1) | | |

12.13 Feature Commands

The following commands can be used to configure feature parameters.

Table 12-13. Feature Commands

| Command | Description | Values |
|-------------------------|--|--|
| PWD.USER | Sets user menu password; cannot query the current password | Up to 16 alphanumeric characters |
| PWD.SETUP | Sets setup menu password, cannot query the current password | Up to 16 alphanumeric characters |
| DATEFMT | Date format | MMDDYY (default), DDMMYY , YYMMDD , YYDDMM |
| DATESEP | Date separator | SLASH (default), DASH , SEMI , DOT |
| TIMEFMT | Time format | 12HOUR (default), 24HOUR |
| TIMESEP | Time separator | COLON (default), COMMA , DOT |
| CONSNUM | Consecutive numbering | 0–9999999, 0 (default) |
| CONSTUP | Consecutive number start-up value | 0–9999999, 0 (default) |
| UID | ID of the indicator | Up to 6 alphanumeric characters, 1 (default) |
| KYBDLK | Keyboard lock, disables keyboard except for the menu and power key | OFF (default), ON |
| ZERONLY | Disables keyboard except for the zero, menu and power keys | OFF (default), ON |
| CONTACT.COMPANY | Contact company name | Up to 30 alphanumeric characters |
| CONTACT.ADDR1-3 | Contact company address | Up to 20 alphanumeric characters (for each line) |
| CONTACT.NAME1-3 | Contact names | Up to 30 alphanumeric characters (for each line) |
| CONTACT.PHONE1-3 | Contact phone numbers | Up to 20 alphanumeric characters (for each line) |
| CONTACT.EMAIL | Contact email address | Up to 40 alphanumeric characters |
| CONTACT.LASTCAL | Last calibration date | Date MMDDYYYY as an 8-digit number |
| CONTACT.NEXTCAL | Next calibration date | Date MMDDYYYY as an 8-digit number |
| KHOLDTIME | Key hold time (in tenths of a second); 20 equals 2 seconds | 10–50, 20 (default) |
| KHOLDINTERVAL | Key hold time interval; the amount of time between increments during a key hold (in twentieths of a second); 2 equals a tenth of a second (10 increments per second during a key hold) | 1–100, 2 (default) |
| LOCALE | Enable gravity compensation | OFF (default), ON , FACTOR |
| LAT.LOC | Origin latitude (to nearest degree) for gravity compensation | 0–90, 45 (default) |
| ELEV.LOC | Origin elevation (in meters) for gravity compensation | -9999–9999, 345 (default) |
| DEST.LAT.LOC | Destination latitude (in degrees) for gravity compensation | 0–90, 45 (default) |
| DEST.ELEV.LOC | Destination elevation (in meters) for gravity compensation | -9999–9999, 345 (default) |
| GRAV.LOC | Origin gravity factor (in m/s ²) for gravity compensation | 9.00000–9.99999, 9.80665 (default) |
| DEST.GRAV.LOC | Destination gravity factor (in m/s ²) for gravity compensation | 9.00000–9.99999, 9.80665 (default) |
| PERSISTENTTARE | Determines if a tare remains through a power cycle | OFF (default), ON |
| REMOTE.PRINTDESTINATION | Determines whether the remote (another indicator) or local (682) indicator prints when the print key is pressed on the remote | REMOTE (default), LOCAL |
| LANGUAGE | Sets the text language; applies to <i>Weigh</i> mode only | ENGLISH (default), SPANISH , FRENCH , GERMAN , DUTCH , PORTUGUESE , ITALIAN |

12.14 Regulatory Commands

The following commands can be used to configure regulatory parameters.

Table 12-14. Regulatory Commands

| Command | Description | Values |
|---|--------------------------------|--|
| REGULAT | Regulatory mode | NTEP (default), CANADA , INDUST , NONE , OIML |
| AUDAGNCY | Audit Agency (Industrial Mode) | NTEP (default), CANADA , NONE , OIML |
| REG.SNPSHOT | Display or Scale weight source | DISPLAY (default), SCALE |
| REG.ZTARE | Remove tare on ZERO | NO (default), YES |
| REG.KTARE | Always allow keyed tare | NO , YES (default) |
| REG.MTARE | Multiple tare action | REPLACE (default), REMOVE , NOTHING |
| REG.NTARE | Allow negative tare | NO (default), YES |
| NTEP defaults shown for regulatory command values | | |

Table 12-14. Regulatory Commands (Continued)

| Command | Description | Values |
|---|---|--------------------------------|
| REG.CTARE | Allow Clear key to clear tare/accumulator | NO, YES (default) |
| REG.NEGTOTAL | Allow total scale to display negative value | NO (default), YES |
| REG.PRTMOT | Allow print while in motion | NO (default), YES |
| REG.PRINTPT | Add PT to keyed tare print | NO, YES (default) |
| REG.OVRBASE | Zero base for overload calculation | CALIB (default), SCALE |
| REG.AZTNET | Perform AZT on Net value | NO (default), YES |
| REG.MANUALCLEARARE | Allows manual clearing of the tare value | NO, YES (default) |
| REG.TAREINMOTION | Allows Tare in Motion | NO (default), YES |
| REG.ZEROINMOTION | Allows scale to be zeroed while in motion | NO (default), YES |
| REG.UNDERLOAD | Underload weight value in display divisions | 1–9999999, 20 (default) |
| NTEP defaults shown for regulatory command values | | |

12.15 Setpoint Commands

The following commands can be used to configure setpoint parameters.

Table 12-15. Setpoints Commands

| Command | Description | Values |
|--|--|--|
| BATCHNG | Batching mode | OFF (default), AUTO, MANUAL |
| SP.KIND#n | Setpoint kind | OFF (default), GROSS, NET, -GROSS, -NET, ACCUM, POSREL, NEGREL, PCTREL, PAUSE, DELAY, WAITSS, COUNTER, AUTOJOG, COZ, INMOTON, INRANGE, BATCHPR, TIMER, CONCUR, TOD, ALWAYS, NEVER |
| SP.VALUE#n | Setpoint value | 0.0–9999999.0, 0.0 (default) |
| SP.TRIP#n | Trip | HIGHER (default), LOWER, INBAND, OUTBAND |
| SP.BANDVAL#n | Band value | 0.0–9999999.0, 0.0 (default) |
| SP.HYSTER#n | Hysteresis | 0.0–9999999.0, 0.0 (default) |
| SP.PREACT#n | Preact type | OFF (default), ON, LEARN |
| SP.PREVAL#n | Preact value | 0.0–9999999.0, 0.0 (default) |
| SP.PREADJ#n | Preact adjustment percentage | 0.0–100.0, 50.0 (default) |
| SP.PRESTAB#n | Preact learn stability (in tenths of a second) | 0–65535, 0 (default) |
| SP.PCOUNT#n | Preact learn interval | 1–65535, 1 (default) |
| SP.BATCH#n | Batch step enable | OFF (default), ON |
| SP.CLRACCM#n | Clear accumulator enable | OFF (default), ON |
| SP.CLRTARE#n | Clear tare enable | OFF (default), ON |
| SP.PSHACCM#n | Push accumulate | OFF (default), ON, ONQUIET |
| SP.PSHPRINT#n | Push print | OFF (default), ON, WAITSS |
| SP.PSHTARE#n | Push tare | OFF (default), ON |
| SP.ALARM#n | Alarm enable | OFF (default), ON |
| SP.ALIAS#n | Setpoint name | Up to 8 alphanumeric characters, SETPT (default) |
| SP.ACCESS#n | Setpoint access | OFF, ON (default), HIDE |
| SP.DSLOT#n | Digital output slot | NONE (default), 0 |
| SP.DIGOUT#n | Digital output | 1–4, 1 (default) |
| SP.SENSE#n | Digital output sense | NORMAL (default), INVERT |
| SP.BRANCH#n | Branch destination (0 = do not branch) | 0–8, 0 (default) |
| SP.RELNUM#n | Relative setpoint number | 1–8, 1 (default) |
| SP.START#n | Starting setpoint | 1–8, 1 (default) |
| SP.END#n | Ending setpoint | 1–8, 1 (default) |
| SP.TIME#n | Trip time | hhmm, 0000 (default) |
| SP.DURATION#n | Trip duration | hhmmss, 000000 (default) |
| SP.ENABLE#n | Setpoint enable | OFF, ON (default) |
| For setpoint commands ending with #n, n is the setpoint number (1-8) | | |

12.16 Batching Control Commands

The commands listed in [Table 12-16](#) provide batching control through a communications port.

Table 12-16. Batching Control Commands

| Command | Description | Values |
|-----------|--------------|--|
| BATSTART | Batch Start | If the BATRUN digital input is active or not assigned, the BATSTART command can be used to start the batch program |
| BATSTOP | Batch Stop | Stops an active batch and turns off all associated digital outputs; Requires a Batch Start to resume processing |
| BATPAUSE | Batch Pause | Pauses an active batch and turns off all digital outputs except those associated with Concurrent and Timer setpoints; processing is suspended until the indicator receives a Batch Start signal; pressing the Batch Start digital input, BATSTART serial command, Batch Start softkey or the StartBatch function (in iRite) resumes the batch and re-energizes all digital outputs turned off by the Batch Pause |
| BATRESET | Batch Reset | Stops the program and resets the batch program to the first batch step; use the BATRESET command after making changes to the batch configuration |
| BATSTATUS | Batch Status | Returns YYYY where X is S (if the batch is stopped), P (if the batch is paused), R (if the batch is running); and YYY is the setpoint number the batch is currently on (1-8) |

12.17 Print Format Commands

The following commands can be used to configure print format parameters.

Table 12-17. Print Format Commands

| Command | Description | Values |
|--|-------------------------------------|---|
| GFMT GFMT.PORT GFMT.PORT2 | Gross demand print format string | Each format can be sent out one or two ports; for the .PORT and .PORT2 commands, specify the port name as one of the following: RS232-1 (PORT default), RS232-2, RS485, TCPC, TCPS, USB, SRLCARD1, SRLCARD2, WIFIBT, NONE (PORT2 default) |
| NFMT NFMT.PORT NFMT.PORT2 | Net demand print format string | <i>Example: To send the Gross format out both the RS-232 Port 2 and the Wi-Fi and Bluetooth® Port at the same time, send:</i> GFMT.PORT=RS232-2 GFMT.PORT2=WIFIBT |
| ACCFMT ACC.PORT ACC.PORT2 | Accumulator print format string | |
| SPFMT SPFMT.PORT SPFMT.PORT2 | Setpoint print format string | See Section 13.0 on page 96 for information about demand print format strings |
| HDRFMT1 HDRFMT2 | Ticket header format strings | |
| AUXFMT#1-4 AUX.PORT#1-4 AUX.PORT2#1-4 | Auxiliary print format strings | |
| TRFMT TRFMT.PORT TRFMT.PORT2 | Truck print format string | |
| TRWINFMT TRWINFMT.PORT TRWINFMT.PORT2 | Truck weigh-in print format string | |
| TRWOUTFMT TRWOUTFMT.PORT TRWOUTFMT.PORT2 | Truck weigh-out print format string | |
| AUD.DEST1 AUD.DEST2 | Audit destination print ports | |

12.18 Digital I/O Commands

The following commands can be used to configure digital I/O parameters.

Table 12-18. Digital I/O Commands

| Command | Description | Values |
|---|---------------|--|
| DIO.b#s | Sets DIO type | OFF (default), OUTPUT, PRIM, PRINT, SEC, TARE, UNITS, ZERO, BATRUN, BATSTART, BATPAUSE, BATRESET, BATSTOP, CLEAR, CLRACC, CLRCN, CLRTAR, DSPACC, DSPTAR, GROSS, KBDLOC, NET, NT/GRS |
| Valid bit values (b) are 1-4; For commands ending with #s, s is the slot assigned to the digital I/O (0); Slot 0 is onboard | | |

12.19 Analog Output Commands

The following commands can be used to configure analog output parameters.

Table 12-19. Analog Output Commands

| Command | Description | Values |
|---|--|--|
| ALG.SOURCE#s | Analog output source | SCALE1 (default), REMOTE |
| ALG.MODE#s | Mode | GROSS (default), NET |
| ALG.OUTPUT#s | Type of output | 0-10V (default), 0-20MA, 4-20MA |
| ALG.ERRACT#s | Error action | FULLSC (default), HOLD, ZEROSC |
| ALG.MIN#s | Minimum value tracked | ±9999999.0, 0.0 (default) |
| ALG.MAX#s | Maximum value tracked | ±9999999.0, 10000.0 (default) |
| ALG.TWZERO | Adjusts the offset of the analog output zero value | 0-65535, 0 (default) |
| ALG.TWSPAN | Adjusts the offset of the analog output span value | 0-65535, 59515 (default) |
| For commands ending with #s, s is the slot number assigned to the analog output (1) | | |

12.20 Softkey Setting Commands

The following command can be used to configure the function of the five softkeys.

Table 12-20. Softkey Commands

| Command | Description | Values |
|---|---|---|
| SOFTKEY.FUNCTION#s | Function assigned to each available softkey | NONE (default), BLANK, TIMEDATE, DSPTAR, DSPACC, SETPOINT, BATSTOP, BATSTRT, BATPAUS, BATRESET, STOP, GO, OFF, DSPUID, TRUCKWEIGHIN, TRUCKWEIGHOUT, ENTERTRUCKREGS, PRINTAUXFMT1, PRINTAUXFMT2, PRINTAUXFMT3, PRINTAUXFMT4 |
| For commands ending with #s, s is the softkey number (1-15) | | |

12.21 Weigh Mode Commands

These commands function in *Weigh* mode. Non-weight-related commands work in *Setup* mode.

Table 12-21. Weigh Mode Commands

| Command | Description | Values |
|---------------|--|---|
| P | Returns what the indicator is currently displaying | -- |
| ZZ | Returns currently displayed annunciators | See Section 16.4 on page 109 |
| CONSNUM | Returns current consecutive number value | 0–9999999, 0 (default) |
| UID | Sets or returns the unit ID | Up to 6 alphanumeric characters, 1 (default) |
| SD | Sets or returns the current system date | MMDDYY, DDMMYY, YYMMDD, or YYDDMM. Enter six-digit date using the year-month-day order specified for the DATEFMT parameter, using only the last two digits of the year; The current system date is returned by only sending <i>SD</i> |
| ST | Sets or returns the current system time | HHMM (enter using 24-hour format) The current system time is returned by only sending <i>ST</i> |
| STS | Sets or returns the current system time with seconds | HHMMSS (enter using 24-hour format) The current system time is returned by only sending <i>STS</i> |
| RS | Resets system | Soft reset; Used to reset the indicator without resetting the configuration to the factory defaults |
| SX | Starts all serial data streams | -- |
| EX | Stops all serial data streams | -- |
| SX# <i>p</i> | Starts serial data stream for port <i>p</i> | OK or ?? |
| EX# <i>p</i> | Stops serial data stream for port <i>p</i> | An EX command sent while in <i>Setup</i> mode does not take effect until the indicator is returned to <i>Weigh</i> mode |
| SF# <i>n</i> | Returns a single stream frame from scale <i>n</i> using the standard Rice Lake format. | -- |
| XA# <i>n</i> | Returns the accumulator value in displayed units | nnnnnnnn UU |
| XAP# <i>n</i> | Returns the accumulator value in primary units | |
| XAS# <i>n</i> | Returns the accumulator value in secondary units | |
| XAT# <i>n</i> | Returns the accumulator value in tertiary units | |
| XG# <i>n</i> | Returns the gross weight in displayed units | nnnnnnnn UU |
| XGP# <i>n</i> | Returns the gross weight in primary units | |
| XGS# <i>n</i> | Returns the gross weight in secondary units | |
| XGT# <i>n</i> | Returns the gross weight in tertiary units | |
| XN# <i>n</i> | Returns the net weight in displayed units | nnnnnnnn UU |
| XNP# <i>n</i> | Returns the net weight in primary units | |
| XNS# <i>n</i> | Returns the net weight in secondary units | |
| XNT# <i>n</i> | Returns the net weight in tertiary units | |
| XT# <i>n</i> | Returns the tare weight in displayed units | nnnnnnnn UU |
| XTP# <i>n</i> | Returns the tare weight in primary units | |
| XTS# <i>n</i> | Returns the tare weight in secondary units | |
| XTT# <i>n</i> | Returns the tare weight in tertiary units | |

For commands ending with #*n*, *n* is the scale number (1); For commands ending with #*p*, *p* is the port number (1-6), see [Section 12.6.1 on page 88](#)

13.0 Print Formatting

The 682 provides multiple print formats, Gross, Net, Accumulator, Setpoint, Header, Auxiliary 1-4, Truck, Truck Weigh-In, and Truck Weigh-Out, which determine the format of the printed output when the **Print** key is pressed. If a tare has been entered or acquired, Net is used; otherwise, Gross is used.

Each print format can be customized to include up to 1,000 characters of information, such as company name and address, on printed tickets. Use the print format menu through front panel of the indicator to customize the print formats.

List of print formats and the associated EDP commands:

- Gross Format (GFMT)
- Net Format (NFMT)
- Accumulator Format (ACCFMT)
- Setpoint Format (SPFMT)
- Header Format (HDRFMT1-2)
- Auxiliary Format 1-4 (AUXFMT#1-4)
- Truck Format (TRFMT)
- Truck Weigh-In Format (TRWINFMT)
- Truck Weigh-Out Format (TRWOUTFMT)
- Audit Trail Port (AUD.DEST1-2)

13.1 Print Formatting Tokens

Table 13-1 lists tokens which can be used to configure the print formats. Tokens included in the format strings must be enclosed between < and > delimiters. Characters outside of the delimiters are printed as text on the ticket. Text characters can include ASCII characters, which can be printed by the output device.

Table 13-1. Print Format Tokens

| Token | Description | Supported Ticket Formats |
|---|--|---|
| <i>General Weight Data Tokens</i> | | |
| <Gx> | Gross weight, current scale | GFMT, NFMT, ACCFMT, SPFMT, AUXFMT, TRFMT, TRWINFMT, TRWOUTFMT |
| <Gx#n> | Gross weight, scale <i>n</i> | |
| <Nx> | Net weight, current scale | |
| <Nx#n> | Net weight, scale <i>n</i> | |
| <Tx> | Tare weight, current scale | |
| <Tx#n> | Tare weight, scale <i>n</i> | |
| <S> | Current scale number | |
| <p>NOTE: For tokens with #<i>n</i>, <i>n</i> is the scale number (1). For tokens with an <i>x</i>, <i>x</i> is the character width of the weight field with padded spaces on the left. If <i>x</i> is not specified, 10 is the assumed default for the weight field. <i>x</i> can be set using one or two digits and sets the minimum number of characters in the weight field, but expands to show all characters for a value that has more characters than the minimum value set with <i>x</i>.</p> <p>Example: To format a ticket to provide gross weight for Scale 1 with a minimum of 6 print characters, use the following token: <G6#1></p> <p>NOTE: Gross, net and tare weights can be printed in any configured weight unit by adding modifiers to the gross, net, and tare weight tokens: /P (primary units), /D (displayed units), /S (secondary units) or /T (tertiary units). If not specified, the currently displayed unit (/D) is assumed.</p> <p>Example: To format a ticket to provide net weight in secondary units, use the following token: <N/S></p> <p>NOTE: Formatted weight strings default to contain a 10-digit weight field (including sign and decimal point), followed by a space and a 2-digit unit identifier. Total field length with unit identifier is 13 characters. For tokens with an <i>x</i>, total field length with unit identifier is <i>x</i> + 3.</p> | | |
| <i>Accumulator Tokens</i> | | |
| <A> | Accumulated weight, current scale; Prints to 15 digits | GFMT, NFMT, ACCFMT, AUXFMT |
| <A#n> | Accumulated weight, scale <i>n</i> | |
| <AA> | Average accumulation, current scale | |
| <AA#n> | Average accumulation, scale <i>n</i> | |
| <AC> | Number of accumulations, current scale | |
| <AC#n> | Number of accumulations, scale <i>n</i> | |
| <AT> | Time of last accumulation, current scale | |
| <AT#n> | Time of last accumulation, scale <i>n</i> | |
| <AD> | Date of last accumulation, current scale | |
| <AD#n> | Date of last accumulation, scale <i>n</i> | |
| NOTE: For tokens with # <i>n</i> , <i>n</i> is the scale number (1). | | |

Table 13-1. Print Format Tokens (Continued)

| Token | Description | Supported Ticket Formats | |
|--|--|--------------------------|----------------------------|
| Setpoint Tokens | | | |
| <SCV> | Setpoint captured value | SPFMT | |
| <SN> | Setpoint number | | |
| <SNA> | Setpoint name | | |
| <SPM> | Setpoint mode (gross or net label) | | |
| <SPV> | Setpoint preact value | | |
| <STV> | Setpoint target value | | |
| Auditing Tokens | | | |
| <CD> | Last calibration date | All | |
| <NOC> | Number of calibrations | | |
| <NOW> | Number of weighments since last calibration | | |
| NOTE: Last calibration date (<CD>) and number of calibrations (<NOC>) are updated anytime a calibration is performed on any of the scales. Number of weighments (<NOW>) is incremented whenever the scale weight exceeds 10% of scale capacity. Scale must return to gross or net zero before the value can be incremented again. | | | |
| Formatting and General-Purpose Tokens | | | |
| <nnn> | ASCII character (<i>nnn</i> = decimal value of ASCII character); used for inserting control characters (STX, for example) in the print stream | All | |
| <TI> | Time | | |
| <DA> | Date | | |
| <TD> | Time and date | | |
| <UID> | Unit ID number (up to 8 alphanumeric characters) | | |
| <CN> | Consecutive number (up to 7 digits) | | |
| <H1> | Insert header format 1 (HDRFMT1), see Table 13-2 on page 98 | | |
| <H2> | Insert header format 2 (HDRFMT2), see Table 13-2 on page 98 | | |
| <CR> | Carriage return character | | |
| <LF> | Line feed character | | |
| <NL <i>nn</i> > | New line (<i>nn</i> = number of termination (<CR/LF> or <CR>) characters)* | | |
| <SP <i>nn</i> > | Space (<i>nn</i> = number of spaces)* | | |
| <SU> | Toggle weight data format (formatted/unformatted) | | |
| NOTE: If <i>nn</i> is not specified, 1 is assumed. Value must be in the range 1–99. | | | |
| User Program-Dependent Tokens | | | |
| <US <i>nn</i> > | Insert user print text string (from user program, SetPrintText API) | All | |
| Header Format Tokens | | | |
| <COMP> | Company name (up to 30 characters) | All | |
| <COAR1> <COAR2> <COAR3> | Company address, lines 1–3 (up to 30 characters) | | |
| <CONM1> <CONM2> <CONM3> | Company contact names (up to 20 characters) | | |
| <COPH1> <COPH2> <COPH3> | Company contact phone numbers (up to 20 characters) | | |
| <COML> | Company contact e-mail address (up to 30 characters) | | |
| Truck Format Tokens | | | |
| <TID> | Truck ID (up to 16 characters) | | TRFMT, TRWINFMT, TRWOUTFMT |
| <TR1> | Gross weight for current ticket in displayed units | | |
| <TR2> | Tare weight (inbound) for current ticket in displayed units | | |
| <TR3> | Net weight (outbound) for current ticket in displayed units | | |
| NOTE: TR1, TR2 and TR3 truck ticket weight data includes keywords INBOUND, KEYED and RECALLED, as needed. | | | |

Table 13-1. Print Format Tokens (Continued)

| Token | Description | Supported Ticket Formats |
|----------------------------|--|--------------------------|
| <i>Alert Format Tokens</i> | | |
| <ERR> | Alert error message (system-generated) | ALERT |

Table 13-2. Default Print Formats

| Format | Default Format String | When Used |
|----------------------|--|---|
| GFMT | GROSS<G><NL2><TD><NL> | Weigh mode – no tare in system |
| NFMT | GROSS<G><NL>TARE<SP><T><NL>NET<SP2><N><NL2><TD><NL> | Weigh mode – tare in system |
| ACCFMT | ACCUM <A><NL><DA> <TI><NL> | Accumulator demand print format string |
| SPFMT | <SCV><SP><SPM><NL> | Setpoint print operation with Push Print = ON |
| HDRFMT _n | COMPANY NAME<NL>STREET ADDRESS<NL>CITY ST ZIP<NL2> | Header format strings (n=1-2) |
| AUXFMT# _n | GROSS<G><NL2><TD><NL> | Auxiliary print format strings (n=1-4) |
| TRFMT | REG ID: <TID>: <TR2> <TD><NL> | Weigh mode – truck in/out applications |
| TRWINFMT | <NL>ID<SP><TID><NL2>GROSS<SP><TR1><NL2><DA><SP><TI><NL> | Weigh mode – truck in/out applications |
| TRWOUTFMT | <NL6>ID<SP><TID><NL2>GROSS<TR1><NL>TARE<SP><TR2><NL>NET<SP2><TR3><NL2><DA><SP><TI><NL> | Weigh mode – truck in/out applications |



NOTE: The 1,000 character limit of each print format string includes the output field length of the print formatting tokens, not the token length. For example, if the indicator is configured to display a decimal point, the <G> token generates an output field of 13 characters: the 10 character weight value (including decimal point), one space, and a two-digit units identifier. For tokens with an x (e.g. <Gx> or <Gx#n>), total field length with unit identifier is x + 3.

PT (preset tare) is added to the tare weight if tare was keyed in.

13.2 Customizing Print Formats

The Gross (GFMT), Net (NFMT), Accumulator (ACCFMT), Setpoint (SPFMT), Header (HDRFMT1-2), Auxiliary 1-4 (AUXFMT#1-4), Truck (TRFMT), Truck Weigh-In (TRWINFMT) and Truck Weigh-Out (TRWOUTFMT) formats can be customized using the print format menu via the front panel. See [Section 4.5.6 on page 45](#) for the print format menu structure. To access the print format menu the indicator must be in *Setup* mode ([Section 4.1 on page 29](#)).

The print format menu via the front panel can be used to customize the print formats and to edit the print format strings with the full keyboard that appears on the display when entering a format string. See [Section 3.3.2 on page 20](#) for the alphanumeric entry procedure to edit the print format strings.

13.3 Non-Human Readable Characters

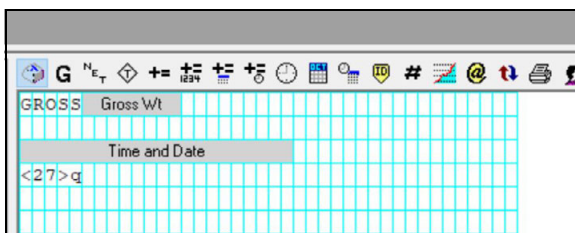
ASCII characters 0 through 31 are non-human readable characters. To include a special character in a print format, the decimal equivalent needs to be used. For example, the special character *Esc* would be <27> or 60, 50, 55, 62 (less the commas).

Examples of a print release command for a TMU295 in the GROSS format:

Print Format:

GROSS<G><NL2><TD><NL><27>q

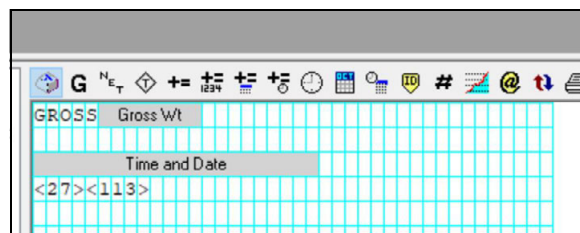
In Revolution:



Print Format:

GROSS<G><NL2><TD><NL><27><113>

In Revolution:



14.0 Setpoints

The 682 indicator provides eight configurable setpoints for control of both indicator and external equipment functions. Setpoints can be configured to perform actions or functions based on specified parameter conditions. Parameters associated with various setpoint kinds can, for example, be configured to perform functions (print, tare, accumulate), to change the state of a digital output controlling indicator or external equipment functions, or to make conditional decisions.



NOTE: *Weight-based setpoints are tripped by values specified in primary units only.*

14.1 Continuous and Batch Setpoints

682 setpoints can be either continuous or batch.

Continuous setpoints are free-running; the indicator constantly monitors the condition of free-running setpoints at each A/D update. The specified setpoint action or function is performed when the designated setpoint parameter conditions are met. A digital output or function assigned to a free-running setpoint continuously changes state, becoming active or inactive, as defined by the setpoint parameters.

Batch setpoints (Batch = On) which have digital outputs associated to them remain active until the setpoint condition is met. The setpoint is then latched for the remainder of the batch sequence.

To use batch setpoints, set the Batching parameter in the Setpoint menu. This parameter defines whether a batch sequence is automatic or manual. Auto sequences repeat continuously after receiving a single batch start signal, while Manual sequences only run through once for each batch start signal. The batch start signal can be initiated by a digital input (set to Batch Start), or an EDP command (BATSTART).

For a setpoint to be used as part of a batch sequence, its batch sequence (Batch) parameter must be set to On. If a setpoint is defined and enabled, but its batch sequence parameter is set to Off, the setpoint operates as a continuous setpoint even during batch sequences.



NOTE: *In applications which contain both batch setpoint routines and continuous setpoints, it is good practice to keep continuous setpoints separate from the batch sequence.*

Do not assign them the same digital output.

Set the Access parameter On when creating and testing batch routines. Once the batching routine is complete and ready for production, Access can be set to Off to prevent changes to the configured setpoint value, or to Hide to prevent changing or viewing the value.

Table 14-1. Setpoint Kinds

| Parameter | Description | Batch | Continuous |
|-------------------|---|-------|------------|
| Off | Setpoint turned off/ignored | | |
| Gross | Performs functions based on the gross weight; the target weight entered is considered a positive gross weight | X | X |
| Net | Performs functions based on the net weight; the target weight entered is considered a positive net weight value | X | X |
| Negative Gross | Performs functions based on the gross weight; the target weight entered is considered a negative gross weight | X | X |
| Negative Net | Performs functions based on the net weight; the target weight entered is considered a negative net weight value | X | X |
| Accumulate | Compares the value of the setpoint to the source scale accumulator; the accumulator setpoint is satisfied when the value of the source scale accumulator meets the value and conditions of the accumulator setpoint | X | X |
| Positive Relative | Performs functions based on a specified value above a referenced setpoint, using the same weight mode as the referenced setpoint | X | X |
| Negative Relative | Performs functions based on a specified value below a referenced setpoint, using the same weight mode as the referenced setpoint | X | X |

Table 14-1. Setpoint Kinds (Continued)

| Parameter | Description | Batch | Continuous |
|------------------|--|-------|------------|
| Percent Relative | Performs functions based on a specified percentage of the target value of a referenced setpoint, using the same weight mode as the referenced setpoint; the actual target value of the Percent Relative setpoint is calculated as a percentage of the target value of the referenced setpoint | X | X |
| Pause | Pauses the batch sequence indefinitely; a Batch Start signal must be initiated to continue the batch process | X | |
| Delay | Delays the batch sequence for a specified time; the length of the delay (in tenths of a second) is specified on the Value parameter | X | |
| Wait Standstill | Suspends the batch sequence until the scale is at standstill | X | |
| Counter | Specifies the number of consecutive batch sequences to perform; place counter setpoints at the beginning of a batch routine | X | |
| Auto-Jog | Automatically checks the previous weight-based setpoint to verify the setpoint weight value is satisfied in a standstill condition <ul style="list-style-type: none"> If the previous setpoint is not satisfied when at standstill, the Auto-Jog setpoint activates the digital output of the previous weight-based setpoint for a period of time, specified on the Value parameter (in tenths of a second) The Auto-Jog process repeats until the previous weight-based setpoint is satisfied when the scale is at standstill <p>NOTE: The Auto-Jog digital output is typically used to signify an Auto-Jog operation is being performed.</p> <p>NOTE: Auto-Jog uses the digital output of the previous weight-based setpoint, and should not be assigned to the same digital output as the related weight-based setpoint.</p> | X | |
| Center of Zero | Monitors for a gross center of zero condition <ul style="list-style-type: none"> The digital output associated with this setpoint kind is activated when the referenced scale is at center of zero No value is required for this setpoint | | X |
| In Motion | Monitors for an in-motion condition <ul style="list-style-type: none"> The digital output associated with this setpoint is activated when scale is not at standstill No value is required for this setpoint | | X |
| In Range | Monitors for an in-range condition <ul style="list-style-type: none"> The digital output associated with this setpoint is activated when the scale is within capacity range No value is required for this setpoint | | X |
| Batch in Process | Batch processing signal: <ul style="list-style-type: none"> The digital output associated with this setpoint is activated whenever a batch sequence is in progress No value is required for this setpoint | | X |
| Timer | Tracks the progress of a batch sequence based on a timer <ul style="list-style-type: none"> The timer value, in tenths of a second, determines the length of time allowed between start and end setpoints Start and End parameters are used to specify the start and end setpoints If the End setpoint is not reached before the timer expires, the digital output associated with this setpoint is activated | | X |
| Concurrent | Allows a digital output to remain active over a specified portion of the batch sequence <ul style="list-style-type: none"> Type 1 (Value = 0): The digital output associated with this setpoint becomes active when the Start setpoint becomes the current batch step and remains active until the End setpoint becomes the current batch step Type 2 (Value > 0): If a non-zero value is specified for the Value parameter, the value represents the timer, in tenths of a second, for this setpoint; The digital output associated with this setpoint becomes active when the Start setpoint becomes the current batch step and remains active until the timer expires | | X |
| Time of Day | Performs functions when the internal clock time of the indicator matches the specified setpoint time | X | X |
| Always | This setpoint is always satisfied; It is typically used to provide an endpoint for true/false branching batch routines | X | |
| Never | This setpoint is never satisfied; Used to branch to a designated setpoint in true/false branching batch routines in which the batch does not continue through the normal sequence of batch setpoints | X | |

14.2 Batch Operations

Batches are controlled by digital inputs or EDP commands.

Batch Run (or BATRUN EDP command)

If a Batch Run digital input is configured, it must be active (low) for a batch to be started, and for it to continue to run. If a batch is running and the input becomes inactive (high), it will stop the batch at the current batch setpoint and turn off all associated digital outputs.

Batch Start (or BATSTART EDP command)

If the Batch Run digital input is active (low), or is not assigned, Batch Start will start a batch, resume a paused batch or resume a stopped batch. If the Batch Run digital input is inactive (high), Batch Start will reset the current batch.

Batch Pause (or BATPAUSE EDP command)

The Batch Pause digital input will pause an active batch, turning off all associated digital outputs EXCEPT those associated with Concurrent and Timer setpoints, while the input is active (low). As soon as the Batch Pause digital input is made inactive (high), the batch will resume. BATPAUSE EDP command works the same, except the batch will not resume until a Batch Start signal is received.

Batch Stop (or BATSTOP EDP command)

Stops an active batch at the current setpoint and turns off all associated digital outputs.

Batch Reset (or BATRESET EDP command)

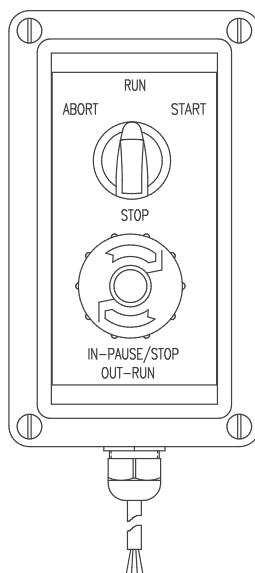
Stops and resets an active batch to the beginning of the process.

 **WARNING:** To prevent personal injury and equipment damage, software-based interruptions must always be supplemented by emergency stop switches and other safety devices necessary for the application.

14.2.1 Batching Switch

The batching switch option (PN 19369) comes as a complete unit in an FRP enclosure, with legend plate, emergency stop, and a run/start/abort three-way switch.

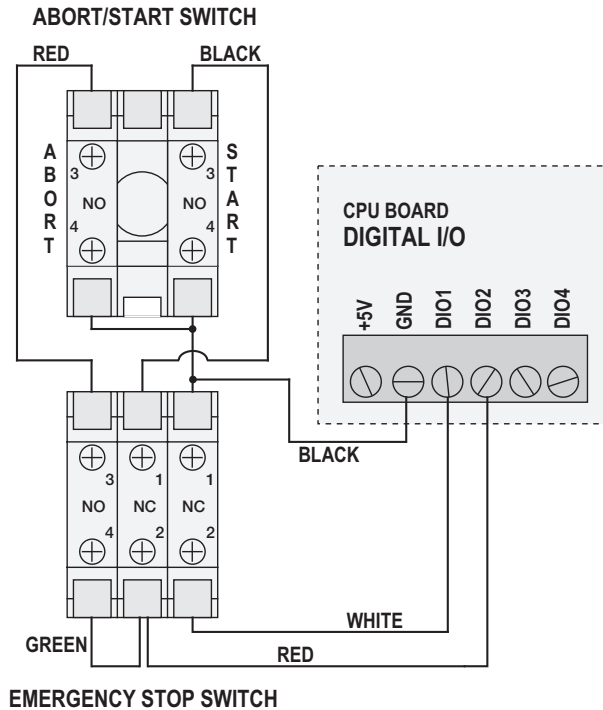
Figure 14-1. Batching Switch



Both switches are wired into the indicator's digital I/O terminal as shown in [Figure 14-2 on page 102](#). Each switch uses a separate digital input. Digital I/O Bit 1 must be set to Batch Start and Bit 2 must be set to Batch Run.

Once cables and switches have been connected to the indicator, use the setup switch to place the indicator in *Setup* mode. Use the Digital I/O menu (Section 4.5.9 on page 52) to configure digital input and output functions.

Figure 14-2. Batching Switch and Wiring Diagram Example



When configuration is complete, exit *Setup* mode. Initialize the batch by turning the three-way switch to ABORT, then unlock the STOP button (the STOP button must be in the OUT–RUN position to allow the batch process to run). The batching switch is now ready to use.



WARNING: If no digital input is assigned to Batch Run, batching proceeds as if Batch Run were always on (the batch starts when the three-way switch is turned to RUN, but the STOP button does not function).

To begin a batch process, turn the three-way switch to START momentarily. If the STOP button is pushed during the batch process, the process halts and the button locks in the IN–PAUSE/STOP position.

The START switch is ignored while the STOP button is locked in the IN–PAUSE/STOP position. The STOP button must be turned counterclockwise to unlock it, then released into the OUT–RUN position to enable the three-way switch.

To restart an interrupted batch from the step where it left off:

1. Unlock STOP button (OUT–RUN position).
2. Turn three-way switch to START.

To restart an interrupted batch from the first batch step:

1. Turn three-way switch to ABORT.
2. Unlock STOP button (OUT–RUN position).
3. Turn three-way switch to START.

To abort an interrupted batch:

1. Push the STOP button.
2. Turn three-way switch to ABORT.
3. Unlock STOP button (OUT–RUN position). A new batch can now be started.



NOTE: Use this procedure (or Batch Reset) to initialize the new batch routine following any change to the setpoint configuration.

14.3 Batching Examples

14.3.1 Example 1

The following example uses six setpoints to dispense material from a hopper in 100-lb batches and to automatically refill the hopper when its weight drops below 300 lb.

Bits 1 and 2 in the Digital I/O menu ([Section 4.5.9 on page 52](#)) are assigned to batch start and batch run functions: Batch Run must be on (low) before the Batch Start input starts the batch.

Slot 0, Bit 1 = Batch Start

Slot 0, Bit 2 = Batch Run

Batching = Manual

Setpoint 1 ensures the hopper has enough material to start the batch. If the hopper weight is 300 lb or higher, setpoint 1 is tripped.

| | |
|--------------|---------------|
| Setpoint 1 | Trip = Higher |
| Kind = Gross | Alarm = On |
| Value = 300 | Batch = On |

Setpoint 2 waits for standstill, then performs a tare to put the indicator into net mode.

| |
|------------------------|
| Setpoint 2 |
| Kind = Wait Standstill |
| Push Tare = On |

Setpoint 3 is used as a reference (relative setpoint) for setpoint 4.

| | |
|------------|---------------|
| Setpoint 3 | Trip = Higher |
| Kind = Net | Batch = Off |
| Value = 0 | |

Setpoint 4 is used to dispense material from the hopper. When the hopper weight falls to 100 lb less than its weight at the relative setpoint (setpoint 3), digital output 1 is set off.

| | |
|--------------------------|------------------------------|
| Setpoint 4 | Digital Output = 1 |
| Kind = Negative Relative | Batch = On |
| Value = 100 | Relative Setpoint Number = 3 |
| Trip = Lower | |

Setpoint 5 is used to evaluate the gross amount of material in the hopper after dispensing, and to maintain a minimum material level in the hopper. When the hopper weight falls below 300 lb, digital output 2 becomes active and the hopper is refilled to 1,000 lb.

| | |
|---------------|--------------------|
| Setpoint 5 | Hysteresis = 700 |
| Kind = Gross | Digital Output = 2 |
| Value = 300 | Batch = On |
| Trip = Higher | |

Setpoint 6 is used to ensure the operation performed in setpoint 4 is completed within 10 seconds. The Start and End parameters identify the setpoints monitored by the Timer. If the Timer expires before Setpoint 5 starts, Digital Output 4 is turned on as an alarm to signal a process fault.

| | |
|--------------|--------------------|
| Setpoint 6 | Start = 4 |
| Kind = Timer | End = 5 |
| Value = 100 | Digital Output = 4 |

14.3.2 Example 2

The following example uses six setpoints to control a two-speed fill operation where both fast and slow feeds are on simultaneously.

Bits 1 and 2 in the Digital I/O menu (Section 4.5.9 on page 52) are assigned to Batch Start and Batch Run functions. Batch Run must be on (low) before the Batch Start input starts the batch.

Slot 0, Bit 1 = Batch Start

Slot 0, Bit 2 = Batch Run

Batching = Manual

Setpoint 1 ensures the scale is empty (0 ± 2 lb).

Setpoint 1 Trip = Inband

Kind = Gross Band Value = 2

Value = 0 Batch = On

Setpoint 2 checks for the weight of a container (>5 lb) placed on the scale.

Setpoint 2 Trip = Higher

Kind = Gross Batch = On

Value = 5

Setpoint 3 waits for standstill, then tares the container weight, placing the indicator in net mode.

Setpoint 3

Kind = Wait Standstill

Push Tare = On

Setpoint 4 starts the fast fill operation. When the net weight reaches 175 lb, the setpoint trips and digital output 1 is set off.

Setpoint 4 Trip = Higher

Kind = Net Digital Output = 1

Value = 175 Batch = On

Setpoint 5 controls the slow fill operation. When the net weight reaches 200 lb, the slow fill is stopped, the indicator waits for standstill and performs a push print operation using the Setpoint Format ticket format.

Setpoint 5 Push Print = Wait Standstill

Kind = Net Digital Output = 2

Value = 200 Batch = On

Trip = Higher

Setpoint 6 is a continuous setpoint, used to allow the slow feed output to be on at the same time as the fast fill. The slow fill output (Digital Output 2) is turned on when Setpoint 4 (fast fill) starts and remains on until Setpoint 5 begins.

Setpoint 6 Start = 4

Kind = Concurrent End = 5

Value = 0 Digital Output = 2

15.0 Maintenance

The maintenance information in this manual is designed to cover aspects of maintaining and troubleshooting the 682 indicator. Contact the local Rice Lake Weighing Systems dealer if a problem requires technical assistance.



NOTE: Have the scale model number and serial number available when calling for assistance.

15.1 Maintenance Checkpoints

The scale must be checked frequently to determine when a calibration is required. It is recommended a zero calibration be checked every other day and a calibration checked every week for several months after installation. Observe the results and change the period between calibration checks, depending upon the accuracy desired.



NOTE: Establish a routine inspection procedure. Report changes in the scale function to the individual or department responsible for the scales' performance.

15.2 Field Wiring

If a problem with the wiring is suspected, check the electrical portion of the scale.

- Check for proper interconnections between the components of the system
- Check wiring meets all specifications in the installation drawings
- Check all wiring and connections for continuity, shorts and grounds using an ohmmeter with the scale off
- Check for loose connections, poor solder joints, shorted or broken wires and unspecified grounds in wiring; these issues cause erratic readings and shifts in weight readings
- Check all cable shields to ensure grounding is made at only the locations specified in the installation drawings

15.3 Troubleshooting Tips

Table 15-1 lists general troubleshooting tips for hardware and firmware error conditions.

Table 15-1. Basic Troubleshooting

| Symptom | Possible Cause | Remedy |
|---|--|---|
| 682 does not power up | Bad power supply | Check power supply; Check presence of AC or DC power – breaker tripped or unit unplugged; Power supply outputs around 12 VDC – replace if bad |
| Battery-backed corrupt error message at startup | Dead battery | Perform configuration reset then check for low battery warning on display; If battery is low, replace battery, perform another configuration reset, then reload files/configuration |
| ΛΛΛΛΛΛΛ or VVVVVVV | Over or under range scale condition | Check scale; For out-of-range conditions in total scale display, check all scale inputs for positive weight values |
| Cannot enter Setup mode | Bad switch | Test switch |
| Serial port not responding | Configuration error | Ensure port INPUT parameter is set to CMD for command input |
| A/D scale out of range | Scale operation Load cell connection Bad load cell | Check source scale for proper mechanical operation Check load cell and cable connection Check 682 operation with load cell simulator Check status of sense settings |
| Option card failure | Possible defective card or slot | Disconnect power, remove and reinstall card in slot, then apply power again |

15.4 Battery Replacement

The battery life varies depending on use. It is recommended to replace the battery every three years, or sooner, if left powered off for extended periods of time to prevent data loss in the event of a power failure.

Use the Revolution configuration utility ([Section 11.0 on page 83](#)) or EDP commands ([Section 12.0 on page 84](#)) to store a copy of the 682 configuration on a PC before attempting battery replacement. The 682 configuration can be restored from the PC if data is lost.

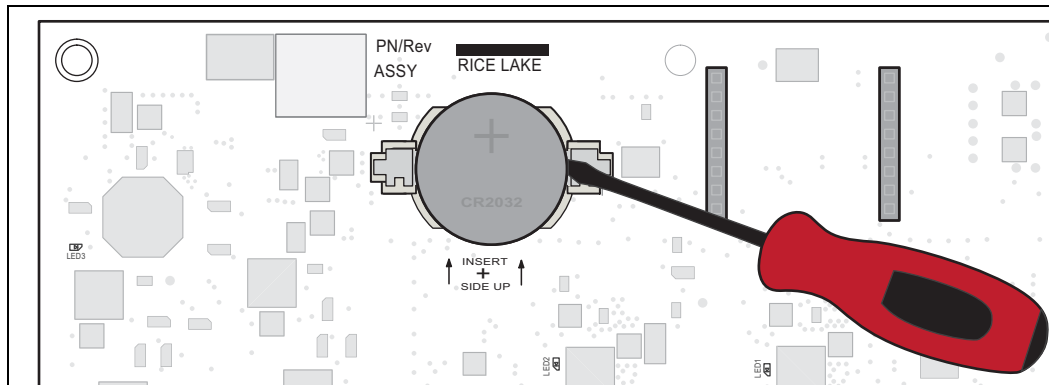


WARNING: Risk of explosion if battery is replaced with an incorrect type. Dispose of used batteries according to federal, state and local regulations.



IMPORTANT: Use anti-static protection for grounding and to protect components from electrostatic discharge (ESD) when working inside the 682 enclosure. Procedures requiring work inside the 682 must be performed by qualified service personnel only.

Figure 15-1. Non-Conductive Screw Driver Placement



To replace the battery, use the following procedure:

1. Disconnect power to the indicator.
2. Remove backplate as described in [Section 2.3 on page 5](#).
3. Place the tip of a non-conductive flat head screw driver between negative contact and battery.
4. Twist screw driver to release battery from holder.
5. Press new replacement battery straight into the battery holder with the positive side up. See [Section 2.9 on page 14](#) for replacement battery details.
6. Reset the time and date settings of the indicator. See [Section 3.4.15 on page 24](#) to set the time and [Section 3.4.16 on page 25](#) to set the date.

15.5 Board Replacement

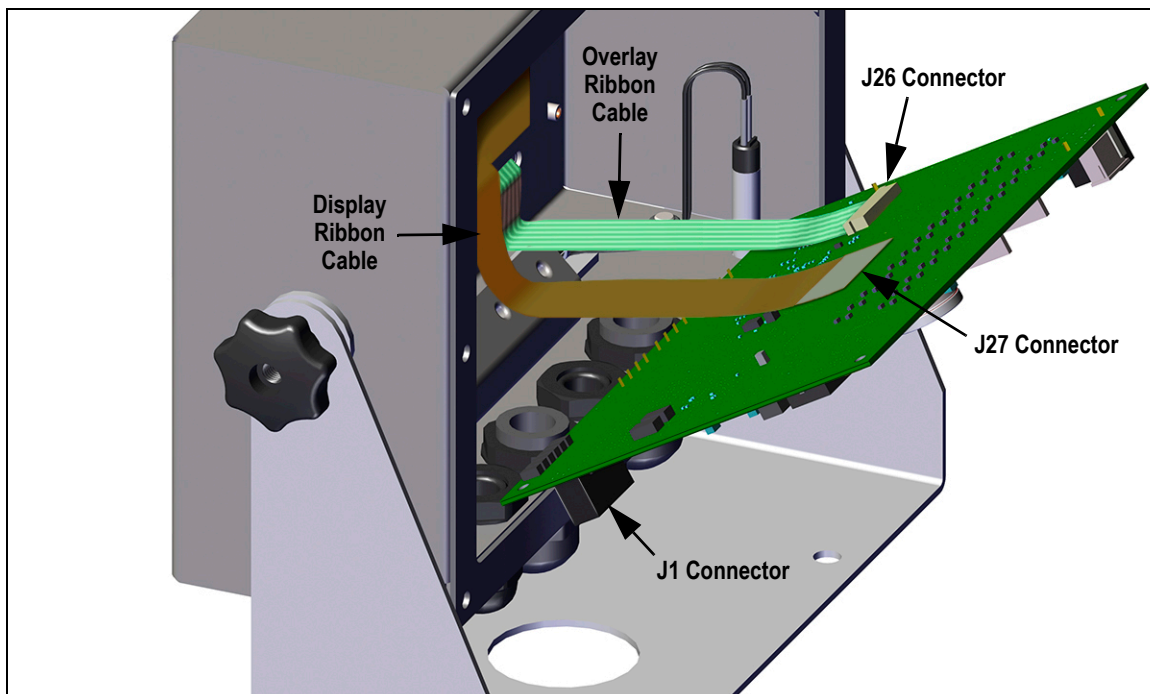
Board replacement should only be done by a service technician.

IMPORTANT: Use anti-static protection for grounding and to protect components from electrostatic discharge (ESD) when working inside the 682 enclosure. Procedures requiring work inside the 682 must be performed by qualified service personnel only.

To replace a 682 board, use the following procedure:

1. Disconnect power to the indicator.
2. Remove backplate as described in [Section 2.3 on page 5](#).
3. Label connections for re-installation to board.
4. Disconnect all connections from the board.
5. Remove all screws securing the board.
6. Disconnect the overlay ribbon cable from the J26 connector and the display ribbon cable from the J27 connector on the reverse side of the board as it is lifted from the enclosure.
7. Use the J1-J5 connectors of the new replacement board to rest the board on the bottom edge of the enclosure opening.

Figure 15-2. Replacement Board Installation



8. Press the end of the overlay ribbon cable up against the J26 connector while it is still closed. Open the J26 connector and then close it once the end of the overlay ribbon cable has seated itself inside of the connector.
9. Line up the display ribbon cable connector with the J27 connector and press the backside of the display ribbon cable end piece, so the connectors click together.
10. Place the new replacement board into the enclosure and secure with previously removed screws.
11. Reconnect all connections to the board. See [Section 2.5 on page 11](#) for details on the board connectors.

IMPORTANT: Always verify indicator has been returned back to a safe state with the proper installation of all connections and a complete functions test before reinstalling the backplate and returning the indicator back into service.

16.0 Appendix

16.1 Error Messages

The 682 indicator provides a number of error messages. When an error occurs, the message displays on the indicator.

16.1.1 Displayed Error Messages

The 682 provides a number of front panel error messages to assist in problem diagnosis. [Table 16-1](#) lists these messages and their meanings.

Table 16-1. 682 Error Messages

| Error Message | Description |
|--|--|
| ----- | Overflow error – Weight value too large to be displayed |
| AAAAAAAA | Gross > overload limit – Gross value exceeds overload limit; Check configuration or signal input level; Overload can be caused by input signal > 45 mV or common mode voltage > 950 mV |
| VVVVVVV | Gross < underload limit – Gross value exceeds underload limit |
| Battery low | Displays every 30-seconds when battery is low |
| Waiting for 30 seconds of standstill | Displays when power up delay is active |
| Not allowed in motion | Displays when attempting to perform a function while weight is in motion, if in motion is not allowed for that function |
| Tare in motion not allowed | Displays when attempting to perform a tare while weight is in motion, if in-motion tares are not allowed |
| Tare not allowed | Displays when attempting to perform a tare, if a tare is not allowed |
| Negative tare not allowed | Displays when attempting to perform a negative tare, if a negative tare is not allowed |
| Keyed tare not allowed | Displays when attempting to perform a keyed tare, if a keyed tare is not allowed |
| Tare exceeding capacity not allowed | Displays when attempting to perform a tare larger than capacity, if it is not allowed |
| Multiple tares not allowed | Displays when attempting to perform a tare if a tare is already in the system, if tare is not configured to replace or remove |
| Must be in first interval to tare | Interval is currently within the second or third interval; Perform tare while in the first interval only |
| Keyed tare value must be in first interval | Keyed tare value is within the second or third interval; Keyed tare value must be within the first interval only |
| Duplicate ID not allowed | Displays when attempting to enter a Truck ID that already exists, if ID Overwrite is set to Disable |
| Invalid ID | Displays when attempting to enter an invalid Truck ID; Truck IDs can be up to 16 alphanumeric characters in length |
| Truck ID not found | Displays when attempting to enter a Truck ID at Weigh Out that has not been previously entered |
| Truck program disabled | Displays when attempting a Truck Mode function, when Truck Mode is set to Off |
| Truck program error | Generic error for the truck program |
| Invalid Index | Displays when attempting to delete a truck ID record with an invalid index |
| Invalid Weight | Displays when weigh-in/-out procedure weight is invalid |
| Record read error | Displays when an error occurs while reading from the microSD card or the CRC wasn't valid on the record |
| Record write error | Displays when an error occurs while writing to the microSD card |
| Initial zero failed | Displays when an attempt to perform an initial zero fails, only possible at startup |
| Please wait | Displays when calibrating |
| Alarm | Displays when a configured setpoint's ALARM action occurs |

16.2 Audit Trail Support

Audit trail support provides tracking information for configuration and calibration events. To prevent potential misuse, all configuration and calibration changes are counted as change events.

Audit trail information can be printed from Revolution or by sending the DUMPAUDIT serial command. Revolution can be used to display audit trail information. The audit trail display includes the legally relevant (LR) version number (firmware version for the code which provides audit trail information), a calibration count and a configuration count.

See [Section 3.4.10 on page 22](#) for steps to view the Audit Trail counters.

16.3 Unit Conversion Factors

The 682 has the capability to mathematically convert a weight into many different types of units and instantly display those results with a press of the **Units** key. Secondary and Tertiary units, along with Custom Units can be configured in the Scale Format menu ([Section 4.5.2 on page 34](#)).



NOTE: Multipliers are preconfigured within the indicator, unless a Custom Unit is applied.

Ensure the unit format is set appropriately for the scale capacity in the secondary and tertiary units.

16.4 ZZ EDP Command

The ZZ EDP command can be used to remotely query which annunciators are currently displayed on the indicator front panel. The ZZ command returns a decimal number representing the LED annunciators currently lit ([Table 16-2](#)).

Example: If the annunciator status value returned on the ZZ command is 145, the gross, standstill and lb annunciators are lit. The number 145 represents the sum of the values for the gross mode annunciator (16), the standstill annunciator (128) and the lb annunciator (1).

Table 16-2. Status Codes Returned on the ZZ Command

| Decimal Value | Annunciator |
|---------------|--------------------|
| 1 | lb/primary units |
| 2 | kg/secondary units |
| 4 | Tare entered |
| 8 | Keyed tare entered |
| 16 | Gross |
| 32 | Net |
| 64 | Center of zero |
| 128 | Standstill |

16.5 Continuous Data (Stream) Output Formats

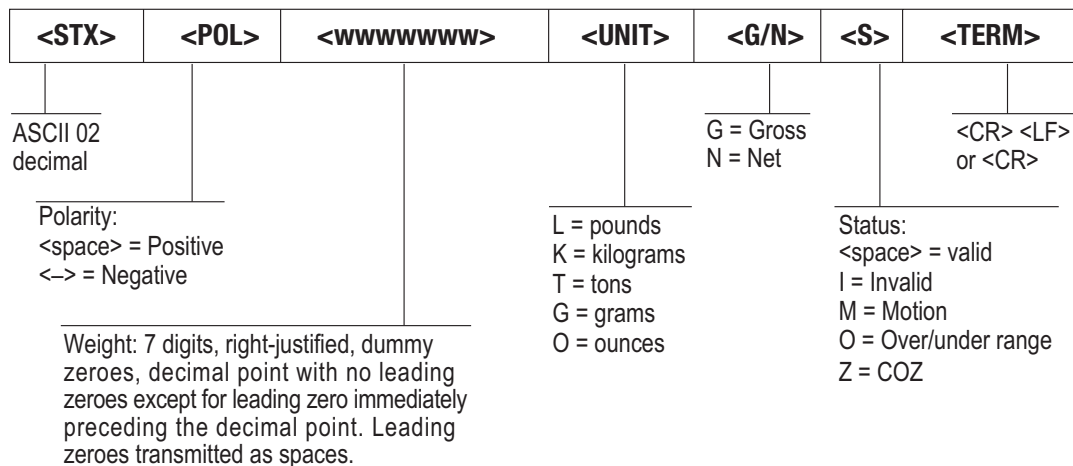
When the trigger setting for a port is set to STRIND or STRLFT, data is continuously streamed from the appropriate port in one of the four fixed format options or a custom format option.

Fixed Format Options:

- Rice Lake Weighing Systems (Section 16.5.1)
- Cardinal (Section 16.5.2)
- Avery Weigh-Tronix (Section 16.5.3 on page 111)
- Mettler Toledo (Section 16.5.4 on page 111)

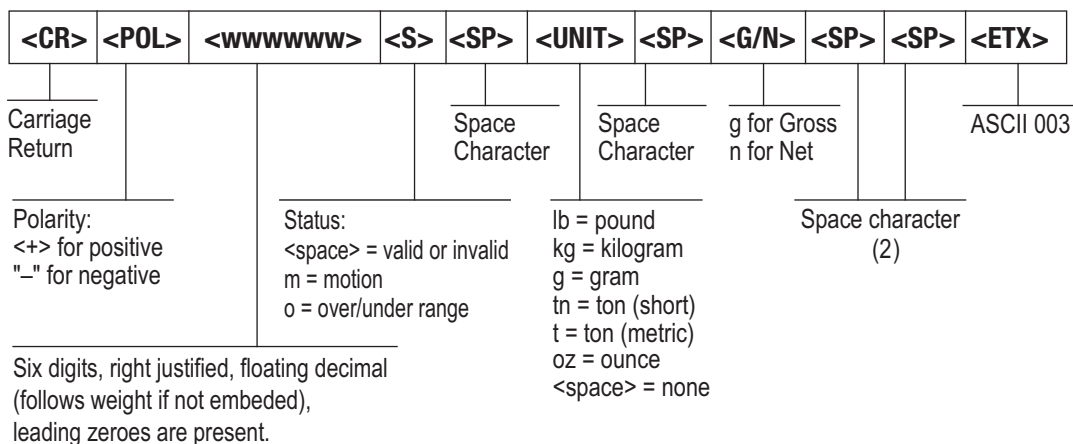
16.5.1 Rice Lake Weighing Systems Stream Format (rL5)

Figure 16-1. Rice Lake Weighing Systems Stream Data Format



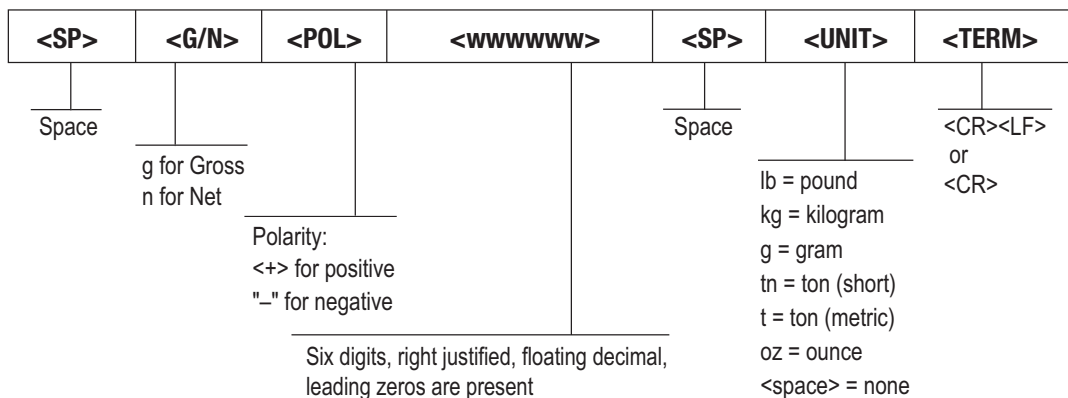
16.5.2 Cardinal Stream Format (rLnRdRl)

Figure 16-2. Cardinal Stream Data Format



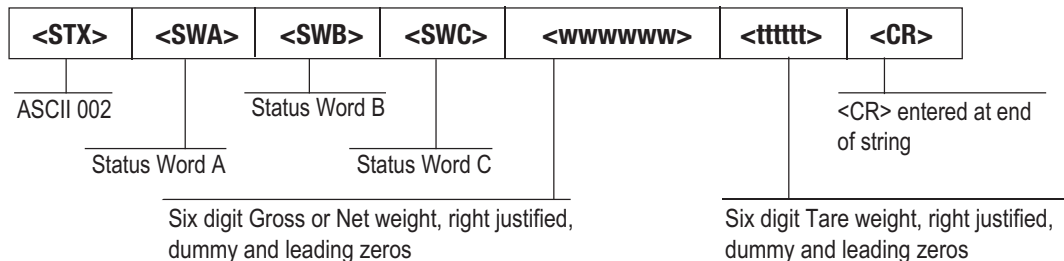
16.5.3 Avery Weigh-Tronix Stream Format (αβγδ εζ)

Figure 16-3. Avery Weigh-Tronix Stream Data Format



16.5.4 Mettler Toledo Stream Format (αβγδ εζ)

Figure 16-4. Mettler Toledo Stream Data Format



Status Word A:

| | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Parity | 0 | 1 | MUL1 | MUL0 | DP2 | DP1 | DP0 |

Even parity bit.
Requires EDP Port setup.

Disp. Div.
MUL1 MUL0 Multiplier
0 1 x 1
1 0 x 2
1 1 x 5

DP2 DP1 DP0 Fixed Zero/Dec. Pt. Location

| | |
|-----------------|--------------------|
| 0 0 0 x 100 | (2 fixed zeroes) |
| 0 0 1 x 10 | (1 fixed zero) |
| 0 1 0 x 1 | (No decimal point) |
| 0 1 1 x 0.1 | (1 decimal place) |
| 1 0 0 x 0.01 | (2 decimal places) |
| 1 0 1 x 0.001 | (3 decimal places) |
| 1 1 0 x 0.0001 | (4 decimal places) |
| 1 1 1 x 0.00001 | (5 decimal places) |

Status Word C: ASCII 20h (space)

| | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Parity | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

Even parity bit:
Requires EDP Port setup.

Status Word B:

| | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Parity | 0 | 1 | | | | | |

Even parity bit:
Requires EDP Port setup.

0 = lb
1 = kg

0 = Stable
1 = Motion

0 = In range
1 = Out of range

0 = Positive indicated weight value
1 = Negative indicated weight value

0 = Gross Display Mode
1 = Net Display Mode

16.6 Stream Format Tokens

Table 16-3. Stream Format Tokens

| Format Identifier | Defined By | Description |
|-------------------|---|---|
| <P[G N T]> | STRM.POS#n STRM.NEG#n | Polarity – Specifies positive or negative polarity for the current or specified (Gross/Net/Tare) weight on the source scale; Possible values are SPACE, NONE, + (for STR.POS#n) or – (for STR.NEG#n) |
| <U[P S T]> | STRM.PRI#n STRM.SEC#n STRM.TER#n | Units – Specifies primary, secondary or tertiary units for the current or specified weight on the source scale |
| <M[G N T]> | STRM.GROSS#n STRM.NET#n STRM.TARE#n | Mode – Specifies gross, net or tare weight for the current or specified weight on the source scale |
| <S> | STRM.MOTION#n STRM.RANGE#n STRM.OK#n STRM.INVALID#n STRM.ZERO#n | Status for the source scale – Default values and meanings for each status: <ul style="list-style-type: none"> • STR.MOTION#n M In motion • STR.RANGE#n O Out of range • STR.OK#n <space> OK • STR.INVALID#n I Invalid • STR.ZERO#n Z COZ |
| <UID> | UID | Unit ID number – Specifies the unit identification number as an alphanumeric value up to 6 characters long |
| <B [-]n,...> | See descriptions below | Bit fields. Comma-separated sequence of bit field specifiers; Must be exactly 8-bits; minus sign ([-]) inverts the bit |
| B0 | -- | Always 0 |
| B1 | -- | Always 1 |
| B2 | Configuration | =1 if even parity |
| B3 | Dynamic | =1 if MODE=NET |
| B4 | Dynamic | =1 if COZ |
| B5 | Dynamic | =1 if standstill |
| B6 | Dynamic | =1 if gross negative |
| B7 | Dynamic | =1 if out of range |
| B8 | Dynamic | =1 if secondary/tertiary |
| B9 | Dynamic | =1 if tare in system |
| B10 | Dynamic | =1 if tare is keyed |
| B11 | Dynamic | =00 if MODE=GROSS =01 if MODE=NET =10 if MODE=TARE =11 (not used) |
| B12 | Dynamic | =00 if UNITS=PRIMARY =01 if UNITS=SECONDARY =10 if UNITS=TERTIARY =11 (not used) |
| B13 | Configuration | =00 (not used) =01 if current DSPDIV=1 =10 if current DSPDIV=2 =11 if current DSPDIV=5 |
| B14 | Configuration | =00 (not used) =01 if primary DSPDIV=1 =10 if primary DSPDIV=2 =11 if primary DSPDIV=5 |
| B15 | Configuration | =00 (not used) =01 if secondary DSPDIV=1 =10 if secondary DSPDIV=2 =11 if secondary DSPDIV=5 |
| B16 | Configuration | =00 (not used) =01 if tertiary DSPDIV=1 =10 if tertiary DSPDIV=2 =11 if tertiary DSPDIV=5 |

Table 16-3. Stream Format Tokens (Continued)

| Format Identifier | Defined By | Description |
|------------------------------------|---------------|---|
| B17 | Configuration | =000 if current DECPNT=8888800 =001 if current DECPNT=8888880 =010 if current DECPNT=8888888 =011 if current DECPNT=888888.8 =100 if current DECPNT=88888.88 =101 if current DECPNT=8888.888 =110 if current DECPNT=888.8888 =111 if current DECPNT=88.88888 |
| B18 | Configuration | =000 if primary DECPNT=8888800 =001 if primary DECPNT=8888880 =010 if primary DECPNT=8888888 =011 if primary DECPNT=888888.8 =100 if primary DECPNT=88888.88 =101 if primary DECPNT=8888.888 =110 if primary DECPNT=888.8888 =111 if primary DECPNT=88.88888 |
| B19 | Configuration | =000 if secondary DECPNT=8888800 =001 if secondary DECPNT=8888880 =010 if secondary DECPNT=8888888 =011 if secondary DECPNT=888888.8 =100 if secondary DECPNT=88888.88 =101 if secondary DECPNT=8888.888 =110 if secondary DECPNT=888.8888 =111 if secondary DECPNT=88.88888 |
| B20 | Configuration | =000 if tertiary DECPNT=8888800 =001 if tertiary DECPNT=8888880 =010 if tertiary DECPNT=8888888 =011 if tertiary DECPNT=888888.8 =100 if tertiary DECPNT=88888.88 =101 if tertiary DECPNT=8888.888 =110 if tertiary DECPNT=888.8888 =111 if tertiary DECPNT=88.88888 |
| <wspec [-] [0] digit [.[.][digit]> | Scale weight | Weight for the source scale. wspec is defined as follows: wspec indicates whether the weight is the current displayed weight (W, w), gross (G, g), net (N, n) or tare (T, t) weight; Upper-case letters specify right-justified weights, lower-case are left-justified Optional /P, /S or /T suffixes can be added before the ending delimiter (>) to specify weight display in primary (/P), secondary (/S) or tertiary (/T) units [-] Enter a minus sign (-) to include sign for negative values [0] Enter a zero (0) to display leading zeros digit[.[.][digit]] The first digit indicates the field width in characters; The decimal point only indicates a floating decimal; A decimal point with a following digit indicates fixed decimal with n digits to the right of the decimal; Two consecutive decimals send the decimal point even if it falls at the end of the transmitted weight field |
| <CR> | -- | Carriage return |
| <LF> | -- | Line feed |

16.7 Digital Filtering

Digital filtering is used to create a stable scale reading in challenging environments. The 682 allows selection of **Digital Rolling Average Filtering** (Section 16.7.1), **Adaptive Filtering** (Section 16.7.2 on page 115), **Damping** (Section 16.7.3 on page 115) or **Raw** for no filtering. See Section 4.5.1 on page 32 for configuration menu layout and the location of the Filter Chain Type parameter.

The scale's sample rate effects all types of filtering. The A/D sample rate is selected by the Sample Rate parameter. The A/D sample rate is the number of weight readings the indicator takes per second. This can be 6.25, 7.5, 12.5, 15, 25, 30, 50, 60 or 120 hertz (readings per second). Set the A/D sample rate to the lowest setting required for the application. Lower settings result in better stability.

16.7.1 Digital Rolling Average Filter (Average Only)

The digital rolling average filter uses mathematical averaging with three stages. These configurable stages control the effect of a single A/D reading on the displayed weight. When an A/D reading outside of a predetermined band is encountered, the digital rolling average filter is overridden and the display jumps directly to the new value.

Digital Filter Stages 1-3

The filter stages can each be set to a value of 1–256. The value assigned to each stage sets the number of readings received from the preceding filter stage before averaging. Setting the filter stages to 1 effectively disables the rolling filter.

A rolling average is passed to successive filtering stages for an overall filtering effect which is effectively a weighted average of the product of the values assigned to the filter stages (*Digital Filter Stage 1 x Digital Filter Stage 2 x Digital Filter Stage 3*) within a time frame corresponding to the sum of the values (*Digital Filter Stage 1 + Digital Filter Stage 2 + Digital Filter Stage 3*).

Digital Filter Sensitivity and Digital Filter Threshold

The rolling averaging filter can be used by itself to eliminate vibration effects, but heavy filtering also increases settling time. The *Digital Filter Sensitivity* and *Digital Filter Threshold* parameters can be used to temporarily override filter averaging and improve settling time.

- *Digital Filter Sensitivity* specifies the number of consecutive A/D readings which must fall outside the *Digital Filter Threshold* before filtering is suspended
- *Digital Filter Threshold* sets a threshold value, in display divisions; When the specified number of consecutive A/D readings (*Digital Filter Sensitivity*) fall outside of this threshold, filtering is suspended; Set *Digital Filter Threshold* to *NONE* to turn off the filter override

Digital Rolling Average Filter Procedure

1. In *Setup* mode, set the rolling filter stage parameters (*Digital Filter Stage 1-3*) to 1.
2. Set *Digital Filter Threshold* to *NONE*.
3. Return to *Weigh* mode.
4. Remove all weight from scale, then watch the indicator to determine the magnitude of vibration effects on the scale.
5. Record weight below which all but a few readings fall. This value is used to calculate the *Digital Filter Threshold* parameter in [step 8](#).

Example – if a heavy-capacity scale (10,000 x 5 lb) produces vibration-related readings of up to 50 lb, with occasional spikes up to 75 lb, record 50 as the threshold weight value.

6. Place the indicator in *Setup* mode and set the filter stage parameters (*Digital Filter Stage 1-3*) to eliminate the vibration effects on the scale (leave *Digital Filter Threshold* set to *NONE*).
7. Find the lowest effect value for the *Digital Filter Stage 1-3* parameters.



NOTE: If needed, the digital filter cutout sensitivity (*Digital Filter Sensitivity*) and the digital filter cutout threshold (*Digital Filter Threshold*) can be used to reset the digital rolling average filter so the response to a rate change is faster.

8. Calculate the *Digital Filter Threshold* parameter value by converting the weight value recorded in [step 5](#) to display divisions ($\text{Threshold_Weight_Value} / \text{Display_Divisions}$).
In the example in [step 5](#), with a threshold value of 50, and a display-division value of 5, set the Digital Filter Threshold parameter to 10 display divisions.
9. Set the *Digital Filter Sensitivity* parameter high enough to ignore transient peaks. Longer transients (typically caused by lower vibration frequencies) cause more consecutive out-of-band readings; set the *Digital Filter Sensitivity* parameter higher to counter low frequency transients.

16.7.2 Adaptive Filter (Adaptive Only)

The adaptive filter has two settings, *Adaptive Filter Sensitivity* and *Adaptive Filter Threshold*. It maintains a running average of the A/D readings when the weight change remains less than the defined threshold value. The filter automatically applies less value to each successive A/D reading the longer the weight change is less than the threshold value. The amount of value given to the most recent A/D reading is determined by the sensitivity setting.

Adaptive Filter Sensitivity

Adaptive Filter Sensitivity can be set to *Heavy*, *Medium* or *Light*. A *Heavy* setting results in an output which is more stable to weight changes than the *Light* setting. A *Heavy* setting also results in small changes in weight data (a few grads) on the scale base to not be seen as quickly as with the *Light* setting.

If the difference in typical subsequent weight values on the scale are only a few display divisions, use a *Light* setting. On a truck scale where the changes in subsequent weight values are 100s of display divisions, a *Heavy* setting is more appropriate.

Adaptive Filter Threshold

Set the *Adaptive Filtering Threshold* for the amount of observed instability in the system. This parameter can be set in the range of 0–2000 and is entered as a weight value. When a new sampled weight value is acquired, the adaptive filter compares the new value to the previous (filtered) output value.

If the difference between the new value and the previous output value is greater than the *Adaptive Filtering Threshold* parameter the adaptive filter is reset to the new weight value.

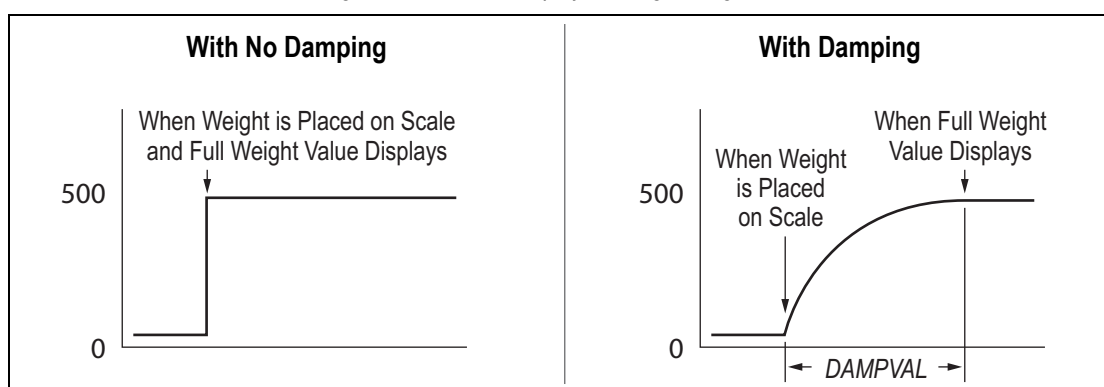
If the difference between the new value and the previous output value is less than the *Adaptive Filtering Threshold* parameter, the two values are averaged together using a weighted average. The weighted average is based on the amount of time the system has been stable, and selected *Adaptive Filter Sensitivity* sensitivity.

With the *Adaptive Filtering Threshold* set at zero, determine the amount of instability present. Enter this amount of weight instability to set the threshold of the adaptive filter. The adaptive filter is set to *OFF*, the *Adaptive Filtering Threshold* parameter is set to zero.

16.7.3 Damping Filter (Damping Only)

The damping filter is a simple filter which adjusts the amount of time it takes for a change in weight to be processed through the scale. The *Damping Value* parameter is a time interval specified in tenths of a second (10 = 1 second). This *Damping Value* is used to determine the amount of time it takes for the scale to reach its final weight output. When *Damping Value* is set to ten, a transition from 0 lb to 500 lb on the scale takes one second. The closer the weight gets to its final amount, the slower the weight changes on the display.

Figure 16-5. 500 lb Displayed Weight Progression



16.8 Regulatory Mode Functions

Table 16-4. Tare and Zero Key Functions for Regulatory Mode Parameter Settings

| Regulatory Parameter | Weight On Scale | Tare In System | Front Panel Key Tare | Front Panel Key Zero |
|----------------------|-----------------|----------------|----------------------|----------------------|
| NTEP | Zero | No | "0000000" | Zero |
| | | Yes | Clear tare | Zero |
| | Negative | No | No action | Zero |
| | | Yes | Clear tare | Zero |
| | Positive | No | Tare | Zero |
| | | Yes | Tare | Zero |
| Canada | Zero | No | "0000000" | Zero |
| | | Yes | Clear tare | Clear tare |
| | Negative | No | No action | Zero |
| | | Yes | Clear tare | Clear tare |
| | Positive | No | Tare | Zero |
| | | Yes | No action | Clear tare |
| OIML | Zero | No | "0000000" | Zero |
| | | Yes | Clear tare | Zero and Clear tare |
| | Negative | No | No action | Zero |
| | | Yes | Clear tare | Zero and Clear tare |
| | Positive | No | "0000000" | Zero |
| | | Yes | Tare | Zero and Clear Tare |
| None | Zero | No | "0000000" | Zero |
| | | Yes | Clear tare | Clear tare |
| | Negative | No | No action | Zero |
| | | Yes | Clear tare | Clear tare |
| | Positive | No | Tare | Zero |
| | | Yes | Clear tare | Clear tare |

16.9 ASCII Character Chart

Table 16-5 is provided for reference when specifying print format strings. The actual character printed depends on the character mapping used by the output device.

Table 16-5. ASCII Character Chart

| Control | ASCII | Dec | Hex | ASCII | Dec | Hex | ASCII | Dec | Hex | ASCII | Dec | Hex |
|---------|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|
| Ctrl-@ | NUL | 00 | 00 | space | 32 | 20 | @ | 64 | 40 | ` | 96 | 60 |
| Ctrl-A | SOH | 01 | 01 | ! | 33 | 21 | A | 65 | 41 | a | 97 | 61 |
| Ctrl-B | STX | 02 | 02 | " | 34 | 22 | B | 66 | 42 | b | 98 | 62 |
| Ctrl-C | ETX | 03 | 03 | # | 35 | 23 | C | 67 | 43 | c | 99 | 63 |
| Ctrl-D | EOT | 04 | 04 | \$ | 36 | 24 | D | 68 | 44 | d | 100 | 64 |
| Ctrl-E | ENQ | 05 | 05 | % | 37 | 25 | E | 69 | 45 | e | 101 | 65 |
| Ctrl-F | ACK | 06 | 06 | & | 38 | 26 | F | 70 | 46 | f | 102 | 66 |
| Ctrl-G | BEL | 07 | 07 | ' | 39 | 27 | G | 71 | 47 | g | 103 | 67 |
| Ctrl-H | BS | 08 | 08 | (| 40 | 28 | H | 72 | 48 | h | 104 | 68 |
| Ctrl-I | HT | 09 | 09 |) | 41 | 29 | I | 73 | 49 | i | 105 | 69 |
| Ctrl-J | LF | 10 | 0A | * | 42 | 2A | J | 74 | 4A | j | 106 | 6A |
| Ctrl-K | VT | 11 | 0B | + | 43 | 2B | K | 75 | 4B | k | 107 | 6B |
| Ctrl-L | FF | 12 | 0C | , | 44 | 2C | L | 76 | 4C | l | 108 | 6C |
| Ctrl-M | CR | 13 | 0D | - | 45 | 2D | M | 77 | 4D | m | 109 | 6D |
| Ctrl-N | SO | 14 | 0E | . | 46 | 2E | N | 78 | 4E | n | 110 | 6E |
| Ctrl-O | SI | 15 | 0F | / | 47 | 2F | O | 79 | 4F | o | 111 | 6F |
| Ctrl-P | DLE | 16 | 10 | 0 | 48 | 30 | P | 80 | 50 | p | 112 | 70 |
| Ctrl-Q | DC1 | 17 | 11 | 1 | 49 | 31 | Q | 81 | 51 | q | 113 | 71 |
| Ctrl-R | DC2 | 18 | 12 | 2 | 50 | 32 | R | 82 | 52 | r | 114 | 72 |
| Ctrl-S | DC3 | 19 | 13 | 3 | 51 | 33 | S | 83 | 53 | s | 115 | 73 |
| Ctrl-T | DC4 | 20 | 14 | 4 | 52 | 34 | T | 84 | 54 | t | 116 | 74 |
| Ctrl-U | NAK | 21 | 15 | 5 | 53 | 35 | U | 85 | 55 | u | 117 | 75 |
| Ctrl-V | SYN | 22 | 16 | 6 | 54 | 36 | V | 86 | 56 | v | 118 | 76 |
| Ctrl-W | ETB | 23 | 17 | 7 | 55 | 37 | W | 87 | 57 | w | 119 | 77 |
| Ctrl-X | CAN | 24 | 18 | 8 | 56 | 38 | X | 88 | 58 | x | 120 | 78 |
| Ctrl-Y | EM | 25 | 19 | 9 | 57 | 39 | Y | 89 | 59 | y | 121 | 79 |
| Ctrl-Z | SUB | 26 | 1A | : | 58 | 3A | Z | 90 | 5A | z | 122 | 7A |
| Ctrl-[| ESC | 27 | 1B | ; | 59 | 3B | [| 91 | 5B | { | 123 | 7B |
| Ctrl-\ | FS | 28 | 1C | < | 60 | 3C | \ | 92 | 5C | | 124 | 7C |
| Ctrl-] | GS | 29 | 1D | = | 61 | 3D |] | 93 | 5D | } | 125 | 7D |
| Ctrl-^ | RS | 30 | 1E | > | 62 | 3E | ^ | 94 | 5E | ~ | 126 | 7E |
| Ctrl-_ | US | 31 | 1F | ? | 63 | 3F | _ | 95 | 5F | DEL | 127 | 7F |

17.0 Compliance



EU DECLARATION OF CONFORMITY

EU-KONFORMITÄTSERKLÄRUNG
DÉCLARATION UE DE CONFORMITÉ

Rice Lake Weighing Systems
230 West Coleman Street
Rice Lake, Wisconsin 54868
United States of America

RICE LAKE
WEIGHING SYSTEMS

Type/Typ/Type: 680, 680HE and 682 indicator series

English We declare under our sole responsibility that the products to which this declaration refers to, is in conformity with the following standard(s) or other regulations document(s).

Deutsch Wir erklären unter unserer alleinigen Verantwortung, dass die Produkte auf die sich diese Erklärung bezieht, den folgenden Normen und Regulierungsbestimmungen entsprechen.

Francais Nous déclarons sous notre responsabilité que les produits auxquels se rapporte la présente déclaration, sont conformes à la/aux norme/s suivante ou au/aux document/s normatif/s suivant/s.

| EU Directive | Certificates | Standards Used / Notified Body Involvement |
|-----------------|--------------|---|
| 22014/35/EU LVD | - | 680: IEC 61010-1:2010+A1:2016 682, 680HE: EN 62368-1:2014 + A11:2017 |
| 2014/30/EU EMC | - | EN 61326-1:2013, EN 61000-3-3:2013, EN 61000-6-2, EN 61000-6-4, EN55011:2009/A1:2010 |
| 2014/53/EU RED | - | EN 301 489-17 V3.2.4, EN 300 328 V2.2.2, EN 301 893 V2.1.1 |
| 2011/65/EU RoHS | - | EN 50581:2012 |

Signature: Brandi Harder

Place: Rice Lake, WI USA

Name: Brandi Harder

Date: March 30, 2022

Title: Quality Manager



UK DECLARATION OF CONFORMITY

Rice Lake Weighing Systems
230 West Coleman Street
Rice Lake, Wisconsin 54868
United States of America



Type: 680, 680HE and 682 indicator series

English We declare under our sole responsibility that the products to which this declaration refers to, is in conformity with the following standard(s) or other regulations document(s).

| UK Regulations | Certificates | Standards Used / Approved Body Involvement |
|-----------------------|--------------|---|
| 2016/1101 Low Voltage | - | 680: IEC 61010-1:2010+A1:2016 682, 680HE: EN 62368-1:2014 + A11:2017 |
| 2016/1091 EMC | - | EN 61326-1:2013, EN 61000-3-3:2013, EN 61000-6-2, EN 61000-6-4, EN55011:2009/A1:2010 |
| 2017/1206 Radio | - | EN 301 489-17 V3.2.4, EN 300 328 V2.2.2, EN 301 893 V2.1.1 |
| 2012/3032 RoHS | - | EN 50581:2012 |

Signature: Brandi Harder

Place: Rice Lake, WI USA

Name: Brandi Harder

Date: March 30, 2022

Title: Quality manager

18.0 Specifications

Power

| | |
|------------------|-------------|
| AC line voltage: | 100–240 VAC |
| Frequency: | 50–60 Hz |
| DC line voltage: | 9–36 VDC |

Power Consumption

~3.2 W (AC) with one 350 Ω load cell, 15 W max
 ~4 W (AC) with four 350 Ω load cells or eight 700 Ω load cells

Excitation Voltage

10 VDC bi-polar (± 5 VDC), 8 x 350 Ω or 16 x 700 Ω load cells

Analog Signal Input Range

-5 mV to +70 mV

Analog Signal Sensitivity

| | |
|--------------|------------------------|
| Minimum: | 0.3 μ V/graduation |
| Recommended: | 1 μ V/graduation |

A/D Sample Rate

6.25–120 Hz, software selectable

Resolution

| | |
|-----------|------------------|
| Internal: | 8,000,000 counts |
| Display: | 1,000,000 |

System Linearity

Within 0.01% full scale

Digital I/O

Four configurable I/O (5 V logic)

Communication Ports

Two RS-232 (three-wire)
 RS-485/422 (two-wire or four-wire)
 Micro USB (device)
 Ethernet TCP/IP (10/100)
 Wi-Fi
 Bluetooth®

Status Annunciators

Zero, Stable, Gross/Net, Tare, Wi-Fi, Bluetooth®

Display

Five-inch LCD, 800 x 480 pixels, 500 NIT

Keys/Buttons

Flat membrane panel, tactile feel
 18 buttons plus 5 softkeys and power

Temperature Range

| | |
|-------------|-----------------------------------|
| Legal: | 14° F to 104° F (-10° C to 40° C) |
| Industrial: | 14° F to 122° F (-10° C to 50° C) |

Rating / Material

| | |
|-----------|------------------------------|
| Rating: | IP69 (IP66 with RJ45 option) |
| Material: | AISI 304 Stainless Steel |

Dimensions (W x H x D)

| | |
|--|---|
| Indicator and stand: | 11.6 in x 8.6 in x 4.0 in (29.47 cm x 21.85 cm x 10.16 cm) |
| Indicator and stand: (with RJ45 option) | 11.6 in x 8.6 in x 4.5 in (29.47 cm x 21.85 cm x 11.43 cm) |

Weight

6.25 lb (2.84 kg)

Warranty

Two-year limited warranty

Certifications and Approvals



NTEP

CoC Number 19-021
 Accuracy Class: III / III L; n_{max} : 10000



Measurement Canada

Approval AM-6121C
 Accuracy Class: III / III HD; n_{max} : 10000



OIML

Pending



EU NAWI

Pending



UL Listed

File Number: E151461





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U.S. 800-472-6703 • Canada/Mexico 800-321-6703 • International 715-234-9171 • Europe +31 (0)26 472 1319