Avery Weigh-Tronix

ZQ375

Checkweigher

Service Manual

AWT35-500813
Issue AG

Table of Contents

Manual revision history

Current Issue	Date Created	Details of Changes
AA	April 2012	New manual
AB	April 2012	Added torsion base loadcell wiring table to z-folds. Added SMA 2 info to chapter 7. Fixed a note in Endian section of chapter 6. Added token 603 to token table in chapter 11.
AC	April 2012	Added kits to z-folds, changed front cover photo and many other small updates.
AD	October 2012	Enhancements and references to firmware 1.0.1.0
AE	November 2012	Fixed light stack wiring diagram in section 13.11
AF	December 2012	Added service connectors kit to parts list. AC relay module added to chapter 8.
AG	April 2013	Changed some part numbers in the torsion base misc. parts list, Chapter 13.

1 General information and warnings

1.1 About this manual

This manual is divided into chapters by the chapter number and the large text at the top of a page. Subsections are labeled using the 1.1 and 1.1.1 convention. The names of the chapter and the next subsection level appear at the top of alternating pages of the manual to remind you of where you are in the manual. The manual name and page numbers appear at the bottom of the pages.

1.1.1 Text conventions

Key names are shown in **bold** and reflect the case of the key being described. If a key has dual functions, the function is shown first followed by the key name in parentheses and in bold, such as in these examples: **F1**, **SELECT**, **PRINT**, etc.

Displayed messages appear in ***bold italic*** type and reflect the case of the displayed message.

1.1.2 Special messages

Examples of special messages you will see in this manual are defined below. The heading words have specific meanings to alert you to additional information or the relative level of hazard.

DANGER!
THIS IS A DANGER SYMBOL.
DANGER MEANS THAT FAILURE TO FOLLOW SPECIFIC PRACTICES OR PROCEDURES WILL CAUSE INJURY OR DEATH.

ELECTRICAL WARNING!
THIS IS AN ELECTRICAL WARNING SYMBOL.
ELECTRICAL WARNINGS MEAN THAT FAILURE TO FOLLOW SPECIFIC PRACTICES OR PROCEDURES MAY RESULT IN ELECTROCUTION, ARC BURNS, EXPLOSIONS OR OTHER HAZARDS THAT MAY CAUSE INJURY OR DEATH.

WARNING!
This is a Warning symbol.
Warnings mean that failure to follow specific practices and procedures may have major consequences such as injury or death.

CAUTION!
This is a Caution symbol.
Cautions give information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

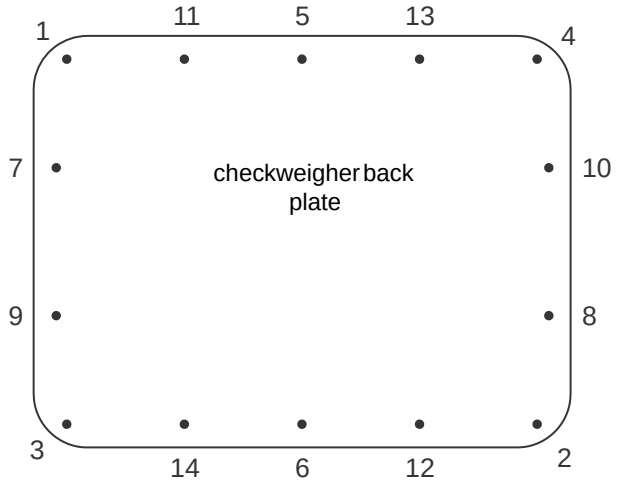
NOTE: This is a Note symbol. Notes give additional and important information, hints and tips that help you to use your product.

1.2 Installation

NO USER SERVICEABLE PARTS. REFER TO QUALIFIED SERVICE PERSONNEL FOR SERVICE.

1.2.1 Torque specifications

CAUTION: The acorn nuts holding the back plate of the indicator in place must each be tightened, in multiple passes, in the following pattern to a final torque of 0.68 N-m (approximately 6 in-lbs) to ensure proper gasket sealing.



There are four sizes of strain reliefs exiting the checkweigher: PG11, PG7, PG13.5 and NPT 3/4". The torque specifications for the locknuts which hold the strain reliefs to the checkweigher housing and the specs for the dome nuts which seal the cable that passes through the strain relief are shown in the table below.

	3/4" NPT Strain Relief	PG13.5 Strain Relief	PG11 Strain Relief	PG7 Strain Relief
Dome Nut	66.4 lb-in 7.5 N-m	33.2 lb-in 3.75 N-m	33.2 lb-in 3.75 N-m	22.1 lb-in 2.5 N-m
Lock Nut	44.2 lb-in 5 N-m	22.1 lb-in 2.5 N-m	22.1 lb-in 2.5 N-m	14.4 lb-in 1.62 N-m

1.2.2 Proper grounding of cables

Cable shield wires should be grounded directly to the studs provided at the bottom of the enclosure, close to the strain relief entry point, with wire lengths at a minimum.

1.2.3 Safe handling of equipment with batteries

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

ATTENTION: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie, remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

1.2.4 Wet conditions

Under wet conditions, the plug must be connected to the final branch circuit via an appropriate socket / receptacle designed for washdown use.

Installations within the USA should use a cover that meets NEMA 3R specifications as required by the National Electrical Code under section 410-57. This allows the unit to be plugged in with a rain tight cover fitted over the plug.

Installations within Europe must use a socket which provides a minimum of IP56 protection to the plug / cable assembly. Care must be taken to make sure that the degree of protection provided by the socket is suitable for the environment.

1.3 Routine maintenance

IMPORTANT: This equipment must be routinely checked for proper operation and calibration.
Application and usage will determine the frequency of calibration required for safe operation.

Always turn off the machine and isolate from the power supply before starting any routine maintenance to avoid the possibility of electric shock.

1.4 Cleaning the machine

Table 1.1 Cleaning DOs and DON'Ts

DO	DO NOT
Wipe down the outside of standard products with a clean cloth, moistened with water and a small amount of mild detergent	Attempt to clean the inside of the machine
	Use harsh abrasives, solvents, scouring cleaners or alkaline cleaning solutions
Spray the cloth when using a proprietary cleaning fluid	Spray any liquid directly on to the display windows

1.5 Training

Do not attempt to operate or complete any procedure on a machine unless you have received the appropriate training or read the instruction books.

To avoid the risk of RSI (Repetitive Strain Injury), place the machine on a surface which is ergonomically satisfactory to the user. Take frequent breaks during prolonged usage.

1.6 Sharp objects

We do not recommend the use of sharp objects such as knives or screwdrivers to operate the keys. This may shorten the life span of the keys.

1.7 FCC and EMC declarations of 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 Classe A prescrites dans le Règlement sur le brouillage radioélectrique edicté par le ministère des Communications du Canada.

European Countries

WARNING: This is a Class A product. In a domestic environment, this product may cause radio interference in which the user may be required to take adequate measures.

2 Introduction

This manual covers the installation, connections, configuration and servicing of the ZQ375 checkweigher, shown in Figure 2.1. The checkweigher has a USB port, 2 serial COM ports and an Ethernet port. Current Loop/RS485/RS422, USB Device and Wireless 802.11g internal modules are available options.

The checkweigher also has three logic level inputs with configurable functions and three set point outputs. See the Specification literature for a full list of specifications.

Figure 2.1 ZQ375 checkweigher w/indoor display

The ZQ375 can connect to USB flash drives, printers, remote displays, computers and other peripheral devices.

2.1 Front panel

The front panel, shown in Figure 2.2, consists of the keys and the display.

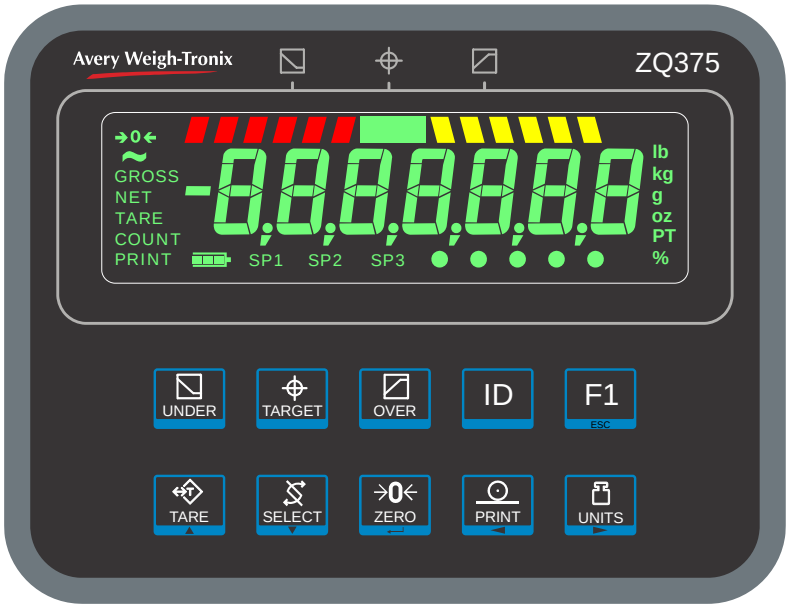
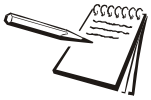


Figure 2.2 ZQ375 front panel



Never press a key with anything but your finger. Damage to the overlay may result if sharp or rough objects are used.

The function of the keys on the front panel are listed below.

	**Weigh / Checkweigh mode** - In weigh mode the TARE key will work as configured via the Admin menu.(See the Service manual). In checkweigh mode, the TARE key does not function and the display will show ***cAnt***. **Menu navigation** - Acts as an up arrow key. **Numeric / Tolerance Entry** - Increments a value.
	**Weigh / Checkweigh mode** - Press this key to change from weighing mode to checkweighing mode and vice versa. **Menu navigation** - Acts as a Down Arrow key. **Numeric / Tolerance Entry** - Decrements a value.
	**Weigh / Checkweigh mode** - Press to perform a print function. **Menu navigation** - Functions as the Left Arrow key. **Numeric / Tolerance Entry** - Functions as a backspace.
	**Weigh / Checkweigh mode** - Press to zero the weight display. **Menu navigation** - Functions as an Enter key to accept displayed choices. **Numeric / Tolerance Entry** - Functions as an Enter key.
	**Weigh / Checkweigh mode** - Press UNITS to cycle the displayed unit of measure through all the available units of measure. **Menu navigation** - Functions as the Right Arrow key. **Numeric / Tolerance Entry** - Moves the cursor position to the right in the Numeric Entry Procedure.

	**Weigh / Checkweigh mode** - Press **UNDER** to briefly display the active under value. Press and hold **UNDER** to add or modify an existing under value tolerance. **Menu navigation** - N/A **Numeric / Tolerance Entry** - N/A
	**Weigh / Checkweigh mode** - **TARGET** key acquires a target value, when applicable. Its function changes in different applications. See the appropriate application section. **Menu navigation** - N/A **Numeric / Tolerance Entry** - N/A
	**Weigh / Checkweigh mode** - Press **OVER** to briefly display the active over value. Press and hold **OVER** to add or modify an existing over value tolerance. **Menu navigation** - N/A **Numeric / Tolerance Entry** - N/A
	**Weigh / Checkweigh mode** - Press the **ID** key briefly to view the active ID number. Press and hold the **ID** key to view a prompt for ID number entry. Use the Numeric Entry Procedure on page 20 to scroll in a new ID. **Menu navigation** - N/A **Numeric / Tolerance Entry** - N/A
	**Weigh / Checkweigh mode** - Press to access PLU database, if enabled. Press and hold to access the menu password display. **Menu navigation** - Press to escape a screen without doing anything and move up in the menu. **Numeric / Tolerance Entry** - Press to escape a screen without doing anything and move up in the menu.

2.1.1 Annunciators

The annunciators on the display are shown and labeled in Figure 2.3.

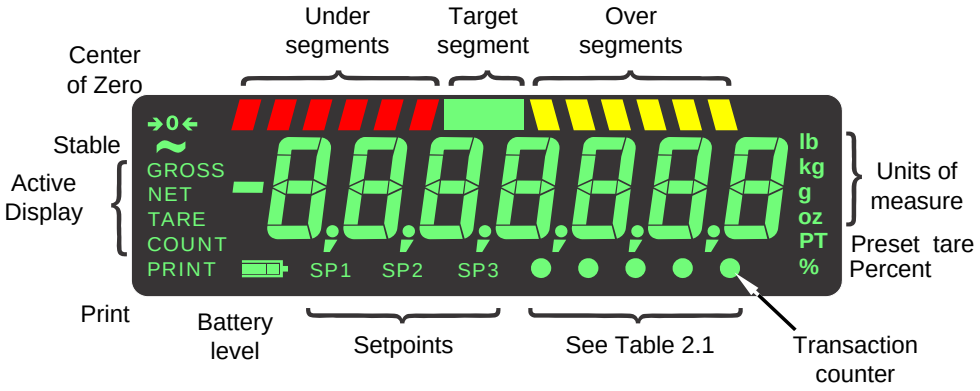


Figure 2.3 Annunciators

These annunciators will light during operation to inform the user of the weighing mode, active unit of measure, etc.

Table 2.1 Circle Annunciator assignments

Annunciator	Indicates
Circle 1 (left most)	Network activity
Circle 2	Custom unit
Circle 5	Transaction counter
Gross + Circle 5	Gross total
Net + Circle 5	Net total
Tare + Circle 5	Transaction total

2.2 Tolerance entry procedure

*If you are in a target or tolerance value entry screen and no key is pressed within five seconds, the scale will act as if the **F1**/Escape key was pressed and return to the previous screen without saving any information.*

When you are in a tolerance entry screen the yellow *OVER* segments flash as a reminder. Figure 2.4 shows the key functions when in this

These segments flash in tolerance entry mode

TARE / ▲ - Press to increment right most digit by 1. Press and hold to rapidly increase the value, first by 10s and then by 100s

SELECT / ▼ - Press to decrement right most digit by 1. Press and hold to rapidly decrease the value, first by 10s and then by 100s

Figure 2.4 Key functions in tolerance entry

In tolerance entry screens, the segments shown in Figure 2.4 flash. Use the keys, as described in Figure 2.4, to enter a value on the display. Following is an example:

Example: To increase a value of 0.002 to 0.125:

Press and hold **TARE(↑)** key until the number approaches ***0.125***. Number will increase by ***0.010***s for a short time and then by ***0.100***s.

Press and release **TARE(↑)** to increment the right most digit by 1.

If you overshoot, press and release **SELECT(↓)** to decrement the right most digit by 1.

Press and hold **SELECT(↓)** to decrease the value by ***0.010***s and then by ***0.100***s, the longer you hold it.

When the display show 0.125, or the value you desire, press the **ZERO** key to enter or accept the value. The screen returns to the previous mode.

2.3 Numeric entry procedure

The keys in Figure 2.5 have alternate functions in numeric entry screens.

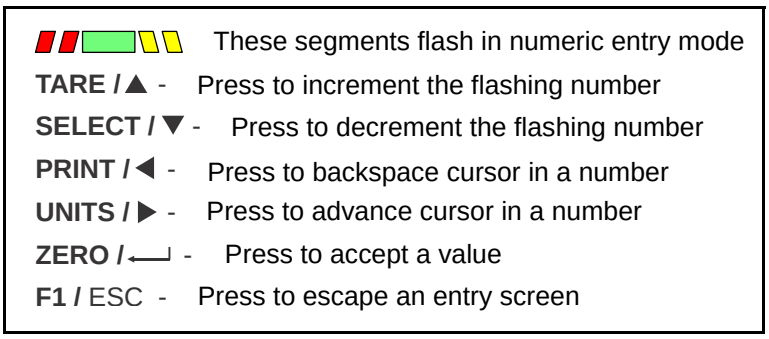


Figure 2.5 Key function during numeric entry

In numeric entry screens, the segments shown in Figure 2.5 flash. Use the keys, as described in Figure 2.5, to enter a value on the display. Following is an example:

Example: To key in the number 507:

Repeatedly press the **TARE(↑)** or **SELECT(↓)** key until ***5*** appears on the display.

Press the **UNITS(→)** key once to move cursor one space to the right.

Repeatedly press the **TARE(↑)** or **SELECT(↓)** key until ***0*** appears on the display.

Press the **UNITS(→)** key once to move cursor one space to the right.

Repeatedly press the **TARE(↑)** or **SELECT(↓)** key until ***7*** appears on the display.

Press the **ZERO** key to enter or accept the value.

Press the **PRINT(←)** key to move the entry function one digit to the left. This effectively deletes the current value in that position and allows you to enter a new value in that position.

2.4 ID Entry Procedure

1. To enter an ID number press and hold the **ID** key …

   The current ID number is displayed with the digit or digits flashing.

2. Within five seconds begin to use the Numeric entry procedure, described above, to scroll in a new ID and press **ZERO** to accept.

3. The new ID number is now active.

If the entry screen times out and disappears, repeat step 1 and try again. You must start the number entry procedure within five seconds.

2.5 Powering up the ZQ375

Power is always on as long as the power cable is plugged into the appropriate electrical outlet. Power can be supplied by:

- AC power cord connected to a properly grounded outlet (100 VAC - 240 VAC, 50 or 60 Hz)
- AC to DC power converter. (12 to 36 VDC)
- Optional ZQ-BAT rechargeable battery

2.6 Battery option

The ZQ375 can be operated on battery power by the ZQ-BAT battery option. See Figure 2.6.

Figure 2.6 ZQ-BAT battery option installed in the column

2.6.1 Installation

The battery pack is easy to install. The projections on the side of the pack slide into the slots in the column. The tab on the top of the pack goes over the threaded stud on the column and the pack is secured in place with the star knob. See Figure 2.7.

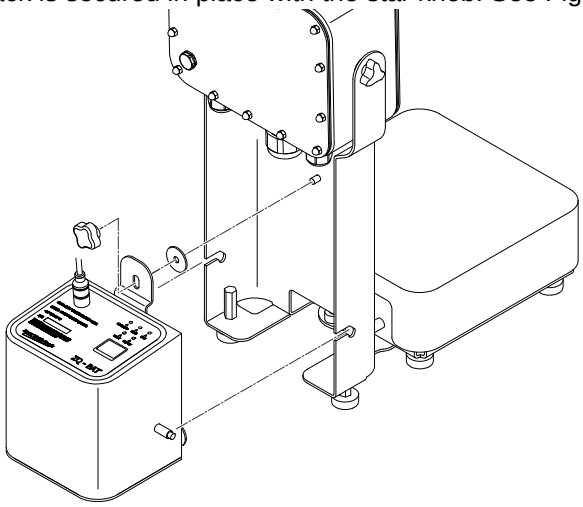


Figure 2.7 ZQ-BAT installation

Attach the battery cable from the indicator to the connector on the top of the battery.

For wiring of the battery refer to page 162.

The battery has five annunciator lights to tell you when the unit is charging, when the battery level is low or high, when there is a fault in the battery and when the battery is on or off. Below these lights is the **ON/OFF** button. See Figure 2.8.

Figure 2.8 Top of ZQ-BAT battery pack

2.6.2 Proper charging of the ZQ-BAT

Charging the battery pack using the supplied wall charger

1. Turn the battery pack ON.
2. Plug the charger into an outlet, then connect it to the battery.

   The *LOW* and *FAULT* indicators may turn on if the battery pack is not switched on.
3. Once connected to the charger, the *CHARGING* indicator will blink green to indicate the battery is in a slow pre-charge state.
4. After 75 seconds the charger will automatically switch to its fast charge state, and the indicator will stay solid green.
5. Once the battery is fully charged, the *CHARGING* indicator will shut off and the *FULL* indicator will turn green.
6. Disconnect the battery from the charger and turn the battery pack OFF.

Frequent charging of a battery that is not in a low state will decrease the battery life span.

Charging the battery pack through a ZQ375 indicator:

1. Connect the battery pack to a ZQ375 indicator and turn the battery pack ON.
2. Plug the indicator power cord into an outlet

   The *LOW* and *FAULT* indicators may turn on if the battery pack is not switched on.
3. The *CHARGING* indicator will blink green to indicate the battery is in a slow pre-charge state.
4. After 75 seconds the charger will automatically switch to its fast charge state, and the indicator will stay solid green.
5. Once the battery is fully charged, the *CHARGING* indicator will shut off and the *FULL* indicator will turn green. At this point the indicator will stop the charging sequence and simply maintain the voltage of the battery until it is needed. This prevents the battery from being overcharged, allowing it to be left either ON or OFF without damage.
6. The battery can now be used to power your ZQ indicator and scale system.

Battery life is rated at 16 hours continuous duty.

If so configured, the checkweigher will automatically switch off the battery after a set amount of time if no scale motion or keypad activity occurs.

WARNING: Ensure the battery is fully charged before its first use.

Begin recharging the battery pack as soon as possible after the LOW indicator LED comes on. Discharging the battery too far beyond this point may damage the battery.

2.6.3 Checkweigher Operation on Battery Power

1. To operate the checkweigher using the battery pack, be sure the pack is fully charged and connected to the checkweigher. Press the **ON/OFF** key on the battery pack …

   The Battery *ON* LED will light.

2. The ZQ375 should power up as soon as the battery is turned on.

3. To power down the battery and the ZQ375, press the **ON/OFF** key …

   The Battery *ON* LED light will go out and the ZQ375 will power down.

2.7 Battery states indicated by LEDs

Table 2.2 Battery Power States

Battery Power State	LED Status	Notes
	Power	
	 ON	
Powered ON	ON	The battery must be powered on to power an indicator and to be recharged
Powered OFF	OFF	The battery can be powered off to conserve charge when not in use

Table 2.3 Battery Voltage States

Battery Voltage States	LED Status		Notes
	LOW	Fault	
	 LOW		
Above 9.3V	OFF	OFF	The battery can be used to power an indicator
Below 9.3V	ON	OFF	The battery should be recharged as soon as possible
Fault	ON	FLASHING	A charger has been connected without the battery being powered on

Table 2.4 Battery Charging States

Battery Charging States	LED Status			Notes
	Charging	Full	Fault	
	 CHARGING	 FULL		
Pre-Charge	FLASHING	OFF	OFF	The battery is slowly charged for 75 seconds
Fast Charge	ON	OFF	OFF	No faults were found so the battery is now charged quickly
Fully Charged (Wall Charger)	OFF	ON	OFF	The unit is fully charged and should be disconnected from the power supply
Maintenance Charging (QZ375)	OFF	ON	OFF	The unit is fully charged and the indicator is simply maintaining the correct voltage
Waiting	OFF	OFF	FLASHING	Over Temp - Battery is hot and needs to cool before charging continues
				No Power - The battery circuit has not been turned on
Charging Failure	OFF	OFF	ON	Battery is above the allowed voltage
				Battery has been discharged below 5V
				Other failure

2.8 Accessing the menus

Follow these steps to access the various menus in the checkweigher.

1. With the checkweigher powered up and in normal operating mode, press and hold the **F1** key …

   Pass is briefly displayed, then a flashing ***0***, prompting you to enter the password.

*You can view the active application name. From the flashing **0** display in the password entry screen. Press **F1** and the application name is briefly displayed, then the checkweigher returns to normal operating mode.*

2. Key in the password for the menu you want to access and press the **ZERO** key to accept it …

   The first item in the top level of the menu you accessed is displayed.

3. Use the navigation keys, shown below, to navigate through the menu structure. The symbols appear on the bottom of the keys.

Menu Navigation Keys:

Press **SELECT**/ ▼ to move down in a menu

Press **TARE**/ ▲ to move up in a menu, except at the bottom item in a menu, then use **ZERO**/ ↵ or **F1**

Press **PRINT**/ ◀ to move left in a menu

Press **UNITS**/ ▶ to move right in a menu

Press **ZERO**/ ↵ to accept a value or choice and move up in the menu.

Press **F1** to escape and move up in the menu

2.9 Menu annunciators

The menu structure is made up of menu items, parameters, value entry screens and lists from which you choose one item. To help you know where you are in the menu, the bar graph at the top of the display is on while the checkweigher is in the menus and will change appearance according to the following rules:

All segments flashing

This means you are in the menu structure but not in any of the following screens.

Center flashing / others solid

This means you are in a Quick Code prompt screen. See *Quick Code parameter entry on page 32*.

Center flashing / others off

This means you are in a numeric entry screen. Enter a number and press **ZERO** to accept.

Right flashing / others off

This means you are in a list. Scroll through the choices with the **PRINT** and **UNITS** keys and press **ZERO** to accept.

Left flashing / others off

This means you are in a data entry. See *String index/character data entry on page 29* for more information.

Every alternate segment flashing

This means you are in octet entry for IP, Subnet or Gateway address.

2.10 String index/character data entry

Below are guidelines to create or edit text and scale information for print formats. This is a sample of a string entry display.

When these segments are flashing, you are in the string index select mode. In this mode you select the index character you want to edit or add/delete a character.

String Index number

Character (ASCII characters are entered as decimal values)

Left-flashing bar graph segments indicate you are in the String Index select mode. Use the Table 1 key legend to:

- move to the index number you want to edit
- add a new index number
- delete an existing index number.

	Table 1: Key Action When In The String Index Select Mode					
Action	TARE	SELECT	ZERO	PRINT	UNITS	F1
Momentary Key Press	Deletes current character	Selects the index character for editing using the key actions in Table 2	EXIT	Moves left one position in the index	Moves right one position in the index	ESC/Abort
Long Key Press	Deletes current character	Append new character after this point Default character added is 32 (space)	Does nothing	Page Up (Decrements index by 10)	Page Down (Increments index by 10)	Does nothing

After you select the index number, use the Table 2 key actions to edit the character for that index number.

	Table 2: Key Action When In The Character Edit Mode					
Action	TARE	SELECT	ZERO	PRINT	UNITS	F1
Single Key Press	Increments the flashing digit by 1	Decrements the flashing digit by 1	Enter	Delete flashing digit	Add Digit	ESC/Abort
Long Key Press	Move flashing digit left	Move flashing digit right	Does nothing	Delete the entire entry	Does nothing	Does nothing

2.11 Exiting the menus

1. If you are at the bottom item in a menu use **ZERO** to accept a choice or value and move up a level, or use **F1** to escape and move up one level without accepting the choice or value. From that point, press the **TARE** key repeatedly until …

   SAVE no is displayed. This means “Do not save changes. “

2. Use the **PRINT** or **UNITS** key to scroll through the choices: ***SAVE no***, ***SAVEYES*** and ***CAnCEL***. Press **ZERO** to accept the displayed choice.

   If you choose ***SAVE no*** or ***SAVEYES*** the checkweigher exits the menu and returns to normal weighing mode.

   OR

If you choose ***CAnCEL***, the checkweigher remains in the menu.

3 Introduction to the menus

Menus, accessed through passwords, are available in the checkweigher to customize and configure the checkweigher for your purposes. The menu levels and their passwords are shown below:

Password	Menu Level	Accessed Menus
111	USER	User, About, Audit
3570	DIAGNOSTICS	Diag, User, About, Audit
3088	ADMIN	Setup, Diag, User, About, Audit
2580	CALIBRATE	Calib
1793	SUPER	Application specific items. See User manual.

The CALIBRATE menu level accesses the calibration procedure only. You can also access the calibration menu through the Setup menu using the ADMIN password.

Some menus appear in more than one menu level. As you can see in the table above, the 111 password gives you access to three menus; User, About and Audit. The 3570 password gives you access to those three plus the Diagnostics menu. The 3088 password gives you access to those four plus the Setup menu.

This allows the supervisor to control access to some or all of the menus based on the passwords shared. The menus are the same no matter which menu level you access them from.

The menus are always explained in a sequential manner to cover all information in a logical fashion. You will probably never access all the menu items in this manner. You can navigate to the area of the menu that needs to be changed by using the menu maps and key navigation legends which are inserted as a reminder with most menus.

See *Accessing the menus on page 26* for instructions on how to enter a password to get to the menus. Key functions in the menus are shown below.

Menu Navigation Keys:

Press **SELECT**/ ▼ to move down in a menu

Press **TARE**/ ▲ to move up in a menu, except at the bottom item in a menu, then use **ZERO**/ ↵ or **F1**

Press **PRINT**/ ◀ to move left in a menu

Press **UNITS**/ ▶ to move right in a menu

Press **ZERO**/ ↵ to accept a value or choice and move up in the menu.

Press **F1** to escape and move up in the menu

3.1 Quick Code parameter entry

The Quick Code parameter entry lets you quickly jump to sections of the menu. Here's how it works:

1. Access the 3088 ADMIN menu. Press and hold the **ZERO** key for one second. When you release the key …

   P- ***0*** is displayed.

2. Refer to the Quick Code table in Figure 3.1, find the parameter you want to access, key in that number and press **ZERO** …

   The screen will show the associated menu item.

3. Use the normal procedures to set the menu item and to save the changes you make.

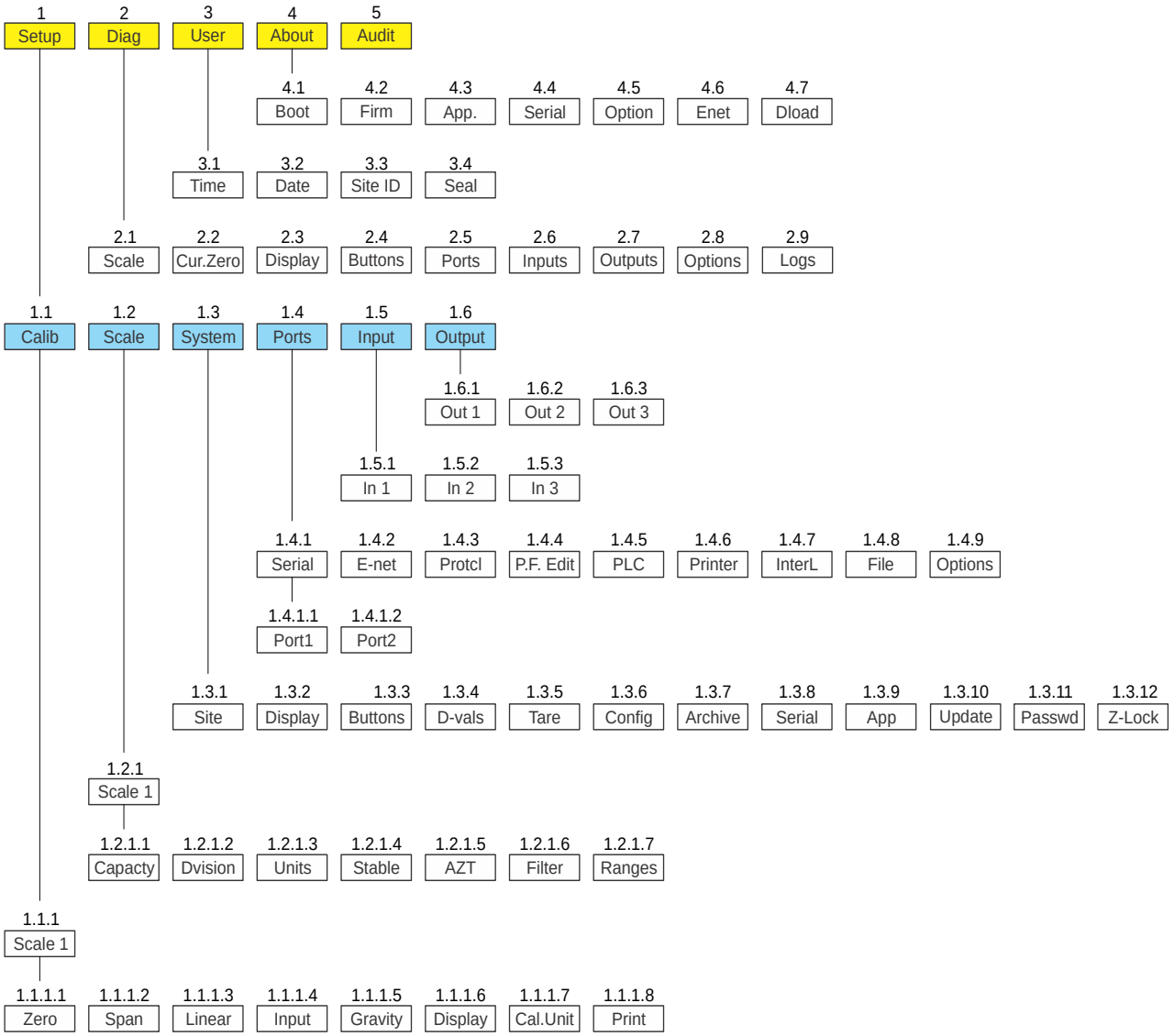


Figure 3.1 Quick Code table

3.2 Default Values

Each area of the world has different requirements for checkweigher configuration. The table below shows all the default values listed for all the different sites covered by the checkweigher.

	USA	GB	CAN	EU	CHINA	INDIA
Capacity	5	6	5	6	6	6
Division	0.002	.002	.002	.002	.002	.002
Unit of measure 1	lb	kg	kg	kg	kg	kg
Unit of Measure 2	off	g	g	g	g	g
Cal unit	lb	kg	kg	kg	kg	kg
Cal wt	5	6	5	6	6	6
Zero Range	100	2	2	2	2	2
Over Basis	Percent	Division	Percent	Division	Division	Division
Separator	decimal	decimal	decimal	comma	decimal	decimal
Date Format	MM-DD-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY
Time Format	12 Hr	24	24	24	24	24
Average	10	10	10	10	10	10
Filter Constant	1	1	1	1	1	1
Filter Threshold	.2	.2	.2	.2	.2	.2
Motion Div.	3	.25	3	3	3	3
Under Cap. Div.	250	20	250	250	250	250
AZT Div.	1	.25	.5	.5	.5	.5
App	Sim375	Mid375	Sim375	Mid375	Sim375	Sim375

4 User level menus

The USER level (password 111) contains the User, About, and Audit menus arranged as shown in Figure 4.1.

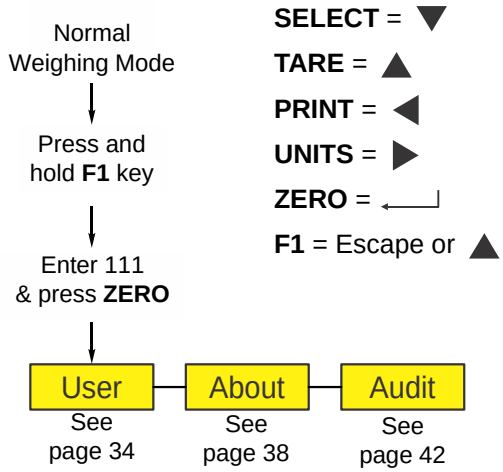


Figure 4.1 USER level (password 111) menus

4.1 User menu

The User menu is shown in Figure 4.2.

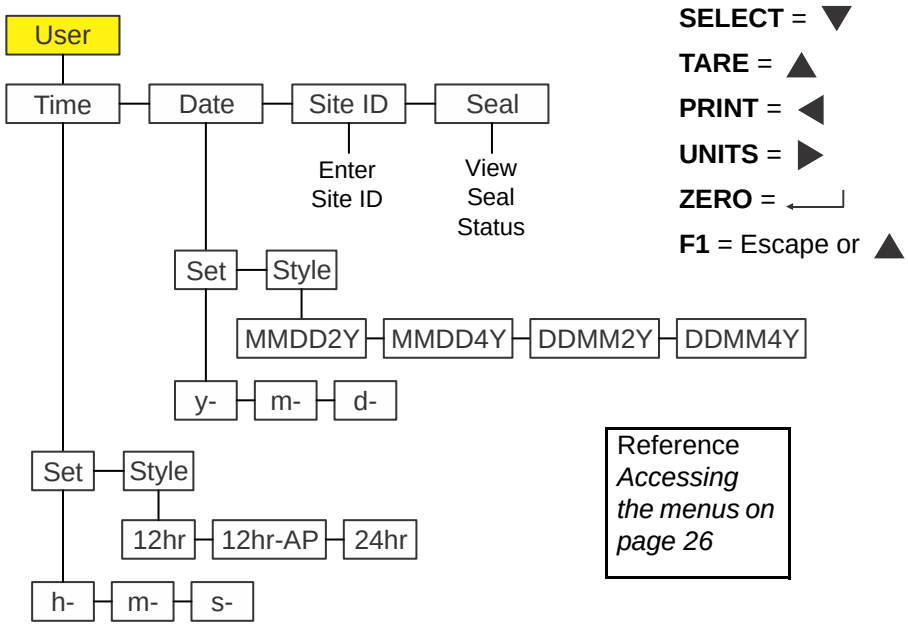


Figure 4.2 User menu

Use this menu to set the time, date, site ID, and to see the physical seal status. Each is explained below:

*The ↓ and → symbols stand for direction moved in the menu. So **User ↓ Time** illustrates that you move down from **User** to **Time**. This will help you keep track of where you are in the menu strucutre.*

4.1.1 Time

User ↓ Time

1. Access the User menu and press **SELECT** …

   tiME is displayed. Use this to set the time and clock style.

Set time

Time ↓ Set

2. Press **SELECT** …

   SEt is displayed.

3. Press **SELECT** …

   h- x is displayed, with the ***x*** flashing. This is a numeric entry screen for the hour value.

4. Use the *Numeric entry procedure on page 20* and key in the hour of the day using military (24 hr) time and press ***ZERO*** …

   The choice is made and ***M- x*** is displayed, with the ***x*** flashing. This is a numeric entry screen for the minute value.

5. Key in the minute value and press ***ZERO*** …

   The choice is made and ***S- x*** is displayed, with the ***x*** flashing. This is a numeric entry screen for the second value.

6. Key in the seconds value and press ***ZERO*** …

   The choice is made and ***SEt*** is displayed.

Style

Time ↓ Set → Style

7. Press **UNITS** …

   StYLE is displayed. Use this to set the style of clock for printouts. Choices are ***12hr***, ***12hr-AP*** (AM/PM) and ***24hr*** (military time).

8. Press **SELECT** …

   12hr is displayed.

9. Press **PRINT** or **UNITS** to scroll through the choices. Press **ZERO** when your choice is displayed …

   The choice is made and ***StYLE*** is displayed.

10. Press **TARE** …

    tiME is displayed.

4.1.2 Date

User ↓ Time → Date

1. Press **UNITS** to move to the next menu item …

   dAtE is displayed.

Set date

Date ↓ Set

2. Press **SELECT** …

   SEt is displayed.

3. Press **SELECT** …

   y- x is displayed, with the ***x*** flashing. This is a numeric entry screen for the year value.

4. Use the *Numeric entry procedure on page 20* and key in the year and press ***ZERO*** …

   The choice is made and ***M- x*** is displayed, with the ***x*** flashing. This is a numeric entry screen for the month.

5. Key in the month value and press ***ZERO*** …

   The choice is made and ***d- x*** is displayed, with the ***x*** flashing. This is a numeric entry screen for the day value.

6. Key in the day value and press ***ZERO*** …

   The choice is made and ***SEt*** is displayed.

Style

Date ↓ Set → Style

7. Press **UNITS** to move to the next menu item …

   StYLE is displayed. Use this to set the style of date for printouts. Choices are ***MMDD2Y***, ***MMDD4Y***, ***DDMM2Y*** and ***DDMM4Y***.

8. Press **SELECT** …

   MMDD2Y is displayed.

9. Press **PRINT** or **UNITS** to scroll through the choices. Press **ZERO** when your choice is displayed …

   The choice is made and ***StYLE*** is displayed.

10. Press **TARE** …

    dAtE is displayed.

4.1.3 Site ID

User ↓ Time → Date → Site ID

1. From ***dAtE***, press **UNITS** to move to the next menu item …

   SitE id is displayed. Use this item to enter a site ID number or checkweigher location reference number (up to six characters).

The Site ID can be used in transmitted or printed information.

2. Press **SELECT** …

   A string entry screen is displayed. Refer to *String index/character data entry on page 29*

3. Key in the site ID number on the numeric keypad and press **ZERO** to accept …

   SitE id is displayed.

4.1.4 Seal

User ↓ Time → Date → Site ID → Seal

1. From ***SitE id***, press **UNITS** …

   SEAL is displayed.

2. Press **SELECT** …

   no SEAL or ***SEALEd*** is displayed. This is the status of the physical seal jumper inside the checkweigher. If the unit is sealed, no changes can be made to the configuration of the checkweigher.

*The seal jumper, P9, is located near the top left corner of the main PCB. If the jumper is installed, the checkweigher is sealed. This means the ADMIN and CALIB menus cannot be accessed and the display will flash **SEALEd**. Only Time and Date can be changed when the indicator is Sealed.*

3. Press **F1** to return to the ***SEAL*** display.

4. To exit the menu, see *Exiting the menus on page 30*.

4.2 About menu

The About menu is shown in Figure 4.3.

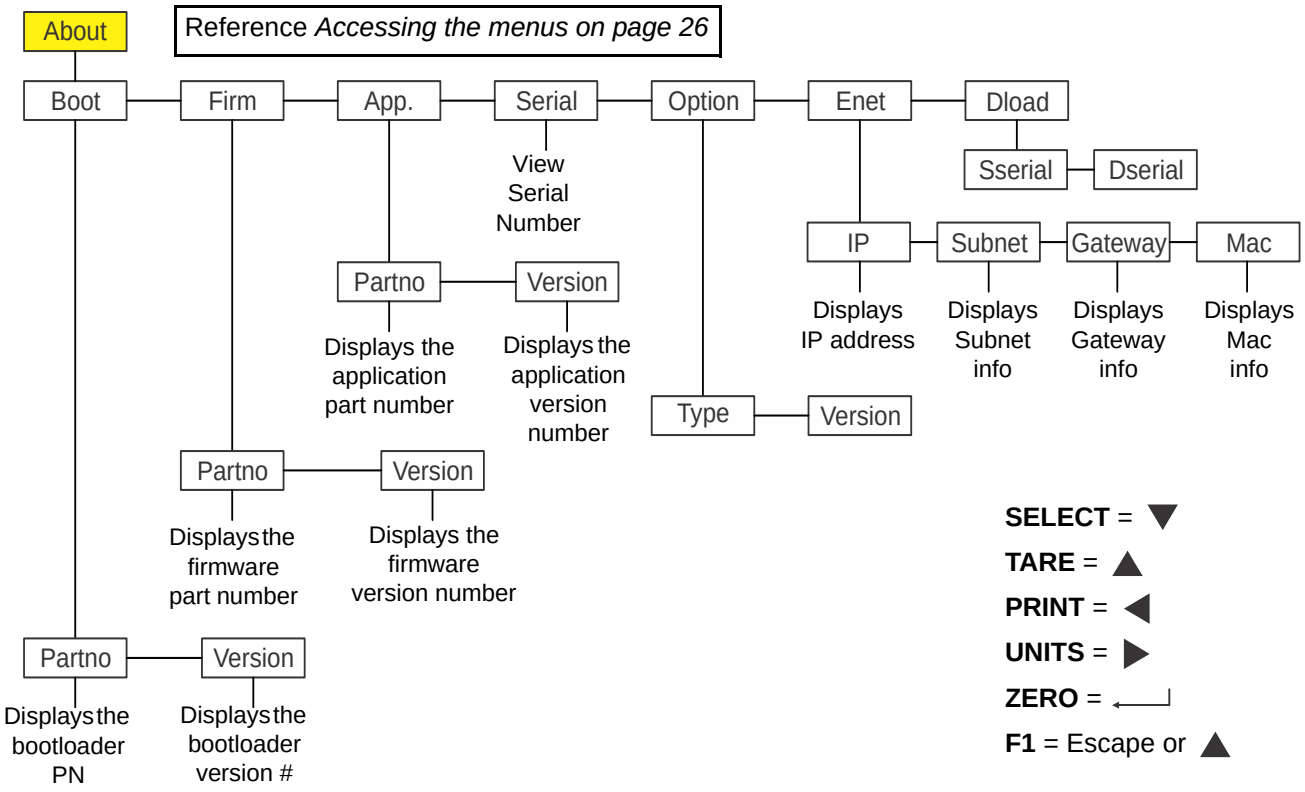


Figure 4.3 About menu

Use this menu to display information about the various items shown in Figure 4.3. Each is explained below:

Definitions:

Bootloader	*Software that makes the electronics run.*
Firmware	*Embedded system software that creates core functions of the product.*
App	*Specific software to create specific behavior for a given installation. For example: counting, accumulation, peak, etc.*

4.2.1 Bootloader

About ↓ Boot

1. Access the About menu and press **SELECT** …

   boot is displayed.

2. Press **SELECT** …

   PArtno is displayed

3. Press **SELECT** …

   The bootloader part number is displayed.

4. Press **ZERO** to return to the ***PArtno*** item.

5. Press **UNITS** …

   VErSion is displayed.

6. Press **SELECT** …

   The version number of the bootloader is displayed.

7. Press **ZERO** to return to the ***VErSion*** item.

8. Press **TARE** to return to the ***boot*** item.

4.2.2 Firmware and Application

About ↓ Boot → Firmware and → Application

1. From ***boot***, press **UNITS** to move to the next item …

   FirM is displayed. This stands for firmware.

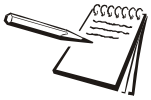
2. Repeat the same pattern of key presses in steps 2 through 8 above to view the part number and version for the ***FirM*** (firmware) and ***APP*** (application) menu items.

4.2.3 Serial

About ↓ Boot → Firmware → Application → Serial

1. With ***APP*** displayed, press **UNITS** to move to the next item in this level …

   SEriAL is displayed.



The Serial Number should match the serial number that is printed on the indicator ID tag and is also included in the printed calibration report.

2. Press **SELECT** …

   The checkweigher's serial number is displayed.

3. Press **TARE** to return to the ***SEriAL*** display.

4.2.4 Option

About ↓ Boot → Firmware → Application → Serial → Option

1. From ***SEriAL***, press **UNITS** to move to the next item in this level …

   oPtion is displayed. Use this to view the version and type of installed option module.

2. Press **SELECT** …

   VErSion is displayed.

3. Press **SELECT** to see the version of the installed option module …

   The version is displayed. If there is no installed option module, ***cAnt*** is displayed.

4. Press **ZERO** …

   VErSion is displayed.

5. Press **UNITS** to move to the next item …

   tYPE is displayed.

6. Press **SELECT** to see the type of the installed option module …

   The type of module is displayed. If there is no installed option module, ***cAnt*** is displayed.

7. Press **ZERO** …

   tYPE is displayed.

8. Press **TARE** …

   oPtion is displayed.

4.2.5 Enet

About → Boot → Firmware → Application → Serial → Option → Enet

If the indicator is connected to an ethernet network, the values displayed will be the current assigned addresses.

1. From ***oPtion***, press **UNITS** to move to the next menu item …

   EnEt is displayed. Use this item to view the values for the IP, Subnet, Gateway and MAC addresses.

IP

Enet → IP

2. Press **SELECT** …

   iP is displayed. Use this item to view the four part IP address.

3. Press **SELECT** …

   0 xxx is displayed. This is first octet of the IP address

4. Press **ZERO** …

   1 xxx is displayed. This is second octet of the IP address.

5. Press **ZERO** …

   2 xxx is displayed. This is third octet of the IP address.

6. Press **ZERO** …

   3 xxx is displayed. This is fourth octet of the IP address.

7. Press **ZERO** …

   iP is displayed.

MAC

Enet ↓ IP → Subnet & Gateway & MAC

8. Press **UNITS** …

   Subnet is displayed.

9. Repeat this sequence of key presses for the ***Subnet***, ***Gateway*** and ***MAC*** addresses.

10. When you are finished, press **TARE** to return to the ***Enet*** menu item.

4.2.6 Download

About ↓ Boot → Firmware → Application → Serial → Option → Enet → Dload

1. Press **UNITS** …

   dLoAd is displayed. This stands for download. Under ***SSEriAL*** you can view the serial number of the software application that created the configuration file. Under ***dSEriAL*** you can view the serial number of the software application that downloaded the configuration file. This is used for security and licensing purposes.

If the license number of your Configuration Software application does not match either the SSerial or DSerial numbers you will be unable to upload the existing configuration file from the indicator. Contact AWTX Technical Support for assistance.

Sserial

Dload ↓ Sserial

2. Press **SELECT** …

   SSEriAL is displayed.

3. Press **SELECT** …

   The 1st half of the serial number of the creating application of the configuration file is displayed.

4. Press **ZERO** to show the 2nd half.

5. Press **F1** …

   SSEriAL is displayed.

Dserial

Dload ↓ Sserial → Dserial

6. Press **UNITS** …

   dSEriAL is displayed.

7. Press **SELECT** …

   The 1st half of the serial number of the downloading application of the configuration file was downloaded to, is displayed.

8. Press **ZERO** to show the 2nd half.

9. Press **F1** …

   dSEriAL is displayed.

10. Press **TARE** twice …

    About is displayed.

11. To exit the menu, see *Exiting the menus on page 30*.

4.3 Audit menu

The Audit menu is shown in Figure 4.4.

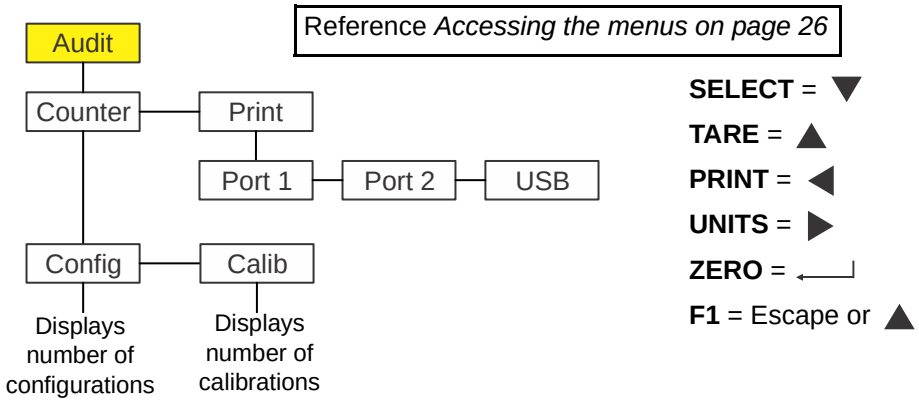


Figure 4.4 Audit menu

Use this menu to display audit counters for configuration and calibration and to print the information. Each is explained below:

4.3.1 Counter

Audit ↓ Counter

1. Access the Audit menu and press **SELECT** …

   countEr is displayed. This has two counters that tell you how many times the checkweigher has been configured and calibrated.

Config

Counter ↓ Config

2. Press **SELECT** …

   conFig is displayed.

3. Press **SELECT** again …

   A number appears showing how many times the checkweigher has been configured.

4. Press **ZERO** …

   conFig is displayed.

Calibration

Counter ↓ Config → Calib

5. Press **UNITS** to move to the next item in this level …

   cALib is displayed.

6. Press **SELECT** …

   A number appears showing how many times the checkweigher has been calibrated.

7. Press **ZERO** …

   cALib is displayed.

8. Press **TARE** …

   countEr is displayed.

4.3.2 Print

Audit ↓ Counter → Print

1. Press **UNITS** …

   Print is displayed.

Port 1/Port 2/USB

Print ↓ Port 1 → Port 2 → USB

2. Press **SELECT** …

   Port1 is displayed. This is the first of three choices: ***Port 1***, ***Port 2*** or ***uSb***. Use these to select which port to print the audit report through.

Printing to USB requires that a USB flash drive is connected to the indicator host USB. Printing to USB will create a folder on the flash drive and a comma separated file with the data.

3. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** when your choice is displayed …

   Print is displayed.

4. To exit the menu, see *Exiting the menus on page 30*.

5 Diagnostics level menus

The DIAGNOSTICS level (password 3570) is the same as the USER level except it adds the Diag menu. The DIAGNOSTICS level is shown in Figure 5.1.

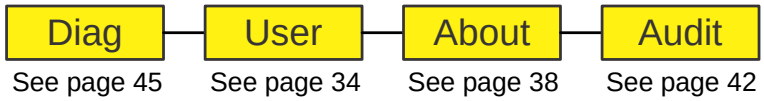


Figure 5.1 DIAGNOSTICS level (password 3570) menus

5.1 Diag menu

Use the Diag menu to check or verify the performance of the checkweigher. The diagnostic tests available include: Scale A to D to view output from the connected scale base or load device, the current zero offset from calibration zero, a display segment test, a front panel keypad or button test, serial Com ports and USB host port test, remote inputs and outputs test, and an option module test if installed. You can print an error log report that provides information on previous error conditions such as overloads or underloads. The Diag menu is shown in Figure 5.2.

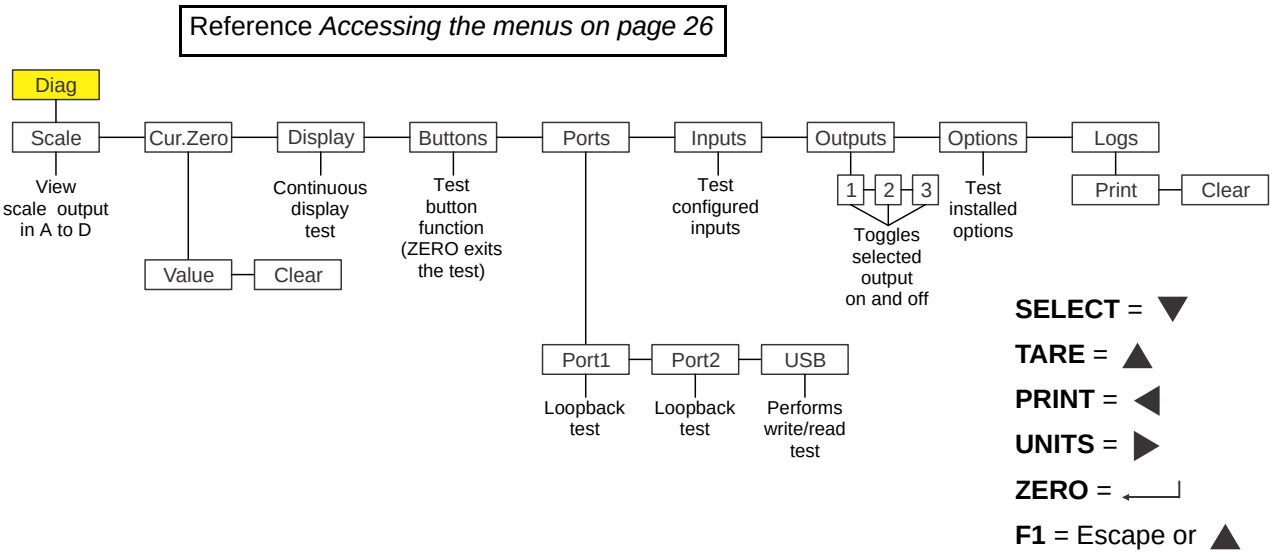


Figure 5.2 Diag menu

*The ↓ and → symbols stand for direction moved in the menu. So **Diag** ↓ **Scale** illustrates that you move down from **Diag** to **Scale**. This will help you keep track of where you are in the menu structure.*

Each of the items in the Diag menu is explained below:

5.1.1 Scale

Diag ↓ Scale

1. Access the Diag menu item and press **SELECT** …

   ScALE is displayed.

2. Press **SELECT** again …

   A number appears representing the A to D counts. The value is only for diagnostic purposes. The value should increase as weight on the scale increases and decrease as weight decreases.

3. Press **SELECT** to toggle to a mV/V display …

   The mV/V value is displayed. This is an approximate value for the mV/V value output by the loadcell.

4. Press **ZERO** …

   ScALE is displayed.

5.1.2 Current Zero

Diag ↓ Scale → Current Zero

1. With ***ScALE*** displayed, press **UNITS** …

   cur.ZEro is displayed. This stands for current zero. The two items under current zero allow you to view the pushbutton zero offset (which includes any weight subtracted by the Auto-Zero Tracking mechanism (AZT) from the calibration zero and to reset the zero back to calibration zero.

2. Press **SELECT** …

   VALuE is displayed.

3. Press **SELECT** to view the zero offset …

   The value of the offset is shown.

4. Press **ZERO** to escape …

   VALuE is displayed.

5. Press **UNITS** …

   cLEAr is displayed. This lets you clear the zero offset to return the checkweigher to calibration zero.

*This can restore the original calibration zero point if the **ZERO** key is accidently pressed when a tank or vessel contains product that cannot be emptied.*

6. Press **SELECT** …

   no is displayed. Choose ***no*** or ***YES*** to clear the offset or not.

7. Press **UNITS** to toggle between the two choices and press **ZERO** when your choice is displayed …

   If you choose ***YES***, the offset is cleared and ***cLEAr*** is displayed. If you choose ***no***, the offset is not cleared and ***cLEAr*** is displayed.

8. Press **TARE** …

   cur.ZEro is displayed.

5.1.3 Display

Diag ↓ Scale → Current Zero → Display

1. With ***cur.ZEro*** displayed, press **UNITS** …

   diSPLAy is displayed.

2. Press **SELECT** …

   The segments of the display light up in progression and continue until you press any key.

   After you press any key, ***diSPLAy*** is displayed.

5.1.4 Buttons

Diag ↓ Scale → Current Zero → Display → Buttons

1. With ***diSPLAy*** displayed, press **UNITS** …

   buttonS is displayed.

2. Press **SELECT** …

   tESting is briefly displayed followed by dashes.

3. Press any key to test if it is functioning and its name or value will be displayed. Press **ZERO** to escape the test.

   ZERO is briefly displayed then ***buttonS***.

5.1.5 Ports

Diag ↓ Scale → Current Zero → Display → Buttons → Ports

1. With ***buttonS*** displayed, press **UNITS** …

   PortS is displayed.

2. Press **SELECT** …

   Port 1 is displayed. Use this to do a loopback test on port 1.

3. Press **SELECT** to test this port …

   tESting is briefly displayed and then ***PASS*** or ***FAiL***, depending on if the send and receive lines are jumpered (pass) or not (fail). Add a jumper or wire between the transmit output and receive input. On an external 9 pin connector the transmit line is pin 2 and the receive line is pin 3.

It is recommended that you insert the jumper (a paper clip works) into the external cable connector to validate the wiring and not just the internal ports. See System block diagram on page 172 for I/O configuration of the serial ports TB3.

   The ***PASS*** or ***FAiL*** is displayed briefly and ***Port 1*** is displayed.

4. Press **UNITS** to advance to the next item …

   Port 2 is displayed. Use this to do a loopback test on port 2.

5. Press **SELECT** to test this port …

   tESting is briefly displayed and then ***PASS*** or ***FAiL***, depending on if the transmit and receive lines are jumpered (pass) or not (fail).

   The ***PASS*** or ***FAiL*** is displayed briefly and ***Port 2*** is displayed.

6. Press **UNITS** to advance to the next item …

   uSb is displayed. Use this to test a connected USB flash drive.

7. Press **SELECT** to test …

   oPEn is briefly displayed, then ***WritE*** is briefly displayed, then ***rEAd*** is briefly displayed, then ***PASS*** or ***FAiL***, depending on if the USB device is working correctly or not. The ***PASS*** or ***FAiL*** is displayed briefly and ***uSb*** is displayed.

   If no USB device is plugged in when you begin the test, ***oPEn*** is briefly displayed, then ***no uSb*** is briefly displayed, then ***uSb***.

8. From the ***uSb*** display, press **TARE** …

   PortS is displayed.

5.1.6 Inputs

Diag ↓ Scale → Current Zero → Display → Buttons → Ports → Inputs

The input test is used to verify if external switches wired to the input ports on TB2 are functioning properly.

1. With ***PortS*** displayed, press **UNITS** …

   inPutS is displayed.

2. Press **SELECT** …

   in 000 is displayed, if no inputs are jumpered.

3. To test input 1, jumper pins 1 and 2 of the I/O connector on the checkweigher …

   The first digit becomes ***1*** until the jumper is removed.

4. To test input 2, jumper pins 1 and 3 of the I/O connector on the checkweigher …

   The second digit becomes ***2*** until the jumper is removed.

5. To test input 3, jumper pins 1 and 4 of the I/O connector on the checkweigher ….

   The third digit becomes ***3*** until the jumper is removed.

6. Press **ZERO** …

   inPutS is displayed.

5.1.7 Outputs

Diag ↓ Scale → Current Zero → Display → Buttons → Ports → Inputs → Outputs

The output test is used to verify if external relays or lights (etc.) connected to TB2 are properly wired and functioning properly.

CAUTION: Be sure to take proper precautions to ensure material controlled by the scale outputs will not create a hazardous condition during an output test.

1. With ***inPutS*** displayed, press **UNITS** …

   outPutS is displayed.

2. Press **SELECT** …

   outPut1 is displayed.

3. Press **SELECT** …

   o.1-oFF is displayed.

4. Press **PRINT** or **UNITS** to toggle the output ***on*** (**o.1-on**) and repeat to turn it **oFF**.

   Output 1 will be toggled on and off as you press the keys. This is shown by the annunciator (*SP1)* on the display turning on and off.

5. Press **ZERO** or **F1** to stop the test …

   outPut1 is displayed.

6. Press **UNITS** to go to the next output. Repeat the steps to test output 2 and 3.

7. When finished, press **TARE** …

   outPutS is displayed.

5.1.8 Options

Diag ↓ Scale → Current Zero → Display → Buttons → Ports → Inputs → Outputs → Options

1. With ***outPutS*** displayed, press **UNITS** to go to the next menu item …

   oPtionS is displayed. Use this to test the various installed option modules.

2. Press **SELECT** …

   The name of the installed option module is displayed.

3. Press **F1** to return to ***oPtionS***.

5.1.9 Logs

Diag ↓ Scale → Current Zero → Display → Buttons → Ports → Inputs → Outputs → Options → Logs

The logs report will print any error conditions that may have occurred such as overloads and underloads

1. With ***oPtionS*** displayed, press **UNITS** …

   LogS is displayed. These are logs of various functions. You can print or clear them from memory.

2. Press **SELECT** …

   Print is displayed.

3. Press **SELECT** to print the log …

   buSy is briefly displayed as the log is sent to the configured peripheral device and then the display returns to ***Print***.

4. Press **UNITS** …

   cLEAr is displayed. Use this to clear the log from memory. Go to step 5 to clear the log.

5. Press **SELECT** to clear the log …

   buSy is briefly displayed as the log is cleared from memory, then ***donE*** is briefly displayed

   cLEAr is then displayed.

6. Press **TARE** …

   LogS is displayed.

7. This completes the Diag menu. To exit the menu, see *Exiting the menus on page 30*.

6 ADMIN level menus

The ADMIN level (password 3088) is the same as the DIAG level except it adds the Setup menu. The ADMIN level is shown in Figure 6.1.

Figure 6.1 ADMIN level

6.1 Setup menu

In the Setup menu there are various submenus available to configure specific sections of the scale operation. The top level items in the Setup menu are shown in Figure 6.2.

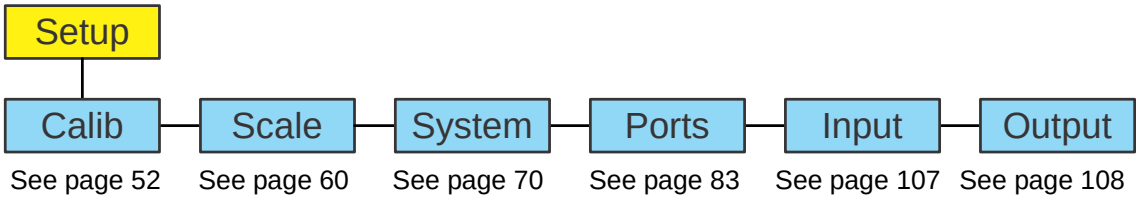


Figure 6.2 Setup menu (password 3088)

Each of the items in the Setup menu are explained in the following sections.

6.2 Calibration Procedure

Use the Calib menu to perform Zero and Span calibration, add Linearity correction points, manually input calibration parameters for Zero and Span, manually input Gravitational correction values, view the live weight, set the calibration unit of measure and print out a calibration report. Follow the menu in Figure 6.3 and the steps that follow.

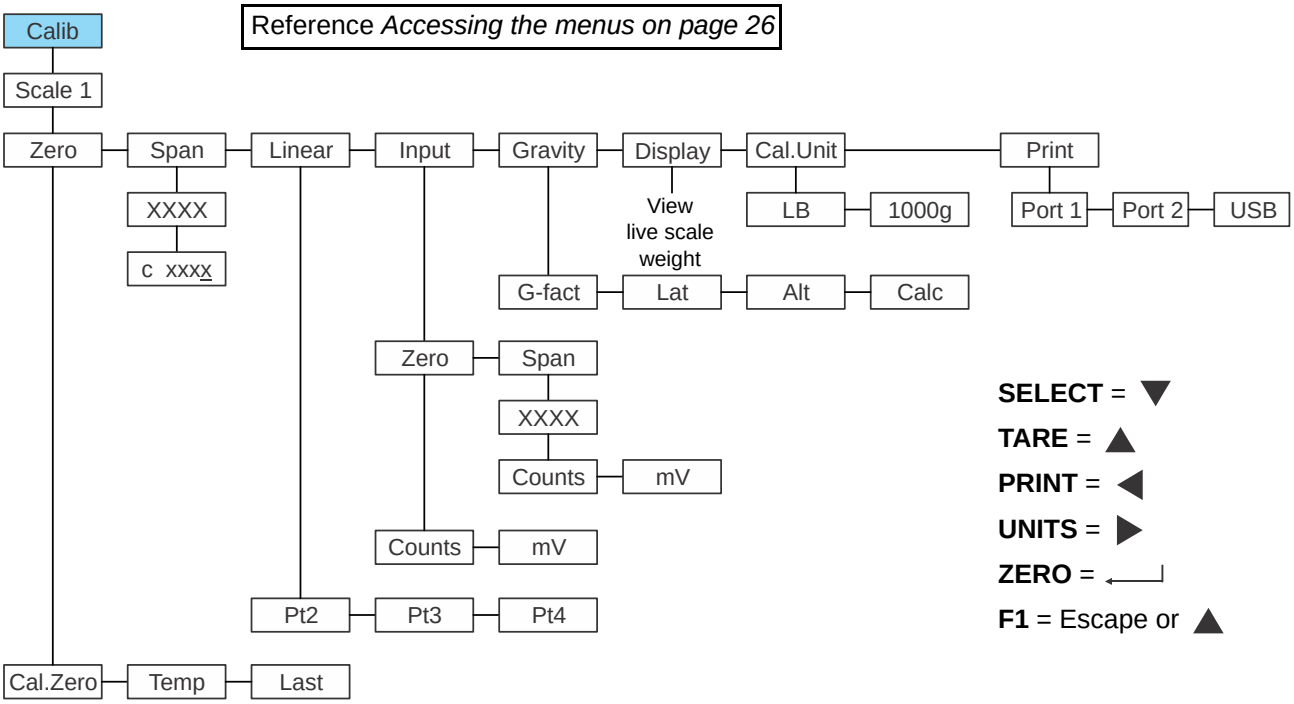


Figure 6.3 Calibrate menu

*The ↓ and → symbols stand for direction moved in the menu. So **Calib** ↓ **Scale 1** illustrates that you move down from **Calib** to **Scale 1**. This will help you keep track of where you are in the menu structure.*

The calibration procedure can be accessed directly following this procedure:

6.2.1 Accessing calibration

Calib ↓ Scale 1

1. Press and hold **F1** …

   Pass is briefly displayed, then a flashing ***0***, prompting you to enter the password.

2. Use the *Numeric entry procedure on page 20* and key in the password, 2580, and press **ZERO** to accept it …

   cALib is displayed.

3. Press **SELECT** …

   ScALE 1 is displayed. There is only one scale available to calibrate so continue to the next step.

6.2.2 Zero Procedure

Calib ↓ Scale 1 ↓ Zero

1. From ***ScALE 1*** press **SELECT** …

   ZEro is displayed.

2. Press **SELECT** again …

   cAL.ZEro is displayed. Use this to record the zero point.

3. To perform a normal calibration, from the ***cAL.Zero*** display, press **SELECT** …

   c xxxx is displayed. The ***c*** denotes the fact you are in the calibration procedure. The numeric value is the current weight value seen by the checkweigher.

4. Remove all weight from the scale and press **ZERO** …

   buSy is briefly displayed and then ***c 0*** is displayed, if the zero procedure was successful. If not successful, repeat steps 3 and 4.

5. Press **ZERO** …

   cAL.ZEro is displayed.

On the initial zero calibration of the checkweigher to a new scale, the zero cal counts by appear unstable. Continue to the span calibration and when completed the condition should correct itself.

6.2.3 Span Procedure

Calib ↓ Scale 1 ↓ Zero → Span

1. From ***cAL.ZEro*** display, press **TARE** …

   Zero is displayed.

2. Press **UNITS** …

   SPAn is displayed.

3. Press **SELECT** to span the scale …

   XXXX is displayed with a flashing right digit.

4. Press **ZERO** to accept the displayed span weight or use the *Numeric entry procedure on page 20* and key in your span weight (not to exceed the configured capacity) and press ***ZERO*** …

   c xxx is displayed. This is the current weight on the scale. The ***c*** is a reminder that you are in the calibration procedure.

5. Place the span weight on the scale and press **ZERO** …

   buSy is briefly displayed and then ***c XXXX*** is displayed, which should be the same as the span weight you keyed in. The span procedure is complete.

6. Press **ZERO** …

   SPAn is displayed.

To save calibration or any changes you make in the menus, when you are finished making the changes, press **TARE** *or* **F1** *repeatedly until the display shows* ***SAVE no****. Press* **UNITS** *and* ***SAVE YES*** *is displayed. Press* **ZERO** *to accept this. All changes will be saved and the checkweigher will return to normal weighing mode.*

6.2.4 Alternate zero procedures

Last Zero and Temporary Zero

As you can see in the Calibrate menu there are two other items under ***Zero***; ***Last*** and ***Temp***.

Last Use ***Last*** zero if certified test weights placed on the scale display a slightly inaccurate value. Be sure that the scale is at zero before the test weights are added and enter the calibration procedure and select ***Last*** zero. The last acquired zero value will be assigned as the new Cal Zero value. Continue to the SPAN procedure without removing the test weights. Key in the value of the test weights on the scale and complete the SPAN procedure. The test weights will now read accurately.

Temp. Use ***Temp.*** zero when the product weight on the scale, such as in a tank or vessel, appears to be inaccurate but cannot be removed to establish a no-load condition. Enter the calibration procedure and select ***Temp.*** zero. The current weight on the scale will be temporarily assigned as the Cal Zero value. Continue to the SPAN procedure, key in the value of the test weights and place them on the scale and complete the SPAN procedure. The original Cal Zero is restored after exiting the span procedure and the current product weight will now be correctly represented. Due to factors that created the original inaccuracy, it may be necessary to re-zero the scale when the tank or vessel is empty.

With ***Last*** or ***Temp*** zero displayed, press **SELECT** …

buSY and ***donE*** are briefly displayed, followed by ***Last*** or ***Temp*** depending on which procedure you are performing.

7. Press **TARE** …

   ZEro is displayed.

8. Press **UNITS** …

   SPAn is displayed.

9. Continue the regular span procedure.

6.2.5 Linearity Procedure

Calib ↓ Scale 1 ↓ Zero → Span → Linear

Perform the linearity procedure only if test weights applied to the scale between the zero and span calibration points are showing slight inaccuracies, such as ± a few divisions. If large inaccuracies are recorded, this indicates a possible mechanical problem or possible loadcell failure which linearity calibration may not be able to correct.

1. From ***SPAn***, press **UNITS** …

   LinEAr is displayed. Linearity allows you to add up to three linearization points for the scale. The points are numbered 2, 3 and 4 because, internally, the zero reference point is point 1 and the span point is point 5.

2. With ***LinEAr*** displayed, press **SELECT** …

   Pt2 is displayed.

3. Press **ZERO** …

   A flashing ***0*** is displayed. This is the screen for entering the point 2 test weight.

4. Use the *Numeric entry procedure on page 20* and key in a value for the weight and press **ZERO** …

   c xxx is displayed. This is the live weight on the scale.

5. Place the test weight, equal to the value keyed in during step 4 above, on the scale and press **ZERO** …

   buSy is briefly displayed and then ***c xxx*** is displayed again.

6. Press **ZERO** …

   Pt2 is displayed. This completes the setting of linearization point 2.

7. Repeat steps 3 through 6 for points 3 and 4, if necessary.

8. Press **TARE** …

   LinEAr is displayed.

6.2.6 Input Calibration Procedure

Calib ↓ Scale 1 ↓ Zero → Span → Linear → Input

Input calibration is useful to restore an checkweigher back to previous calibration settings if inadvertently changed or to clone a replacement ZQ375 checkweigher.

Current settings for zero and span values can be obtained from a printed calibration report. See Print calibration report on page 59.

1. From ***LinEAr*** press **UNITS** …

   inPut is displayed. This menu item allows you to enter calibration data recorded from an earlier calibration procedure using the numeric keypad.

Zero

Input ↓ Zero

2. Press **SELECT** …

   ZEro is displayed. This is for entering a value for zero in either ADC counts or mv/V.

3. Press **SELECT** …

   countS is displayed. Use this to enter a zero point using ADC counts or press **UNITS** to toggle to ***mV*** if you want to set the zero point using mV/V.

4. With ***countS*** or ***mV*** displayed, press **ZERO** to access the value entry screen.

5. Use the *Numeric entry procedure on page 20* and key in the count value or the mV/V (millivolts per volt) value you want for the zero point and press **ZERO** to accept it …

   ZEro is displayed.

Span

Input ↓ Zero → Span

6. Press **UNITS** …

   SPAn is displayed.

7. Press **SELECT** …

   A flashing value is displayed representing the span weight.

8. Press **ZERO** to accept this or use the *Numeric entry procedure on page 20* and key in the span weight that corresponds with the span ADC or mV/V value and press **ZERO** to accept it …

   countS is displayed. Use this to enter a span using ADC counts or press **UNITS** to scroll to ***mV*** if you want to set the span using mV/V.

9. With ***countS*** or ***mV*** displayed, press **ZERO** to access the value entry screen.

10. Use the *Numeric entry procedure on page 20* and key in the count value or the mV/V value you want for the span and press **ZERO** to accept it …

    SPAn is displayed.

11. Press **TARE** …

    inPut is displayed.

6.2.7 Gravity Factor Procedure

Calib ↓ Scale 1 ↓ Zero → Span → Linear → Input → Gravity

1. From ***inPut*** press **UNITS** …

   grAvitY is displayed. Use this item to key in a gravity constant value. If the scale has been calibrated at a different location that has a significantly different gravitational factor than the installation site, and it is not possible to re-calibrate with known test weights, the scale can be adjusted using this gravity factor.

Gravity factor

Gravity ↓ G-Fact

2. To set the gravity factor, press **SELECT** …

   g-FACt is displayed.

3. If you know the local gravitation factor (allowable range is 9.70000 to 9.90000) and want to key it in, proceed to step 4.
   OR
   If you do not know the local gravitation factor but can determine the approximate latitude and altitude of the installation site, then the checkweigher can calculate the gravity factor from these two values. Skip to step .

4. Press **SELECT** …

   The current setting for the gravity factor is displayed.

5. Use the *Numeric entry procedure on page 20* and key in the new gravitation factor and press **ZERO** …

   The value is accepted and the display returns to ***g-FACt***. Proceed to step 14.

Latitude

Gravity ↓ G-Fact → Lat

6. From the ***g-FACt*** display, press **UNITS** …

   LAt is displayed. This stands for latitude.

7. Press **SELECT** …

   A value entry screen appears.

8. Use the *Numeric entry procedure on page 20* and key in the latitude for the installation site. The valid range is 0 to 90. A positive value works for north or south of the equator. Press **ZERO** to accept it …

   LAt is displayed.

Altitude

Gravity ↓ G-Fact → Lat → Alt

9. Press **UNITS** …

   ALt is displayed. This stands for altitude.

10. Press **SELECT** …

    A value entry screen appears.

11. Use the *Numeric entry procedure on page 20* and key in the altitude for the installation site. The valid range is 0 to 30,000 ft. (10000 m). Press **ZERO** to accept it …

    ALt is displayed.

Calculate gravity factor

Gravity ↓ G-Fact → Lat → Alt → Calc

12. After you have entered the latitude and altitude values, press **UNITS** …

    CALC is displayed. This stands for calculate.

13. Press **SELECT** …

    buSY is displayed while the checkweigher calculates the gravity factor and loads this value as the gravity factor. ***CALC*** is then displayed. Be sure to save the changes when you exit the menu and test the accuracy with a know weight.

CAUTION: Verify with local agencies if adjusting the gravity factor is accepted in your area. It may be required that calibration be done with certified weights.

14. Press **TARE** …

    grAvitY is displayed.

6.2.8 Display

Calib ↓ Scale 1 ↓ Zero → Span → Linear → Input → Gravity → Display

1. From ***grAvitY*** press **UNITS** …

   diSPLAY is displayed. Use this item to view live scale weight while in the calibration menu.

2. Press **ZERO** to view the live weight …

   The live weight value is displayed.

*Use the **ZERO** key to zero the checkweigher so you can add test weights to validate the accuracy of the scale.*

3. Press **F1** …

   diSPLAY is displayed.

6.2.9 Calibration Unit

Calib ↓ Scale 1 ↓ Zero → Span → Linear → Input → Gravity → Display → Cal.Unit

1. From ***diSPLAY*** press **UNITS** …

   CAL.unit is displayed. This stands for calibration unit. This is the unit of measure of the weights used during calibration.

2. Press **SELECT** …

   Lb or ***1000g*** is displayed.

3. Use **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice.

   CAL.unit is displayed.

6.2.10 Print calibration report

Calib ↓ Scale 1 ↓ Zero → Span → Linear → Input → Gravity → Display → Cal.Unit → Print

1. From ***CAL.unit*** press **UNITS** …

   Print is displayed. Use this print function to print a calibration report through ***Port 1***, ***Port 2*** or to ***USB***. This information can be used in the future to restore calibration.

2. Press **SELECT** …

   Port 1 is displayed.

3. Use **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice.

   The calibration report will be printed to a peripheral device through the chosen port.

4. Press **TARE** twice to return to the ***cALib*** item.

5. This completes the Calib menu. To exit the menu, see *Exiting the menus on page 30*.

6.3 Scale

CAUTION: Be sure you follow all local weights and measures regulations.

Some parameters may be set automatically by your choice of SitE in the System menu item.

Use the Scale menu to configure the scale operating parameters such as capacity and division size, available units of measure, motion and auto zero tracking values, filtering parameters, range of operation for zeroing the scale, over and underload conditions and the return to gross zero region or band. Refer to the menu in Figure 6.3 and the steps that follow.

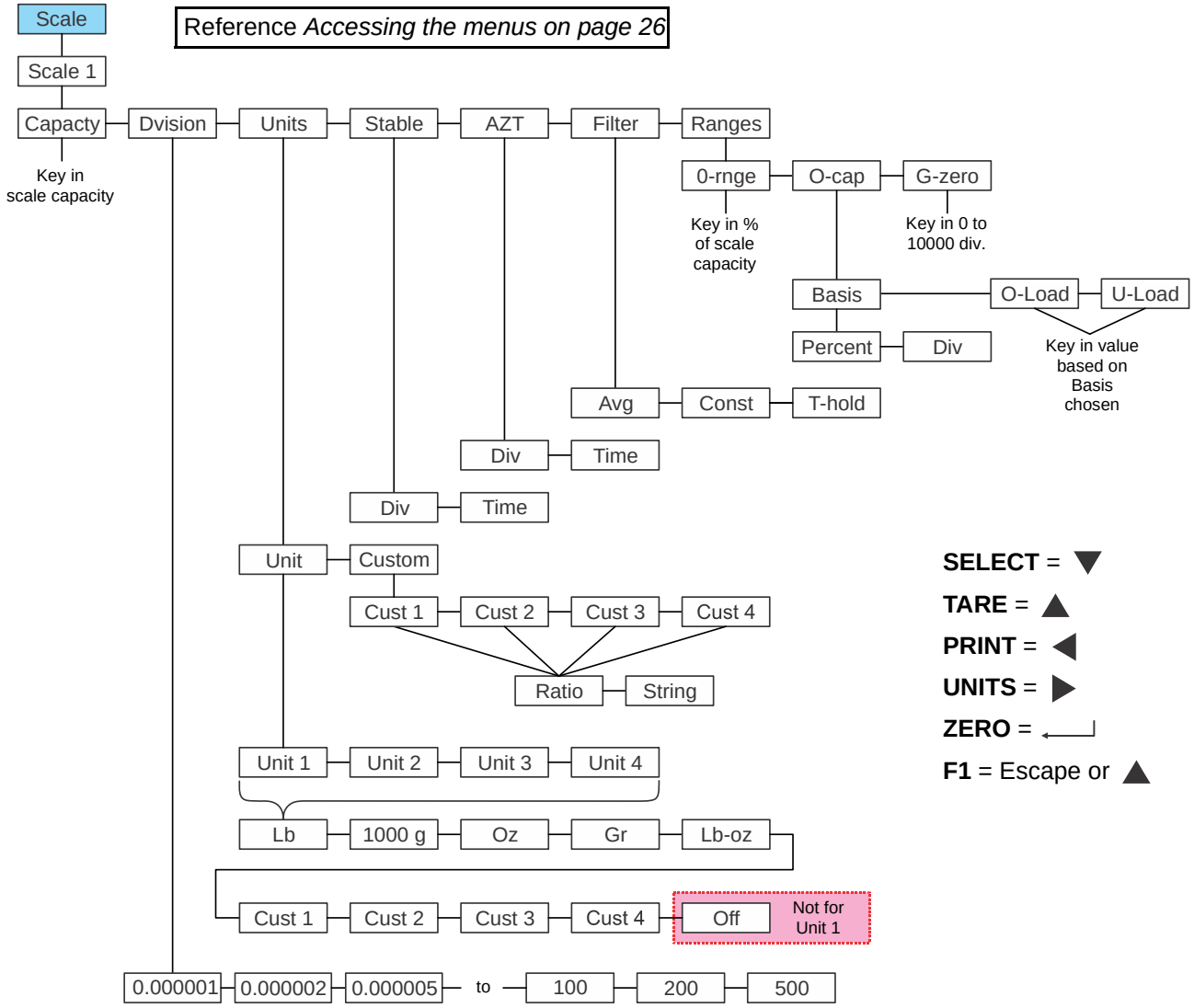


Figure 6.4 Scale menu

Access the Scale menu. See *Accessing the menus on page 26*.

6.3.1 Accessing scale configuration

Scale ↓ Scale 1

With ***Scale*** displayed, press **SELECT** …

ScALE 1 is displayed. There is only one scale available so continue to *Capacity*.

6.3.2 Capacity

Scale ↓ Scale 1 ↓ Capacty

The capacity that you enter should never exceed the rated capacity of the scale that is connected.

1. From ***ScALE 1*** press **SELECT** …

   A value is shown on the screen with the right digit flashing. This is the current setting for the capacity of the scale.

2. Press **ZERO** to accept this or key in a new value and press **ZERO** …

   cAPActY is displayed.

6.3.3 Division

Scale ↓ Scale 1 ↓ Capacty → Dvision

1. From ***cAPActY*** press **UNITS** …

   dViSion is displayed. This stands for division size.

2. Press **SELECT** …

   The current division size is displayed.

3. Press **PRINT** or **UNITS** to scroll through the division size choices. Choices are ***0.000001***, ***0.000002***, ***0.000005***, ***0.00001***, ***0.00002***, ***0.00005***, ***0.0001***, ***0.0002***, ***0.0005***, ***0.001***, ***0.002***, 0***.005***, ***0.01***, ***0.02***, ***0.05***, ***0.1***, ***0.2***, ***0.5***, ***1***, ***2***, ***5***, ***10***, ***20***, ***50***, ***100***, ***200*** and ***500***. The default value is ***1***. Press **ZERO** to accept the displayed choice.

   dViSion is displayed.

Division sizes for other units of measure are automatically calculated by the checkweigher.

6.3.4 Units

Scale ↓ Scale 1 ↓ Capacty → Dvision → Units

1. From ***dViSion*** press **UNITS** …

   unitS is displayed.

Unit

Units ↓ Unit

2. Press **SELECT** …

   unit is displayed. From this item you can choose which units of measure are available when the user presses the **UNITS** key during normal weighing. You can have up to four units for viewing. They are listed as: ***unit 1***, ***unit 2***, ***unit 3*** and ***unit 4***. You can assign any of the following units of measure to any of these: ***lb***, ***1000g***, ***oz***, ***gr***, ***lb-oz***, ***cuSt 1***, ***cuSt 2***, ***cuSt 3***, ***cuSt 4*** or ***oFF***.

   cuSt stands for custom unit. To use a custom unit you must first create them by entering a ratio and a string to define it. See the section below on creating a custom unit before continuing with the rest of the unit menu item. You can ignore all the 10x steps if you do not want to create a custom unit of measure.

Custom unit creation

Units ↓ Unit → Custom (refer to Figure 6.4)

3a. With ***unit*** displayed, press **UNITS** …

   cuStom is displayed.

3b. Press **SELECT** …

   cuSt 1 is displayed. Press the **UNITS** key to scroll through the other three custom units. The process to set up a custom unit is the same for all four but it will be explained just once below.

3c. With the custom unit you want to create displayed, press **SELECT** …

   rAtio is displayed. The ratio is the number you divide into the calibration unit of measure to create the custom unit. Example: Ratio would equal 2000 if you wanted to convert pounds to tons.

3d. Press **ZERO** …

   The data entry screen appears.

3e. Use the *Numeric entry procedure on page 20* and key in the value for the ratio of your custom unit and press **ZERO** …

   The value is saved and ***rAtio*** is displayed.

3f. Press **PRINT** or **UNITS** to scroll to the other menu item …

   String is displayed.

3g. Press **SELECT** …

A string entry screen is displayed. Refer to *String index/character data entry on page 29* for instructions on how to enter a string label for the custom unit of measure. This is only used when data is transmitted out one of the communication ports.

3h. When you are finished, press **ZERO** to accept the changes …

String is displayed.

4. Press **TARE** twice to return to ***cuStom***.

4a. Press **PRINT** or **UNITS** to scroll to the other menu item …

unit is displayed.

5. Press **SELECT** and continue with the following steps to choose up to four units of measure.

unit x displayed.

6. Press **SELECT** …

The current unit of measure is displayed.

7. Press **PRINT** or **UNITS** to scroll through the choices. Press **ZERO** to accept the displayed choice …

unit x is displayed again.

8. Press **PRINT** or **UNITS** to scroll to the other menu items and repeat the procedure up to four units of measure …

9. Repeatedly press **TARE** (or **F1**) until ***unitS*** is displayed.

6.3.5 Stable

Scale ↓ Scale 1 ↓ Capacty → Dvision → Units → Stable

1. From ***unitS*** press **UNITS** to scroll to the next menu item …

StAbLE is displayed. Use this parameter to set the stability window for the scale. Set a division window and a time window which will be used to determine when the stability icon will be displayed. If weight does not change more than the division window size within the time window, the icon will be visible indicating a stable condition. Set both ***diV*** and ***timE*** to ***0*** to disable stability.

*The **StAbLE** time value is used during normal operation as the length of time the checkweigher will continue to check for a 'motion stable' condition after the* **ZERO**, **TARE** *or* **PRINT** *button is pressed. If the intended operation cannot be completed before the timeout, **cAnt** is displayed and the key request is ignored.*

Divisions

Stable ↓ Div

2. Press **SELECT** …

   diV is displayed. This stands for the division size of the motion window.

3. Press **SELECT** …

   A value entry screen is displayed.

4. Use the *Numeric entry procedure on page 20* and key in a value for the motion window (3 divisions is default) and press **ZERO** to accept …

   diV is displayed.

Time

Stable ↓ Div → Time

5. Press **UNITS** to scroll to the next menu item …

   timE is displayed. This is the time window, in seconds, for stability.

6. Press **SELECT** …

   A value entry screen is displayed.

7. Use the *Numeric entry procedure on page 20* and key in a value for the time window (1 second is default) and press **ZERO** to accept …

   timE is displayed.

8. Press **TARE** …

   StAbLE is displayed.

6.3.6 AZT

Scale ↓ Scale 1 ↓ Capacty → Dvision → Units → Stable → AZT

From ***StAbLE*** press **UNITS** to scroll to the next menu item …

AZt is displayed. Automatic Zero Tracking has the same parameters (***diV*** and ***timE***) as **StAbLE** in step 1. Set them the same way you did for **StAbLE**. 3 divisions and 1 second are default values for these parameters. Set ***diV*** to ***0*** to disable AZT.

The ***diV*** value defines a ± range around zero. When scale weight is not at the center of zero but inside this range for the time value entered, ½ of the weight will be subtracted. This process is repeated until weight is inside the center of zero region.

In certain applications, such as when batching product that starts falling slowly onto the scale, it may require disabling AZT or changing the default values to reduce the effect.

6.3.7 Filter

Scale ↓ Scale 1 ↓ Capacty → Dvision → Units → Stable → AZT → Filter

1. From ***AZt*** press **UNITS** to scroll to the next menu item …

   FiLtEr is displayed. Use this to filter out vibrations affecting the scale. Under this item you have three parameters to set: ***AVg*** (average), ***conSt*** (constant) and ***t-hoLd*** (threshold).

   Instructions on setting these items start in step 2. To find the best settings for your filter needs, follow the steps 1a to 1g.

Default settings are:
AVG = 10
Const = 1
t-hold = 100 (factory default based on 5000 lb capacity)

These values will provide the best weight response for the majority of scale installations. In adverse conditions, where wind, vibration or other conditions are affecting the stability of the weight displayed, refer to the following instructions to improve the performance of the checkweigher.

If you are using Ztools to configure your scale it will attempt to calculate filtering based upon your capacity and division size used.

1a. Determine the amount of positive and negative force exerted by the vibration on the scale.

   To do this: Set ***t-hoLd*** to 0.0, ***conSt*** to 0, and ***AVg*** to 1.0. Return to weigh mode and, with a typical item on the scale, observe the weight swings. Record the difference between the highest and lowest displayed weight values. Add 30 to 50% to this value. This is a good starting value for the ***t-hoLd*** setting. Do not set your checkweigher to this value until told to in step 1g.

1b. Setting ***AVg*** to higher values increases the filtering effect.

   To do this: Set ***t-hoLd*** to 0.0, ***conSt*** to 0, and ***AVg*** to 10. Check the stability of the scale by exiting to normal weigh mode, remove all weight from the scale and/or press **ZERO** and observe the Center of Zero annunciator. If it is on all the time your scale is stable. If the Center of Zero light blinks, more filtering is required. Go to step 1c.

1c. Repeat step 1b but increase ***AVg*** by 10.

   Keep repeating steps 1b and 1c until the scale is stable or you've tried an Average value up to 80. If the scale is still not stable go to step 1d.

1d. Setting the ***conSt*** to higher values increases the filtering effect.

   To do this: Set ***t-hoLd*** to 0.0, ***conSt*** to 1, and ***AVg*** to 80. Check the stability of the scale by exiting to normal weight mode and observe the Center of Zero annunciator. If it is on all the time your scale is stable. If the Center of Zero light blinks, more filtering is required. Go to step 1e.

1e. Repeat step 1d but increase the ***conSt*** by 1. Keep repeating steps 1d and 1e until the scale is stable or you've tried the entire range of Constant (10). If the scale is still not stable, decrease your display update rate and start over at step 1a using the new, slower display rate.

1f. After the ***conSt*** value is established you may wish to lower the ***AVg*** value to improve display response time.

1g. After a final value for ***t-hoLd***, ***conSt*** and ***AVg*** has been set, enter the ***t-hoLd*** value established in step 1a. If this value is too small your scale will act as if the filtering is off or not working.

Increase the ***t-hoLd*** value until your scale stabilizes.

If the Threshold value is too high, your scale will react slowly to weight changes.

When filtering is properly adjusted the scale will be stable at zero and will rapidly display a stable test weight value.

Follow the steps below to set these three items.

Average

Filter ↓ Avg

2. With ***FiLtEr*** is displayed, press **SELECT** …

   AVG is displayed.

3. Press **SELECT** …

   The current value is displayed. 20 is the default value.

4. Press **ZERO** to accept this value or key in a new one and press **ZERO** …

   AVG is displayed.

Constant

Filter ↓ Avg → Const

5. Press **UNITS** …

   conSt is displayed.

6. Press **SELECT** …

   The current value is displayed. 0 is the default value.

7. Press **ZERO** to accept this value or key in a new one (1-10) and press **ZERO** …

   conSt is displayed.

Threshold

Filter ↓ Avg → Const → T-hold

If a weight added to the scale exceeds the threshold value, it temporarily disables the filtering and allows the display to quickly indicate the actual weight applied before the filtering is re-activated.

8. Press **UNITS** …

   t-hoLd is displayed.

9. Press **SELECT** …

   The current value is displayed. 0 is the default value. When ***0*** is the threshold value, filtering is always on.

10. Press **ZERO** to accept this value or key in a new one and press **ZERO** …

    t-hoLd is displayed.

11. Press **TARE** …

    FiLtEr is displayed.

12. Press UNITS to move to the next item …

    rAngES is displayed

6.3.8 Ranges

Scale ↓ Scale 1 ↓ Capacty → Dvision → Units → Stable → AZT → Filter → Ranges

Zero Range

Ranges ↓ 0-Rnge

1. From ***rAngES*** press **SELECT** …

   0-rngE is displayed. Use this to set the percentage of capacity which can be zeroed off the scale by pressing the **ZERO** key.

2. Press **SELECT** …

   A value entry screen is displayed.

3. Use the *Numeric entry procedure on page 20* and key in a percent of scale capacity and press **ZERO** to accept …

   0-rngE is displayed.

Over capacity

Ranges ↓ 0-Rnge → O-cap

4. Press **UNITS** to scroll to the next menu item …

   o-cAP is displayed. This stands for over capacity. Use this to configure the over/under capacity function of the scale.

5. With ***o-cAP*** displayed, press **SELECT** …

   bASis is displayed. Use this to choose what the over and under capacity function is based on.

6. Press ***SELECT*** …

   The current setting, ***PErcEnt*** or ***diV***, is displayed. Choose to base over/under capacity on a percent (***PErcEnt***) or to a number of divisions (***diV***).

7. Use **PRINT** and **UNITS** to toggle between the choices and press **ZERO** to accept the choice …

   bASis is displayed.

8. Press **UNITS** …

   o-LoAd is displayed. This stands for overload. Once you've picked the basis for an over capacity condition, use this item to set the value that triggers the overload condition.

9. Press ***SELECT*** …

   The current setting is displayed.

10. Use the *Numeric entry procedure on page 20* and key in the percent or division value and press **ZERO** to accept …

    o-LoAd is displayed.

11. Press **UNITS** …

    u-LoAd is displayed. This stands for underload. Use this item to set the value that triggers the underload condition.

12. Press ***SELECT*** …

    The current setting is displayed.

13. Key in the percent or division value and press **ZERO** to accept …

    u-LoAd is displayed.

14. Press **TARE** …

    o-cAP is displayed.

Gross zero band

Ranges ↓ 0-Rnge → O-cap → G-zero

15. Press **UNITS** to scroll to the next menu item …

    g-ZEro is displayed. Use this to configure the gross zero band. This is a parameter used to perform the tare clear function and set the Return to Zero range for Autoprint, Acccumulate, Checkweighing, Counting and Batch functions. You can enter a value between 0 and 10000 divisions.

16. With ***g-ZEro*** displayed, press **SELECT** …

    A value entry screen is displayed.

17. Use the *Numeric entry procedure on page 20* and key in a value between 0 and 10000 divisions and press **ZERO** to accept …

    g-ZEro is displayed. This completes the Scale menu.

18. Press **TARE** twice …

    ScALE is displayed.

This completes the Scale menu. Go to the next section for the next menu item, ***SYStEm***.

6.4 System

Use the System menu to configure system parameters such as loading defaults for the country of operation, setting available display modes and tare functions, selection of the scale application mode, and several other functions that will be described. Refer to Figure 6.5 as you setup the items of the System menu.

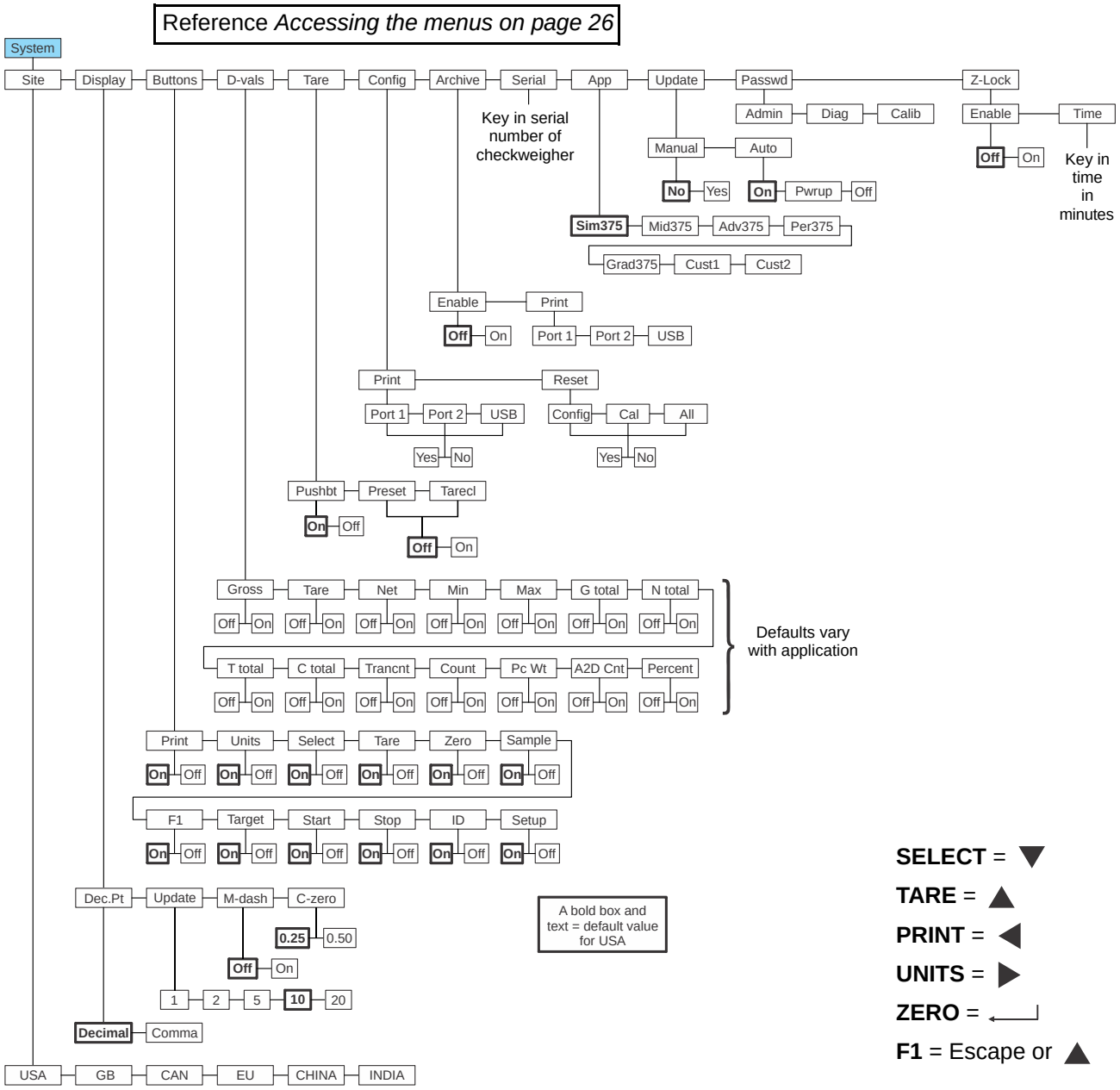


Figure 6.5 System menu

Items in bold boxes and text are default values for the USA. Other sites will have different defaults for the following:
Calibration Unit, Capacity, Division, Unit 1, Zero range, Over/Under basis, Decimal point separator, Time style, Date style

With ***ScALE*** displayed, press **UNITS** …

SYStEm is displayed. This is the next item in the Setup menu.

6.4.1 Site

System ↓ Site

1. Press **SELECT** …

   SitE is displayed. Choose your area of operation of the checkweigher. Choices are: ***uSA***, ***gb***, ***cAn***, ***Eu***, ***chinA*** and ***indiA***. This sets the defaults needed for your area when the checkweigher is reset.

CAUTION: Be sure you follow all local weights and measures regulations.

2. Press **SELECT** …

   The current site is displayed.

3. Press **PRINT** or **UNITS** to scroll to the other choices and press **ZERO** to accept the displayed choice.

   bUSY is briefly displayed, then ***SitE***.

6.4.2 Display

System ↓ Site → Display

1. From ***SitE***, press **UNITS** …

   diSPLAy is displayed.

Decimal Point

Display ↓ Dec.Pt

2. From ***diSPLAy***, press **SELECT** …

   dEc.Pt is displayed. This configures whether a decimal point or comma is used to separate whole and fractional numbers.

3. Press **SELECT** …

   The current choice is displayed, ***dEcimAL*** or ***comma***.

4. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice.

   dEc.Pt is displayed.

Update

Display ↓ Dec.Pt → Update

5. From ***dEc.Pt***, press **UNITS** …

   uPdAte is displayed. This configures the number of display refreshes per second. Choices are ***1***, ***2***, ***5***, ***10*** and ***20***.

Lowering the update rate can sometimes improve stability of the display in noisy environments, e.g. vibration or wind.

6. Press **SELECT** …

   The current choice is displayed.

7. Press **PRINT** or **UNITS** to scroll to the other choices and press **ZERO** to accept the displayed choice.

   uPdAte is displayed.

Motion Dashes

Display ↓ Dec.Pt → Update → M-dash

8. From ***uPdAte***, press **UNITS** …

   m-dASh is displayed. If enabled, the display will show dashes during motion.

9. Press **SELECT** …

   The current choice (***oFF*** or ***on***) is displayed.

10. Press **PRINT** or **UNITS** to scroll to the other choice and press **ZERO** to accept the displayed choice.

    m-dASh is displayed.

Center of Zero

Display ↓ Dec.Pt → Update → M-dash → C-zero

11. From ***m-dASh***, press **UNITS** …

    c-ZEro is displayed. Choose the center-of-zero window size to be ***0.25*** or ***0.50*** division. If the weight is within this window, the zero annunciator on the display will be lit.

12. Press **SELECT** …

    The current choice is displayed.

13. Press **PRINT** or **UNITS** to scroll to the other choice and press **ZERO** to accept the displayed choice.

    c-ZEro is displayed. This is the last item in the Display menu.

14. Press **TARE** …

    diSPLAy is displayed.

6.4.3 Buttons

System ↓ Site → Display → Buttons

1. From ***diSPLAy***, press **UNITS** …

   buttonS is displayed. Use this item to configure each button (key) ***on*** or ***oFF***. This allows you to limit the front panel function to suit your situation. Follow the same procedure for each key to turn it on or off. ***on*** is the default value for all the buttons.

2. Press **SELECT** …

   The key name is displayed.

3. Press **SELECT** …

   on or ***oFF*** is displayed.

4. Press **PRINT** or **UNITS** to scroll to the other choice and press **ZERO** to accept the displayed choice.

   The key name is displayed.

5. Press **UNITS** …

   The next key name is displayed.

6. Repeat steps 3 through 5 for all the keys you want to change. Refer to the list of buttons in the menu found in Figure 6.5 on page 70. When finished press **TARE** …

   buttonS is displayed.

6.4.4 Display values

System ↓ Site → Display → Buttons → D-Vals

1. From ***buttonS***, press **UNITS** …

   d-VALS is displayed. This stands for the displayable active values. In normal weighing mode, press **SELECT** to scroll through all enabled values. Follow the same procedure for each active value to turn it on or off. Defaults vary with the application that is active.

   Below is the complete list of display values:

Display Values			
1	Gross	8	Tare Total
2	Tare	9	Count Total
3	Net	10	Transaction Total
4	NA	11	NA
5	NA	12	NA
6	Gross Total	13	A2D Counts
7	Net Total	14	Percent (Net/Tare)

Below is a list of the applications and the default display values for each:

Sim375 *- Gross*

Mid375 *- Gross, Tare, Net, Transaction Total*

Adv375 *- Gross, Tare, Net, Transaction Total*

Per375 *- Gross, Tare, Net, Transaction Total, Percent*

Grad375 *- Gross, Tare, Net, Transaction Total*

2. Press **SELECT** …

   The display value is displayed.

3. Press **SELECT** …

   on or ***oFF*** is displayed.

4. Press **PRINT** or **UNITS** to scroll to the other choice and press **ZERO** to accept the displayed choice.

   The display value is displayed.

5. Press **UNITS** …

   The next display value is displayed.

6. Repeat steps 3 through 5 for all the display values you want to change. When finished press **TARE** …

   d-VALS is displayed.

6.4.5 Tare

System ↓ Site → Display → Buttons → D-Vals → Tare

*Pushbutton and keyboard entry tare can both be set to on simultaneously. The **TARE** key must be enabled in the **Button** menu.*

1. From ***d-VALS***, press **UNITS** …

   tArE is displayed. Use this item to set the type of tare entry and the tare autoclear functions.

Pushbutton tare

Tare ↓ Pushbt

2. Press **SELECT** …

   PuShbt is displayed. This stands for pushbutton tare. Enable this to use the **TARE** key to tare weight from the scale.

3. Press **SELECT** …

   on or ***oFF*** is displayed. ***on*** is the default value for pushbutton tare.

4. Press **PRINT** or **UNITS** to toggle to the other choice and press **ZERO** to accept the displayed choice.

   PuShbt is displayed.

Preset tare

Tare ↓ Pushbt → Preset

If preset tare is enabled, pushbutton tare and keyboard entry tare will be disabled automatically.

Preset Tares are entered in the Supervisor menu. See the User manual.

5. Press **UNITS** …

   PrESEt is displayed. This stands for preset tare. Preset tare values are entered in a password protected menu and can be recalled, if this parameter is enabled.

6. Press **SELECT** …

   on or ***oFF*** is displayed. ***oFF*** is the default value for preset tare.

7. Press **PRINT** or **UNITS** to toggle to the other choice and press **ZERO** to accept the displayed choice.

   PrESEt is displayed.

Auto tare clear

Tare ↓ Pushbt → Enter → Preset → Tarecl

8. Press **UNITS** …

   tArEcl is displayed. This stands for automatic tare clear. Enable this to automatically clear a tare after a weighment when the weight stabilizes inside the gross zero band.

9. Press **SELECT** …

   on or ***oFF*** is displayed. ***oFF*** is the default value.

10. Press **PRINT** or **UNITS** to toggle to the other choice and press **ZERO** to accept the displayed choice.

    tArEcl is displayed.

11. Press **TARE** …

    tArE is displayed.

6.4.6 Config

System ↓ Site → Display → Buttons → D-Vals → Tare → Config

1. From ***tArE***, press **UNITS** …

   conFig is displayed. Use this to print out the configuration data through one of the ports or reset the configuration, calibration or database to factory defaults. Follow these steps:

Print

Config ↓ Print

2. From ***conFig*** press **SELECT** …

   Print is displayed. Use this to print the checkweigher configuration information. You pick the port to use for printing in the following steps. See the extensive list in Chapter 9 - *Printed reports (page 129)*

3. Press **SELECT** …

   Port 1 is displayed. The other choices are ***Port 2*** and ***uSb*** (text file).

If USB is selected, a USB flash drive must be installed to create the text file of the checkweigher configuration.

4. Press **PRINT** or **UNITS** to scroll to the other choices and press **ZERO** to accept the displayed choice.

   no is displayed. Choose ***no*** to abort the print function or choose ***YES*** to print the configuration file.

5. Press **PRINT** or **UNITS** to toggle between the ***no*** and ***YES*** choices. Press **ZERO** when your choice is displayed.

   If you chose ***YES***, the configuration list is printed through the chosen port and then ***Print*** is displayed. If you chose ***no***, the print action is aborted and ***Print*** is displayed.

Reset

Config ↓ Print → Reset

6. With ***Print*** displayed press the **UNITS** key …

   rESEt is displayed. Under this item you can choose to reset the ***conFig*** (configuration) and ***cAL*** (calibration) memory or choose ***ALL*** to reset both of them at once.

7. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice.

   no is displayed. Choose ***no*** to abort the reset or choose ***YES*** to continue.

8. Press **PRINT** or **UNITS** to toggle between the ***no*** and ***YES*** choices. Press **ZERO** when your choice is displayed.

   If you chose ***YES***, the chosen selected memory item is reset to factory defaults and then ***rESEt*** is displayed. If you chose ***no***, the action is aborted and ***rESEt*** is displayed.

9. Press **TARE** …

   conFig is displayed.

6.4.7 Archive

System ↓ Site → Display → Buttons → D-Vals → Tare → Config → Archive

1. From ***conFig***, press **UNITS** …

   ArchiVE is displayed. This stands for electronic archive. In other regions it is known as an alibi memory or tally roll. These will be transmitted via configured communications ports. These reports can be used to confirm a weighment if it is ever in dispute. Only records that are qualified as a LEGAL record, per site motion criteria, are considered as entries to this log.

The indicator has memory capacity to store approximately 5,000 transactions.

The Archive report uses a rolling memory configuration (FIFO) so the oldest transaction will be written over first when all the memory slots are filled.

Enable

Archive ↓ Enable

2. Press **SELECT** …

   EnAbLE is displayed.

3. Press **SELECT** …

   oFF or ***on*** is displayed. Choose ***on*** to enable a PC query.

4. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice.

   EnAbLE is displayed. If enabled, a print item appears in the menu to the right of ***EnAbLE***. Continue to step for instructions to print the archive or skip to step 8 to move to the next menu item.

Print

Archive ↓ Enable → Print

5. Press **UNITS** …

   Print is displayed. You can choose to print the archive from Port 1, 2 or to USB. (USB device must be installed)

6. Press **SELECT** …

   Port 1 is displayed.

7. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice.

   Print is displayed.

8. Press **TARE** …

   ArchiVE is displayed.

6.4.8 Serial

System → Site → Display → Buttons → D-Vals → Tare → Config → Archive → Serial

1. From ***ArchiVE***, press **UNITS** …

   SEriAL is displayed. Use this to record the serial number of the checkweigher.

2. Press **SELECT** …

   A value entry screen is displayed.

3. Use the *Numeric entry procedure on page 20* and key in the first four digits of the 9 digit serial number of the checkweigher and press **ZERO**, then key in the last five digits of the serial number and press **ZERO** to accept it. The serial number is located on the label attached to the checkweigher.

   SEriAL is displayed.

6.4.9 Application

System → Site → Display → Buttons → D-Vals → Tare → Config → Archive → Serial → App

1. From ***SEriAL***, press **UNITS** …

   APP is displayed. Use this item to enable an application. Choose from this list:

   Sim375 - Simple checkweighing
   Mid375 - Mid-range checkweighing abilities
   Adv375 - Advanced checkweighing
   Per375 - Checkweighing based on percent, not weight
   Grad375 - Grading by weight
   cUSt 1 - Custom application provided by the AWTX specials group
   cUSt 2 - Custom application provided by the AWTX specials group

Refer to the User manual for configuration settings and operation instructions for the selected application.

2. Press **SELECT** …

   The current application is displayed.

3. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice.

   APP is displayed. When you exit the menu and save your changes, the checkweigher will boot up in the new application.

6.4.10 Update

System ↓ Site → Display → Buttons → D-Vals → Tare → Config → Archive → Serial → App → Update

1. From ***APP***, press **UNITS** …

   uPdAtE is displayed. This menu will allow you to set the conditions for the indicator to accept software updates from a remote site. If connected to the internet, the indicator can accept a software update file via FTP. The software update can be installed manually or automatically when the file is received or on the next powerup.

Manual

Update ↓ Manual

2. Press **SELECT** …

   MAnuAL is displayed. Choices under this are ***no*** and ***YES***. Choose ***YES*** to start the update process. Choose ***no*** to not do an update. ***no*** is the default.

Manual update selection only applies when AUTO update is disabled and only if a file has been FTP'd to the checkweigher and is waiting to update.

3. Press **SELECT** …

   The current choice is displayed.

4. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice.

   If you choose ***no***, no update occurs and ***MAnuAL*** is displayed. If you choose ***YES***, the checkweigher will update and reboot.

Auto

Update ↓ Manual → Auto

5. From ***MAnuAL***, press **UNITS** …

   Auto is displayed. Choices under this are ***on***, ***PwruP*** and ***oFF***. Choose ***on*** (the default setting) and the checkweigher will update anytime it receives an update via FTP. Choose ***PwruP*** to have the checkweigher auto-update on powerup if an update is available. Choose ***oFF*** to turn auto-update off.

6. Press **SELECT** …

   The current choice is displayed.

7. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice.

   Auto is displayed.

*If **Auto** = **oFF**, the only way to update the checkweigher is to use the **MAnuAL** update and select **YES**.*

8. Press TARE …

   uPdAtE is displayed.

6.4.11 Password

System ↓ Site → Display → Buttons → D-Vals → Tare → Config → Archive → Serial → App → Update → Passwd

If the ADMIN password is changed, be sure to keep a record of it available for service personnel or they may not be able to perform required maintenance when necessary.

1. From ***uPdAtE***, press **UNITS** …

   PASSWd is displayed. Use this to change the password for the Admin, Diag and Calib menus.

2. Press **SELECT** …

   AdMin is displayed.

3. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice.

   The current password for the chosen menu is displayed.

4. Use the *Numeric entry procedure on page 20* and key in a new password and press **ZERO** to accept it or press **F1** to escape without changing the password.

   The menu name is displayed.

5. Press **TARE** …

   PASSWd is displayed.

6.4.12 Z-Lock

System → Site → Display → Buttons → D-Vals → Tare → Config → Archive → Serial → App → Update → Passwd → Z-Lock

1. From ***PASSWd***, press **UNITS** …

   Z-LocK is displayed. This stands for zero lock.

   Use this to enable and configure the zero lock feature during an automated weighing process. When enabled, if the scale does not achieve a stable, gross zero condition some time within X minutes (the time you configure), then the indicator locks up and displays a message in three, one second displays: ***Z-LocK PrESS ZEro***. The operator must press **ZERO** to unlock the indicator.

2. From ***Z-LocK*** press **SELECT** …

   EnAbLE is displayed.

3. Press **SELECT** …

   The current setting is displayed: ***oFF*** or ***on***. ***oFF*** is the default.

4. Press **UNITS** to toggle between the choices and press **ZERO** when your choice is displayed.

   EnAbLE is displayed.

5. Press **UNITS** …

   timE is displayed. Use this to set the time value, in minutes, for this function. 60 minutes is the default

6. Press **SELECT** …

   The current value is displayed.

7. Press **ZERO** to accept the current value or key in a new value and press **ZERO** to accept …

   timE is displayed.

8. Press **TARE** twice …

   SYStEM is displayed.

This completes the System menu. Continue to the next section of the manual to continue with the next menu item, ***PortS***.

6.5 Ports

Use the Ports menu to configure the scale communication ports and protocols for connection to external devices. Detailed descriptions are provided in each section below. Refer to Figure 6.6.

Reference *Accessing the menus on page 26*

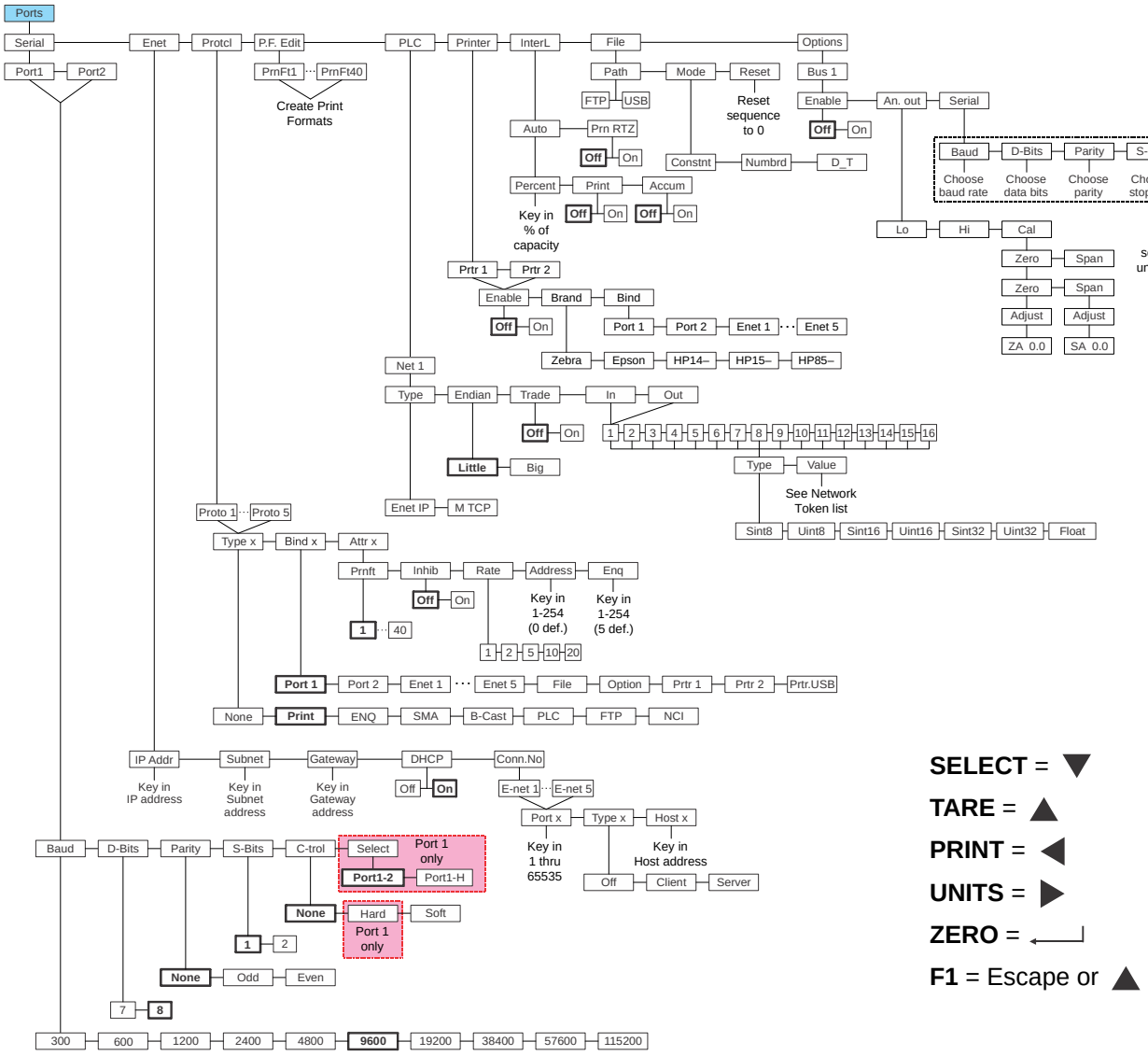


Figure 6.6 Ports menu

Items in bold boxes and text are default values for the USA. Other sites will have different defaults for the following:
Calibration Unit, Capacity, Division, Unit 1, Zero range, Over/Under basis, Decimal point separator, Time style, Date style

With ***SYStEM***, displayed, press **UNITS** …

PortS is displayed.

6.5.1 Serial

Ports ↓ Serial

1. With ***PortS*** displayed, press **SELECT** …

   SEriAL is displayed.

2. Press **SELECT** …

   Port 1 is displayed. Port 1 and Port 2 have the same parameters so they'll only be explained once below. To set up Port 2, press **UNITS** to scroll to ***Port 2***.

Baud

Serial ↓ Port ↓ Baud

3. With ***Port 1*** or ***Port 2*** displayed, press **SELECT** …

   bAud is displayed. Use this to set the baud rate for the port. Choices are ***300***, ***600***, ***1200***, ***2400***, ***4800***, ***9600***, ***19200***, ***38400***, ***57600*** and ***115200***. ***9600*** is the default value.

4. Press **SELECT** …

   The current baud setting is displayed.

5. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

   bAud is displayed.

Data Bits

Serial ↓ Port ↓ Baud → D-Bits

6. Press **UNITS** …

   d-bitS is displayed. Use this to set the data bits value for the port. Choices are ***7*** or ***8*** and ***8*** is the default.

7. Press **SELECT** …

   The current setting is displayed.

8. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed value …

   d-bitS is displayed.

Parity

Serial ↓ Port ↓ Baud → D-Bits→ Parity

9. Press **UNITS** …

   PArity is displayed. Use this to set the parity for the port. Choices are ***None***, ***Odd*** or ***Even***.

10. Press **SELECT** …

    The current setting is displayed.

11. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

    PArity is displayed.

Stop Bits

Serial ↓ Port ↓ Baud → D-Bits→ Parity→ S-Bits

12. Press **UNITS** …

    S-bitS is displayed. Use this to set the stop bits for the port. Choices are ***1*** or ***2***.

13. Press **SELECT** …

    The current setting is displayed.

14. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed value …

    S-bitS is displayed.

Flow control

Serial ↓ Port ↓ Baud → D-Bits→ Parity→ S-Bits→ C-trol

15. Press **UNITS** …

    c-trol is displayed. Use this to set the flow control for the port. Choices for Port 1 are ***nonE***, ***hArd*** or ***SoFt***. Choices for Port 2 are ***nonE*** or ***SoFt***. Default is ***nonE*** for both ports.

    hArdStands for hardware flow control. If wired, a device can stop the checkweigher and restart it for transmitting. Example is the CTS signal on a PC serial port or print busy output on a Line or Lister printer.

    SoFtStands for software handshaking. This allows a device to start and stop the checkweigher transmit by sending Xon or Xoff characters.

    Port 1 has both ***hArd*** and ***SoFt***. Port 2 does not have hardware handshaking.

Hardware flow control on Port 1 is only available if Port1-H is selected and Jumper P5 is in position 1.

See the photo in section Wiring, jumpers and switches on page 173.

16. Press **SELECT** …

    The current setting is displayed.

17. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

    c-trol is displayed.

Port select

Serial ↓ Port ↓ Baud → D-Bits→ Parity→ S-Bits→ C-trol→ Select

18. Press **UNITS** …

    SELEct is displayed. Use this to select Port 1 and Port 2 (***Port1-2***) or just Port 1 with full hardware flow control capability (***Port1-h***).

19. Press **SELECT** …

    The current setting is displayed.

20. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed value …

    SELEct is displayed.

21. This completes the selections for Port 1 and 2. Repeatedly press **TARE** until …

    SEriAL is displayed.

6.5.2 Ethernet

Ports ↓ Serial → E-nEt

1. From ***SEriAL*** display, press **UNITS** …

   E-nEt is displayed. Use these menu items to setup the ethernet port.

IP Address

E-nEt ↓ IP Addr

The IP address is the unique address for a device which is part of an Ethernet network. IPv4 is supported by this checkweigher. The address is a numeric entry in four parts or octets (###. ###. ###. ###).

*If DHCP setting is **on** (default) the indicated IP address will not apply and will not be available to a static configured network. A DHCP server will issue the network addresses.*

2. From ***E-nEt*** display, press **SELECT** …

   iP Addr is displayed. Use this to key in the static IP address of the checkweigher.

3. Press **SELECT** …

   The first octet value entry screen is displayed.

4. Use the *Numeric entry procedure on page 20* and key in the first octet of the IP address and press **ZERO** …

   The second octet value entry screen is displayed.

5. Key in the second octet of the IP address and press **ZERO** …

   The third octet value entry screen is displayed.

Typically devices within a network share the same address for the first three octets (network address) and each device will have a unique setting or value for the fourth octet (device address).

6. Key in the third octet of the IP address and press **ZERO** …

   The fourth octet value entry screen is displayed.

7. Key in the fourth octet of the IP address and press **ZERO** …

   iP Addr is displayed.

Subnet address

E-nEt ↓ IP Addr → Subnet

The Subnet Mask address is used to divide a network into smaller subnets. The address is a numeric entry in four parts or octets (###. ###. ###. ###).

Typically the subnet mask address is set to 255,255,255,0 which means the first three octets in the device network are the same and only the fourth octet of the IP address is unique for each device.

8. From ***iP Addr*** display, press **UNITS** …

   SubnEt is displayed. Use this to key in the static subnet mask address of the checkweigher.

9. Press **SELECT** …

   The first octet value entry screen is displayed.

10. Use the *Numeric entry procedure on page 20* and key in the first octet of the subnet address and press **ZERO** …

    The second octet value entry screen is displayed.

11. Key in the second octet of the subnet address and press **ZERO** …

    The third octet value entry screen is displayed.

12. Key in the third octet of the subnet address and press **ZERO** …

    The fourth octet value entry screen is displayed.

13. Key in the fourth octet of the subnet address and press **ZERO** …

    SubnEt is displayed.

Gateway address

E-nEt ↓ IP Addr → Subnet → Gateway

The Gateway address allows one network a gateway to another network. The address is a numeric entry in four parts or octets (###. ###. ###. ###).

In most simple networks a gateway address is not used and is set to 0,0,0,0. If the checkweigher is part of a network that uses an access point to another network, then a gateway address may be required. (Consult the site IT specialist)

14. From ***SubnEt*** display, press **UNITS** …

    gAtEWAy is displayed. Use this to key in the static gateway address of the checkweigher.

15. Press **SELECT** …

    The first octet value entry screen is displayed.

16. Use the *Numeric entry procedure on page 20* and key in the first octet of the gateway address and press **ZERO** …

    The second octet value entry screen is displayed.

17. Key in the second octet of the gateway address and press **ZERO** …

    The third octet value entry screen is displayed.

18. Key in the third octet of the gateway address and press **ZERO** …

    The fourth octet value entry screen is displayed.

19. Key in the fourth octet of the gateway address and press **ZERO** …

    gAtEWAy is displayed

DHCP

E-nEt ↓ IP Addr → Subnet → Gateway → DHCP

*If DHCP is enabled **on**, the above settings for the IP, Subnet and Gateway are set by the network server. In applications where the checkweigher ethernet port is connected directly to a PC, laptop, printer or other non-DHCP device, you must set DHCP to **OFF**.*

20. From ***gAtEWAy*** display, press **UNITS** …

    dhcP is displayed. Use this to enable or disable DHCP capability. This allows a DHCP server to automatically set the checkweigher IP, subnet and gateway addresses. Choices are ***on*** (enabled) or ***oFF*** (disabled). Default is ***on***.

21. Press **SELECT** …

    The current setting is displayed.

22. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed value …

    dhcP is displayed.

Connection number

E-nEt ↓ IP Addr → Subnet → Gateway → DHCP → Conn.No

23. From ***dhcP*** display, press **UNITS** …

    con.no is displayed. This stands for connection number. This lets you set the ***Port***, ***tyPE*** and ***hoSt*** for each of 5 (***E-nEt 1*** through ***E-nEt 5***) Ethernet ports. This allows multiple (up to five) devices to access or control information to/from the checkweigher. (Referred to as ***E-nEt 1*** through ***E-nEt 5*** in Protocol menu)

24. Press **SELECT** …

    E-nEt 1 is displayed. This is the first connection number. The process for setting the port, type and host is the same for each connection so the process will be explained just once below.

25. Press **SELECT** …

    Port x is displayed. You can key any port number from 1 to 65535.

Some port numbers are reserved. Contact your IT department for the correct port number to use.

26. Press **SELECT** …

    A value entry screen is displayed.

27. Use the *Numeric entry procedure on page 20* and key in a port number and press **ZERO** …

    Port x is displayed.

28. Press **UNITS** …

    tyPE x is displayed. Use this to set the type of connection; ***oFF***, ***cLiEnt*** or ***SErVEr***.

*If the Ethernet port connection is to a PLC, the **tyPE** setting must be set to **oFF**.*

*If **tyPE** is set to **oFF**, it disables the selected port from communication to a server or client on the network.*

*The **cLiEnt** selection is typically used when the checkweigher(s) is connected to a print server or a shared printer on the network.*

*Host IP Address is only used if the **tyPE** setting is **cLiEnt** for this port connection.*

29. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

    tyPE x is displayed.

30. Press **UNITS** …

    hoSt x is displayed. Use this to enter the host IP address

31. Press **SELECT** …

    The first value entry screen is displayed.

32. Use the *Numeric entry procedure on page 20* and key in the first octet of the host IP address and press **ZERO** …

    The second value entry screen is displayed.

33. Key in the second octet of the host IP address and press **ZERO** …

    The third value entry screen is displayed.

34. Key in the third octet of the host IP address and press **ZERO** …

    The fourth value entry screen is displayed.

35. Key in the fourth octet of the host IP address and press **ZERO** …

    hoSt x is displayed.

36. Press **TARE** to return to ***E-nEt x***. If another connection is required, press the **UNITS** key to scroll to the next ***E-nEt x*** and repeat the above steps.

37. Repeatedly press **TARE** until …

    E-nEt is displayed. This completes the ethernet portion of the Ports menu.

6.5.3 Protocol

Ports ↓ Serial → E-nEt → ProtcL

1. With ***E-nEt*** display, press **UNITS** …

   ProtcL is displayed. Use this to configure up to 5 communication protocols. These protocols define the information sent to and from specific types of communication equipment.

   Each protocol you will set the type, the binding and the attributes.

   Type x - In this item you choose the method to send and receive data for Protocol x, where x = 1 to 5: Print, Enquire, SMA, Broadcast, PLC, FTP, NCI and none.

   Bind x - In this item you choose the physical connection, or hardware, for the communication for Protocol x: Port 1, Port 2, Ethernet 1 through Ethernet 5, File, Option module, Printer 1, Printer 2, or Printer-USB. Some Bindings will not apply for certain Type selections.

   Attr x- In this item you choose the print format and other properties that are required for the Type and Binding selected for Protocol x. Some attributes will not apply for certain Types or Binding combinations.

Which Attributes and Bindings apply to the selected Type will be described in the detailed descriptions below.

2. Press **SELECT** …

   Prot 1 is displayed. There are 5 protocols available by scrolling through the list with the **UNITS** key. Each has the same choices so the process will be explained just once below.

Type x

Protcl ↓ Prot x → Type x

3. From ***Prot x***, press **SELECT** …

   tyPE x is displayed. This is to set the method of communication for ***Prot x***. The choices are:

   nonE Choose this to disable the selected protocol.

   Print Choose this when you want to press the **PRINT** key or when using Autoprint to send the data through the selected binding (Port) using the associated attributes.

   Enq, Choose this to send data when the checkweigher receives the configured enquire code from an external device. The information will be sent through the selected binding using the associated attributes. See *ENQ & B-Cast commands on page 113*.

   SMA Choose this to send and receive data when using the SMA (Scale Manufacturers Association) protocol. See *SMA Protocol Level 1 on page 109*. The information will be sent through the bound port using attributes that are pre-defined by the SMA protocol.

   b-cASt Choose this to send data continuously through the selected binding using the associated attributes. Typical use is for remote scoreboards, displays and the Analog output option if installed. See *ENQ & B-Cast commands on page 113*.

   PLC Choose this to send and receive data to/from a PLC network. A binding of Enet x (1 thru 5) is required. The attributes are established using the PLC menu described later in this manual.

   FtP Choose this to send data via FTP. A binding of Enet x (1 thru 5) is required. The Rate attribute determines the time (in minutes) between attempted FTP updates. A second Protocol is required to complete the FTP setup. This additional protocol requires a Type x = PRINT, Bind x = File and Attributes x will need a Print Format. Also, set File Path = FTP and define the File Mode (File naming convention) in the File menu described later in this manual.

   nci Choose this to use the NCI communication protocol. See *NCI commands on page 113*.

4. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

   tyPE x is displayed.

Bind x

Protcl ↓ Prot x → Type x → Bind x

5. Press **UNITS** …

   bind x is displayed. This is the hardware the protocol is bound to. The ***x*** is a reminder of which protocol you are in. The choices are ***Port 1***, ***Port 2***, ***E-nEt 1 - E-nEt 5***, ***FiLe***, ***oPtion***, ***Prtr 1***, ***Prtr 2*** and ***Prtr.uSb***.

6. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

   bind x is displayed.

Attribute x

Protcl ↓ Prot x → Type x → Bind x → Attr x

7. Press **UNITS** …

   Attr x is displayed. Use this to set the properties for protocol x. The ***x*** is a reminder of which protocol you are in. The choices are ***PrnFt***, ***inhib***, ***rate***, ***AddrESS***, and ***Enq***.

   PrnFt, Choose a print format from the documented list. Key in the format number. Print format ***1*** is the default.

   inhib This is motion inhibit. Choose ***on*** to enable or ***oFF*** to disable. If enabled, data transmission or file creation will be inhibited until there is no motion on the scale or until the process times out. ***oFF*** is the default.

   rAtE This is the transmit rate associated with broadcast type. Choices are ***1***, ***2***, ***5***, ***10*** or ***20*** Hz. ***5*** Hz is the default.

   AddrESS Key in the node address if using an RS-485 option in a multidrop network. Choices are ***1*** to ***254***.

   Enq Key in the enquire character used to request a print function to occur from the communications port. Choices are ***1*** to ***254***. ***5*** is the default value (ASCII ENQ character).

8. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

   Attr x is displayed.

9. Press **TARE** …

   Prot x is displayed.

10. Repeat this process (steps 2 - 9) for each protocol you want to configure. When finished press **TARE** repeatedly until …

    Protcl is displayed. This completes the settings in the Protocol menu.

6.5.4 P.F.Edit

Ports ↓ Serial → E-net → Protcl → P.F.Edit

From ***Protcl***, press **UNITS** …

P.F.Edit is displayed. This stands for print format editor. Please refer to the section *Print formatting on page 131* for the procedures to edit or create print formats.

6.5.5 PLC

Ports ↓ Serial → E-net → Protcl → P.F.Edit → PLC

*If connecting to a PLC, the E-NET configuration menu does not require any special configuration and the Client/Server selection for **tYPE** setting must be set to **oFF.***

1. With ***P.F.Edit*** displayed, press **UNITS** …

   PLc is displayed. Use this to setup a programmable logic controller connected to the checkweigher.

Net 1

PLC ↓ Net 1

2. Press **SELECT** …

   nEt 1 is displayed. There is only 1 network so continue to the next step.

Type

PLC ↓ Net 1 → Type

3. Press **SELECT** …

   tYPE is displayed. In this item you can choose; ***EnEt iP*** or ***M tcP***. Choose ***EnEt iP*** to enable Ethernet IP. Choose ***M tcP*** to enable Modbus-TCP.

4. Press **SELECT** to see the first choice, then press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

   tYPE is displayed.

Endian

PLC ↓ Net 1 → Type → Endian

5. Press **UNITS** …

   EndiAn is displayed. Choices for this item are ***big*** or ***LittLE***. Default is ***LittLE***.

ENDIAN:
Big = Most Significant Byte, Least Significant Byte
Little = Least Significant Byte, Most Significant Byte

6. Press **SELECT** to see the first choice, then press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

   EndiAn is displayed.

Trade

PLC ↓ Net 1 → Type → Endian → Trade

7. Press **UNITS** …

   trAdE is displayed. This stands for word swap or trade configuration. Choices for this item are ***on*** or ***oFF***. Default is ***oFF***.

TRADE: On = WORD2,WORD1
Off = WORD1,WORD2

8. Press **SELECT** to see the first choice, then press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed value …

   trAdE is displayed.

The PLC configuration determines the appropriate checkweigher settings for Endian and Trade.

In

PLC ↓ Net 1 → Type → Endian → Trade → In

9. Press **UNITS** …

   in is displayed. This stands for inbound data configuration. You will first select one of the 16 memory registers available for inbound data. Then you will select the data type and then the network token you want assigned to that memory register.

10. Press **SELECT** …

    in 1 is displayed. This is the first of 16 inbound data configuration memory registers.

11. Press **PRINT** or **UNITS** to scroll through the choices and press **SELECT** …

    tyPE is displayed. Below is a table showing the choices for the Type, a description and a range of values for that data type.

Type	Description	Range of Value
SINT8 - 1 byte	Signed Character	-127 to 127
UINT8 - 1 byte	Unsigned Character	0 to 255
SINT16 - 2 bytes	Signed Integer	-32767 to 32767
UINT16 - 2 bytes	Unsigned Integer	0 to 65535
SINT32 - 4 bytes	Signed Long	-2,147,483,647 to 2,147,483,647
UINT32 - 4 bytes	Unsigned Long	0 to 4,294,967,295
Float - 4 bytes	Floating Point	1.0×10^{-37} to 1.0×10^{37}
Double - 8 bytes	Double precision floating point	1.0×10^{-1023} to 1.0×10^{1023}

12. Press **SELECT** …

    Sint is displayed. This is the first choice in the list shown in the left column of the table above.

13. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice …

    tyPE is displayed.

The Type and order of the Values selected must coincide with the configuration of the PLC register setup. Consult with the site IT specialist.

14. Press **UNITS** …

    VALuE is displayed. This stands for the network token value to be assigned to the inbound data memory register. See the list of possible choices in *SMA Level 2 on page 112* then continue with step 15.

15. Press **SELECT** …

    The value entry screen is displayed.

16. Use the *Numeric entry procedure on page 20* and key in the value for the network token you want from the table above and press **ZERO** to accept the displayed choice …

    VALuE is displayed.

17. Press **TARE** …

    in 1 is displayed.

18. Repeat the process from step 11 to 17 for any other inbound memory registers you want to configure. Press **TARE** to return to the ***in*** menu item …

    in is displayed.

Out

PLC ↓ Net 1 → Type → Endian → Trade → In → Out

19. Press **UNITS** …

    out is displayed. This stands for outbound data configuration. This menu item is exactly like the ***in*** menu item except it is for outbound data. Follow the same process to set up the 16 memory registers.

20. Press **TARE** repeatedly until ***PLc*** is displayed.

6.5.6 Printer

Ports ↓ Serial → E-nEt → ProtcL → P.F.Edit → PLC → Printer

*The **PrintEr** menu is used when the checkweigher is interfaced with one of the printers listed in the **brAnd** submenu. This is necessary to ensure all the appropriate control codes are added to the selected print format.*

If either PRTR1 or PRTR2 selections are enabled, then the port that is Binded may occasionally send out a set of random characters to test for a connected printer. Be sure to disable these settings if the indicator is not connected to one of the printer brands listed.

1. With ***PLc*** displayed, press **UNITS** to continue to the next menu parameter …

   PrintEr is displayed.

2. Press **SELECT** …

   Prtr 1 is displayed. You can choose to set up this printer or ***Prtr 2***. The setup procedure is the same. Follow these steps for both:

Enable

Printer ↓ Prtr 1 ↓ Enable

3. Press **SELECT** …

   EnAbLE is displayed. Choice under this item are ***oFF*** (default) or ***on***.

4. Press **SELECT** …

   The current setting is displayed.

5. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

   EnAbLE is displayed.

Brand

Printer ↓ Prtr 1 ↓ Enable → Brand

6. Press **UNITS** …

   brAnd is displayed. Choices under this item are the five printer models supported by this checkweigher: ***ZEbrA***, ***EPSnPoS***, ***hP 14--***, ***hp15--*** and ***hp85--***.

7. Press **SELECT** …

   The current model is displayed.

8. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice …

   brAnd is displayed.

Bind

Printer ↓ Prtr 1 ↓ Enable → Brand → Bind

9. Press **UNITS** …

   bind is displayed. Choices under this item are: ***Port 1***, ***Port 2*** and ***EnEt 1*** through ***EnEt 5***. Choose which port the printer output is attached to.

10. Press **PRINT** or **UNITS** to scroll through the choices and press **ZERO** to accept the displayed choice …

    bind is displayed.

11. Press **TARE** twice …

    PrintEr is displayed. This completes the settings in the ***PrintEr*** menu.

6.5.7 Interlock

Ports ↓ Serial → E-nEt → ProtcL → P.F.Edit → PLC → Printer → Interl

1. With ***PrintEr*** displayed, press **UNITS** to continue to the next menu parameter …

   intErL is displayed. This stands for Interlock. Under this item you can setup autoprint and print-return-to-zero parameters which are interlocked with weight values.

Autoprint

Interl ↓ Auto

2. Press **SELECT** …

   Auto is displayed. This is the autoprint parameter. Under this parameter you can key in a scale capacity percentage (0.0-100.0), above which the checkweigher will perform a print function. You can also enable or disable this function.

3. Press **SELECT** …

   PErcEnt is displayed.

4. Press **SELECT** …

   The numeric entry screen is displayed.

5. Use the *Numeric entry procedure on page 20* and key in the percent of scale capacity above which the checkweigher will do an autoprint function. Press **ZERO** to accept …

   PErcEnt is displayed.

The displayed weight must drop below the Autoprint percentage to re-arm the Autoprint operation

Type = Print must be selected in the Protocol menu for Autoprint to function.

6. Press **UNITS** to continue to the next menu parameter …

   Print is displayed. Use this to enable or disable autoprinting. Choices are ***on*** or ***oFF***. If enabled and a percentage is set in the other parameter, autoprinting will occur. If disabled, autoprinting will not occur even if a percentage is entered.

7. Press **SELECT** …

   The current setting is displayed.

8. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

   Print is displayed.

9. Press **UNITS** to continue to the next menu parameter …

   AccUm is displayed. Use this to enable or disable auto-accumulation. Choices are ***on*** or ***oFF***. If enabled and a percentage is set in the other parameter, auto-accumulation will occur. If disabled, auto-accumulation will not occur even if a percentage is entered.

10. Press **SELECT** …

    The current setting is displayed.

11. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

    AccUm is displayed.

12. Press **TARE** …

    Auto is displayed.

Print - Return to Zero

Interl ↓ Auto → Prn Rtz

13. Press **UNITS** to continue to the next menu parameter …

    Prn rtZ is displayed. Choices for this item or ***oFF*** or ***on***. This stands for Print - Return to Zero. If set to ***on***, the weight on the scale must fall into the gross zero band before the next weighment can be printed. ***oFF*** is the default value.

14. Press **SELECT** …

    The current setting is displayed.

15. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

    Prn rtZ is displayed.

16. Press **TARE** …

    intErL is displayed.

6.5.8 File

Ports ↓ Serial → E-nEt → ProtcL → P.F.Edit → PLC → Printer → Interl → File

1. Press **UNITS** to continue to the next menu parameter …

   FiLE is displayed. Use this item to configure how and where files are saved.

Path

File ↓ Path

2. Press **SELECT** …

   PAth is displayed. Use this item to choose where the file is saved, internally for transfer by ***FtP*** using an Ethernet port or to a connected ***USb*** flash drive.

3. Press **SELECT** …

   The current setting is displayed.

4. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

   PAth is displayed.

When the FILE > PATH is set for USB, a USB flash drive can be installed into the USB Host port and transactions will be transferred to the flash drive as they occur. If the flash drive is not installed, transactions will be saved onto the Flash memory in the indicator.

*The size of the print format will determine the number that can be stored but with a typical print format the indicator should be capable of storing several thousand transactions. The saved transactions will transfer immediately when the USB flash drive is re-installed. The message **CoPYing** will display as each stored file is transferred to the flash drive. If using the d_t file mode this could take a few seconds to transfer each file. Do not remove the flash drive until the message **donE** is finally displayed. Stored transactions will then be cleared after the transfer.*

Mode

File ↓ Path → Mode

5. Press **UNITS** to continue to the next menu parameter …

   ModE is displayed. Use this item to configure the file convention;

   conStAnt This will create a single file that will be appended to as new information is saved.

   nuMbrd This will create new file appended with a sequential number for each transaction.

   d_t This will create a new file and the file name will be appended with the date and time (including seconds) for each transaction.

Filename Examples:
<MODEL>_<SERIAL>XXXXXX.txt
where <MODEL> is the model number, <Serial> is the serial number, XXXXXX is either nothing, the sequential number, or the time and date.

Sequential number increments from 000001 – 999999 …. when RESET starts at 000001

Date = YYYY_MM_DD__HH_MM_SS
with double underscore between DD and HH

***Examples**:*
Constant: ZQ375_120450001.txt
Numbered: ZQ375_120450001_000001.txt
D_T: ZQ375_120450001_2012_01_31__10_31_23.txt

If transactions are being store on the indicator Flash memory, only a single Constant or Numbered file will be created. If using the Date & Time file naming convention then individual files will be created.

6. Press **SELECT** …

   The current setting is displayed.

7. Press **PRINT** or **UNITS** to scroll through the three choices and press **ZERO** to accept the displayed choice …

   ModE is displayed.

Reset

File ↓ Path → Mode → Reset

8. Press **UNITS** to continue to the next menu parameter …

   rESEt is displayed. Reset will clear all stored transactions and also reset the numbered file sequence to 000001.

9. Press **SELECT** …

   Any stored transaction will be cleared and the numbered sequence is restarted at 000001. ***rESEt*** is displayed.

10. Press **TARE** …

    FiLE is displayed.

6.5.9 Options

Ports ↓ Serial → E-nEt → ProtcL → P.F.Edit → PLC → Printer → Interl → File > Options

1. With ***FiLE*** displayed, press **UNITS** to continue to the next menu parameter …

   oPtionS is displayed. Use this parameter to enable any of the available option modules, to configure the Analog output module or setup the serial port settings for the Current Loop/RS485/RS422 communication module.

Bus 1

Options ↓ Bus 1

2. Press **SELECT** …

   buS 1 is displayed. There is only 1 bus available on this checkweigher so continue to the next step.

Enable

Options ↓ Bus 1 ↓ Enable

3. Press **SELECT** …

   EnAbLE is displayed. Use this to enable the installed option module. The modules available for the checkweigher are:

   - 802.11 wireless module (see note below)
   - Current Loop/RS485 module

- USB-D(evice) module

Choices are ***oFF*** (default) or ***on***. ***oFF*** will disable the installed module and ***on*** will enable it.

4. Press **SELECT** …

   The current setting is displayed.

5. Press **PRINT** or **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

   EnAbLE is displayed.

The USB-D option does not require any further setup to enable.

The 802.11 wireless communications option can only be configured through the use of the Ztools computer software package. This is due to the complexity of the security and SSID settings required.

An.out

Options ↓ Bus 1 ↓ Enable → An.out

The Analog Ouput option card is not available in the ZQ375.

The Protocol and Print Format menus are used to configure the analog output. Typical settings would be:
Prot X
Type X = B-cast
Bind X = Option
Attr X Prnft = 32 for displayed value output, Rate = 20 for maximum update speed of the analog output signal

Refer to Wiring, jumpers and switches (continued) on page 174 for jumper configuration settings on the analog option.

6. Press **UNITS** to continue to the next menu parameter …

   An.out is displayed. This stands for the Analog output option card. This card allows you to output voltage or current to an external device that increases in direct proportion to the value on the indicator display. Use this menu item to configure the analog output option.

7. Press **SELECT** …

   Lo is displayed. Use this to set the display value which is equal to the lowest analog output.

8. Press **SELECT** …

   Current value is displayed.

9. Key in a value (negative values can be entered) and press **ZERO** …

   Lo is displayed.

10. Press **UNITS** …

    hi is displayed. This is the display value at which the analog output will be at maximum. The value entered can be between 0 and the maximum number of the displayed value.

CAUTION: The output will run to the minimum value when a fault occurs and when you enter the Setup menus, so plan accordingly!

11. Press **SELECT** …

    Current value is displayed.

12. Key in a value and press **ZERO** …

    hi is displayed.

13. Press **UNITS** …

    cAL is displayed. Use this to calibrate the analog output.

Always perform the ZERO adjustment prior to the SPAN adjustment procedure.

14. Press **SELECT** …

    ZEro is displayed. Use this to set the analog output zero point.

15. Press **ZERO** …

    AdJuSt is displayed and then ***ZA x.x***. The value shown is the offset adjustment for Zero. The allowable adjustment setting is from -50.0 to 50.0 and provides sufficient range for any necessary Zero offset compensation.

When setting the ZERO adjustment it is recommended that you approach from the positive side of zero.

Example: *On a 4 - 20ma adjustment, make the necessary adjustments until you are just slightly above 4.00ma and then only press the* ***SELECT*** *key until the external device finally reads 4.00ma and then do not press* ***SELECT*** *again as this may cause non-linear readings at intermediate weight values.*

16. To adjust the zero output up or down by small increments, press **TARE** or **SELECT**, respectively. To adjust the zero output up or down by large increments, press **PRINT** or **UNITS**, respectively. When you are done, press **ZERO**.

    ZEro is displayed.

17. Press **UNITS** …

    SPAn is displayed. Use this to set the analog output span point.

18. Press **SELECT** …

19. ***AdJuSt*** is displayed and then ***SA xx.x***. The value shown is the offset adjustment for Span. The allowable adjustment setting is from 50.0 to 150.0 and provides sufficient range for any necessary Span offset compensation.

When setting the SPAN adjustment it is recommended that you approach from the low side of the span value.

Example: *On a 4 - 20ma adjustment, make the necessary adjustments until you are just slightly below 20.00ma and then only press the* ***TARE*** *key until the external device finally reads 20.00ma and then do not press* ***TARE*** *again as this may cause non-linear readings at intermediate weight values.*

20. Repeat the procedure in step 16 to adjust the span.

21. Press **TARE** …

    An.out is briefly displayed as the span point is set then ***ZEro*** is displayed.

22. Press **UNITS** …

    SPAn is displayed. Use this to set the analog output span point.

23. Repeatedly press **TARE** until …

    An.out is displayed.

Serial

Options ↓ Bus 1 ↓ Enable → An.out → Serial

24. From ***An.out***, press **UNITS** to advance to the next menu item …

    SEriAL is displayed. Use this item to configure communication protocol for those options modules that require it.

25. Press **SELECT** …

    bAud is displayed. Use this to set the baud rate.

26. Press **SELECT** …

    The current baud rate is displayed.

27. Press **UNITS** or **PRINT** to scroll through the choices. Press **SELECT** when your choice is displayed …

    bAud is displayed.

28. Press **UNITS** …

    d-bits is displayed. Use this to set the data bits.

29. Press **SELECT** …

    The current data bit value is displayed.

30. Press **UNITS** to toggle between the choices: ***7*** or ***8***. Press **SELECT** when your choice is displayed …

    d-bits is displayed.

31. Press **UNITS** …

    PAritY is displayed. Use this to set the parity.

32. Press **SELECT** …

    The current data bit value is displayed.

33. Press **UNITS** or **PRINT** to scroll through the choices: ***nonE***, ***odd*** or ***EVEn***. Press **SELECT** when your choice is displayed …

    PAritY is displayed.

34. Press **UNITS** …

    S-bitS is displayed. Use this to set the stop bits.

35. Press **SELECT** …

    The current stop bit value is displayed.

36. Press **UNITS** to toggle between the choices: ***1*** or ***2***. Press **SELECT** when your choice is displayed …

    S-bitS is displayed.

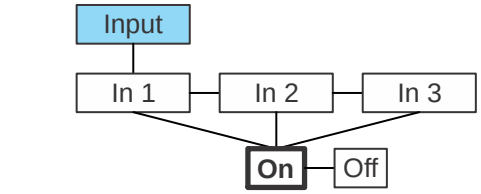
37. Press **TARE** repeatedly until …

    PortS is displayed.

This completes the Ports menu. Continue to the next section for the next item in the Setup menu.

6.6 Inputs

There are three inputs in the checkweigher. Use this menu to enable or disable each input. Figure 6.7 shows the Inputs menu.



Reference *Accessing the menus on page 26*

SELECT = ▼
TARE = ▲
PRINT = ◀
UNITS = ▶
ZERO = ↵
F1 = Escape or ▲

Figure 6.7 Inputs menu

1. With ***PortS*** displayed, press **UNITS** …

   inPut is displayed.

2. Press **SELECT** …

   in 1 is displayed.

3. Press **SELECT** …

   The current setting is displayed: ***oFF*** or ***on*** (default).

4. Press **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

   in 1 is displayed.

5. Press **UNITS** …

   in 2 is displayed.

6. Repeat the process for enabling or disabling input 2 and input 3.

7. When finished press **TARE** until …

   inPut is displayed.

8. Press **UNITS** …

   outPut is displayed.

The function of an input that is ON is defined in the Supervisor menu. Refer to the User manual for instructions.

6.7 Outputs

There are three outputs in the checkweigher. Use this menu to enable or disable each output. Figure 6.8 shows the Outputs menu.

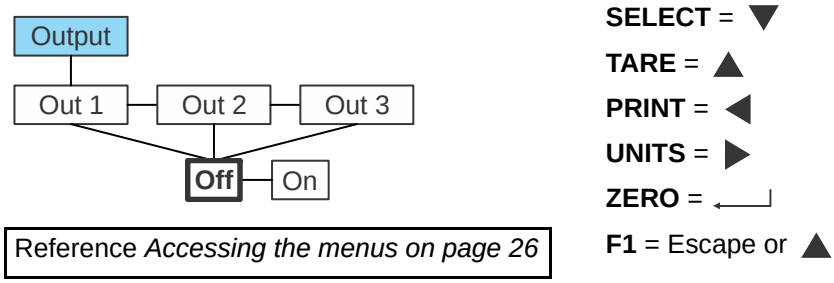


Figure 6.8 Outputs menu

Outputs are defaulted OFF. This disables the physical output and also the SPx annunciators on the display. If connecting external relays, lights or other control devices to the TB2 terminal in the indicator you must enable these ON.

1. With ***outPut*** displayed, press **SELECT** …

   out 1 is displayed.

2. Press **SELECT** …

   out 1 is displayed.

3. Press **SELECT** …

   The current setting is displayed: ***oFF*** or ***on*** (default).

4. Press **UNITS** to toggle between the choices and press **ZERO** to accept the displayed choice …

   out 1 is displayed.

5. Press **UNITS** …

   out 2 is displayed.

6. Repeat the process for enabling or disabling output 2 and output 3.

7. When finished press **TARE** until …

   outPut is displayed.

The function of an output that is ON is defined in the Supervisor menu. Refer to the User manual for instructions.

This completes the service menus for the ZQ375 checkweigher. See *Exiting the menus on page 30* to save the setup and return to normal weigh mode.

7 Communication port protocols

7.1 SMA Protocol Level 1

Sent	Action	Response
<LF>W<CR>	Weight of the current scale is return.	Standard response (displayed weight)
<LF>P<CR>	Indicator attempts to capture a stable weight on the current scale.	Standard response (displayed weight). W eight is returned as center dashes < ------ > if a stable weight cannot be
<LF>Z<CR>	Indicator attempts to zero the current scale.	Standard response (displayed weight)
<LF>T<CR>	Indicator attempts to tare the current scale.	Standard response (displayed weight)
<LF>T<xxxxxx.xxx><CR>	The indicator attempts to set the current scale's tare weight to the value that was sent.	Standard response (displayed weight)
<LF>M<CR>	The indicator returns the current scale's Tare weight.	Standard response (tare weight)
<LF>C<CR>	The indicator sets the current scale's Tare weight to zero.	Standard response (gross weight)
<LF>U<CR>	The indicator will cycle the unit of measure on the current scale	Standard response (displayed weight)
<LF>U<uuu><CR>	The indicator will set the unit of measure to <uuu> on the current scale.	Standard response (displayed weight)
<LF>D<CR>	The indicator will return a diagnostic message.	<LF><r><e><c><m><CR> <r> = 'R' (RAM error) or ' ' (space) (RAM ok) <e> = 'E' (EEPROM
<LF>A<CR>	The indicator will respond with the first line of the About data.	See "About Command Response" (below)
<LF>B<CR>	The indicator will respond with the rest of the About data.	See "About Command Response" (below)
<LF>I<CR>	The indicator will respond with the first line of the scale Information data. (for the current scale)	See "Scale Information Command Response" (below)
<LF>N<CR>	The indicator will respond with the rest of the scale Information data. (for the current scale)	See "Scale Information Command Response" (below)
<ESC>	The indicator will reboot itself	None

SMA protocol is maintained by an external organization. For definitive and current details on this protocol go to www.scalemanufacturers.org.

7.1.1 Standard Scale Response Message

<LF><s><r><n><m><f><xxxxxx.xxx><uuu><CR>

<LF>	Line feed	Start of the response message.
<s>	Scale Status	‘Z’ Center of Zero ‘O’ Over Capacity ‘U’ Under Capacity ‘E’ Zero Error ‘T’ Tare Error <space> None of the above conditions.
<r>	range	Multi-interval range. Always ‘1’ if multi-interval is disabled.
<n>	gross/net status	‘G’ = Gross weight ‘T’ = Tare weight ‘N’ = Net weight
<m>	Motion status	‘M’ = scale is in motion <space> = scale is stable
<f>	Future use	<space> = always a space.

7.1.2 Unrecognized Command Response

<LF>?<CR>

7.1.3 About Command Response

The ‘A’ and ‘B’ commands are used together to get all of the scale about data. The ‘A’ command will always return the 1st response below. The ‘B’ command must be sent multiple times to get the 2nd, 3rd, and 4th responses. Once the 4th response is received, the next ‘B’ command will return an Unrecognized Command Response. At this point you would have to send another ‘A’ command to get the 1st response again.

<LF><xxx>:<yyyyy><CR>

1st response:	<xxx> = “SMA” <yyyyy> = compliance level/revision
2nd response:	<xxx> = “MFG” <yyyyy> = manufacturer
3rd response:	<xxx> = “MOD” <yyyyy> = software part number
4th response:	<xxx> = “REV” <yyyyy> = software revision

7.1.4 Scale Information Command Response

The ‘I’ and ‘N’ commands are used together to get all of the scale information data. The ‘I’ command will always return the 1st response below. The ‘N’ command must be sent multiple times to get the 2nd, 3rd, 4th, 5th, and 6th responses. Once the 6th response is received, the next ‘N’ command will return an Unrecognized Command Response. At this point you would have to send another ‘I’ command to get the 1st response again.

<LF><xxx>:<yyyyy><CR>

1st response: <xxx> = “SMA”
<yyyyy> = compliance level/revision

2nd response: <xxx> = “TYP”
<yyy> = ‘S’

3rd response: <xxx> = “CAP”
<yyyyy> = uuu:ccc:n:d where
uuu = unit of measure
ccc = capacity of the range lower range (capacity of the scale is multi-interval is disabled)
n = least significant count-by digit for this range
d = decimal point position for this range
‘0’ = none
‘1’ = xxxx.x
‘2’ = xxx.xx
etc.

4th response: <xxx> = “CAP”
<yyyyy> = uuu:ccc:n:d where
uuu = unit of measure
ccc = capacity of the range upper range (4th response will not be sent if multi-interval is disabled)
n = least significant count-by digit for this range
d = decimal point position for this range
‘0’ = none
‘1’ = xxxx.x
‘2’ = xxx.xx
etc.

5th response: <xxx> = “CMD”
<yyyyy> = “PTMCU” list of supported SMA commands.
Level 1 commands are not included in the list.

6th response: <xxx> = “END”
<yyyyy> = nothing

7th & more - responses: Subsequent N commands will return a ‘?’ response. Unrecognized Command Response

7.2 SMA Level 2

7.2.1 Level 2 commands

SMA Level 2 command/response protocol allows use of some of the Network Tokens shown in Network Tokens on page 117. Tokens from 1001 and above are supported. Many of the other values represented by tokens 1 to 999 are available using SMA level 1 commands.

<LF>XA<CR>	This will initiate an Accumulate command. The indicator will perform an Accumulation transaction if all required conditions are met. The command will also perform the same function as pressing the **PRINT** key on the front panel. Response will be to any communication ports that are binded to a Type = Print. The port that initiated the command will also receive an <LF>xa<CR> response.
<LF>XB<CR>	This will initiate a PRINT command. The command will also perform the same function as pressing the **PRINT** key on the front panel. Response will be to any communication ports that are binded to a Type = Print. The port that initiated the command will also receive an <LF>xb<CR> response.
<LF>XVS<n>:<value><CR>	The indicator will set the <value> of the variable specified by the Network token. A valid XVS command will receive a response of <LF>xvs<CR>. To verify an XVS command was successful requires sending the XVG command to confirm the value of the variable.
<LF>XVG<n><CR>	The indicator will get or return the value of the variable specified by the network token. A valid response is in the form of <value><CR>.

The XVS and XVG commands use lb for the unit of measure.

If multiple indicators are connected on a RS485 multi-drop network, each will have a unique address. The network device can use SMA protocol to communicate to individual indicators by adding the indicator address <addr> following the initial <LF> character to any of the SMA level 1 or 2 commands. As an example the standard weight command would be <LF><addr>W<CR>. The response will also include the indicator address value following the initial <LF><addr>... See Standard Scale Response Message on page 110 for details.

7.3 ENQ & B-Cast commands

A	ACCUM command	"If ACCUM APP is active this command will generate an accumulation transaction, but it does not perform the print function"
P	PRINT command	"Performs same function as pressing the PRINT key. All Ports that are binded with PRINT type will transmit the assigned print format"
S	SELECT command	Performs same function as pressing the SELECT key
T	TARE command	Performs same function as pressing the TARE key
U	UNITS command	Performs same function as pressing the UNITS key
Z	ZERO command	Performs same function as pressing the ZERO key
F1	F1 command	Performs same function as pressing the F1 key
L	TARGET command	Performs same function as pressing the TARGET key
O	OVER command	Performs same function as pressing the OVER key
N	UNDER command	Performs same function as pressing the UNDER key

Upper or lower case characters will perform the same function.

7.4 NCI commands

Refer to AWTX Control Document SCP-01 for complete details on NCI command protocol.

W <Cr>	Weight request	Returns decimal weight, units and status
S <Cr>	Status request	Returns status.
Z <Cr>	Zero request	Scale is Zeroed and returns scale status
H <Cr>	High Resolution Weight request	"Returns decimal wt in 10x or x100 resolution with units and status. For x100 resolution set the associated PROT > ATTR > ENQ menu value to 100. For all other values the H command will return x10 resolution"
U <Cr>	Units request	Changes unit of measure and then returns decimal weight in the new units with status.
M <Cr>	Metrology Raw Counts request	Returns normalized raw counts and scale status.
T <Cr>	Tare request	Scale is Tared and returns scale status.
all else	Unrecognized command	Returns <Cr> ? <Lf>

7.5 PLC Configuration information

If connecting to a PLC there are required configuration settings in the SETUP > PORTS menu.

In the PROTCL menu set TYPE x = PLC and BIND x = Enet x

In E-NET menu you must configure the proper network IP address settings in IP ADDR, set DHCP = OFF (PLC's are not DHCP reliant), and CONN > E-NET x > TYPE x = OFF (PLC's do not use Client/Server topology)

In PLC menu configure the settings as required for the connected PLC network.

At the PLC select the size that matches the number of bytes for each item configured in the indicators data type setting. If possible use the same data type for all data.

DATA TYPE TABLE		
Typical PLC Terminology	Indicator Terminology	Data TYPE Size
SINT	SINT8	8 Bits (Signed Value / -127 to 127)
USINT	UNIT8	8 Bits (Unsigned Value / 0-255)
INT	SINT16	16 Bits (Signed Value /-32767 to 32767)
UINT	UNIT16	16 Bits (Unsigned Value / 0 to 65535)
DINT	SINT32	32 Bits (Signed Value / -2,147,483,647 to 2,147,483,647)
UDINET	UNIT32	32 Bits (Unsigned Value / 0 to 4,294,967,295)
REAL	FLOAT	32 Bits (Signed Decimal Value / 1.0E-37 to 1.0E37

7.5.1 ModBus/TCP

Starting Register Locations for PLC Configuration

Input Read Only	30001 (Mirrored at the Read/Write Locations)
Input Read/Write	40001
Output Read/Write	41025

2 Byte Example	
Indicator Data Type (out)	ModBus Register
SINT16	41025
SINT16	41026

4 Byte Example	
Indicator Data Type (out)	ModBus Register
SINT32	41025
SINT32	41027

Note each register holds 2-bytes or 1-word. If a 4-byte or 2-word data type is used 2-registers are required for each item. This makes the starting register number for each item skip a register number between items.

7.5.2 Ethernet/IP Implicit Messaging:

AWTX Assembly Instance and Size

	Assembly Instance	Size
Input	100	Refer to the number of items configured for Out Configuration at the indicator
Output	112	Refer to the number of items configured for In Configuration at the indicator
Configuration	128	0

INPUT/OPUTPUT SIZE: Is the number of elements (items) configured in the indicator for the data IN and OUT not the number of bytes.

7.5.3 Ethernet/IP Explicit Messaging:

AWTX Indicator Input Point Object (PLC Data Out)
CLASS: 64 hex
ATTRIBUTE: 3 hex

PLC Instance	Supported services for this attribute (hex value)	Data Type	Indicator Input (In) Configuration Data
Data Element Location 1= First Element 2=Second Element	0E (Get Attribute Single)	Based on network configuration in indicator. See DATA TYPE TABLE	1-16 (Bound to the instance x)

AWTX Indicator Output Point Object (PLC Data in)
CLASS: 65 hex
ATTRIBUTE: 3 hex

PLC Instance	Supported services for this attribute (hex value)	Data Type	Indicator Output (Out) Configuration Data
Data Element Location 1= First Element 2=Second Element	10 (Set Attribute Single)	Based on network configuration in indicator. See DATA TYPE TABLE	1-16 (Bound to the instance x)

7.6 Network Tokens

Token	Name of Value	Inbound to net1	Outbound from net 1	Description of Value
0	Disabled	X	X	No data in or out
1	Gross		X	Output GROSS weight to the network.
2	Tare	X	X	Input/Output the current active “TARE” weight value to/from the network.
3	Net		X	Output NET weight to the network.
4	Motion / Weight Steady		X	Output to the network to determine the stability of the scale. 0 = MOTION / not stable 1 = NO-MOTION / stable
6	Overload		X	Output to network to determine if the scale has an OVERLOAD condition. 0 = Not OVERLOAD 1 = OVERLOAD
7	Underload		X	Output to network to determine if the scale has an UNDERLOAD condition. 0 = Not UNDERLOAD 1 = UNDERLOAD
8	Center of Zero / zero balance		X	Output to the network to determine if the scale is at Center of Zero / zero balance. 0 = NOT Center of Zero / zero balance 1 = Center of Zero / zero balance
9	Active Units of Measure	X	X	If the value in the register is: 0 = LB 1 = KG 2 = OZ 3 = Grams 4 = LB’s / OZ’s 5 = Custom # 1 6 = Custom # 2 7 = Custom # 3 8 = Custom # 4
257	Watch Dog Counter		X	Output the value of the WATCHDOG counter to the network. Enables the operator to verify scale is functioning.
310	Serial Number		X	Output the indicator serial number, unique ID, to the network.

Token	Name of Value	Inbound to net1	Outbound from net 1	Description of Value
313	Indicator Healthy Status		X	Output of 2 bytes to the network indicating any faults in the indicator. When no errors, the value output to the network is 0xFFFF. Byte#1: Bit # 0 = Any Fault Bit # 1 = ADC Error Bit # 2 = N/A Bit # 3 = N/A Bit # 4 = N/A Bit # 5 = Overload Bit # 6 = Underload Bit # 7 = N/A Byte # 2: Bit # 0 – bit # 7 is not used at this time.
700	Input 1-3 State ON is active OFF is not active		X	If the value in the register is: 0 = input #1, #2, and #3 ON 1 = input #1 OFF 2 = input #2 OFF 3 = input #1 and #2 OFF 4 = input #3 OFF 5 = input #1 and #3 OFF 6 = input #2 and #3 OFF 7 = input #1, #2. and #3 OFF
800	Output 1-3 State ON is active OFF is not active		X	If the value in the register is: 0 = set point #1, #2, and #3 ON 1 = set point #1 OFF 2 = set point #2 OFF 3 = set point #1 and #2 OFF 4 = set point #3 OFF 5 = set point #1 and #3 OFF 6 = set point #2 and #3 OFF 7 = set point #1, #2. and #3 OFF
900	Remote PB_Zero	X		Allows the network to perform a PB_ZERO operation. PB_ZERO operation dependant upon indicator configuration.
901	Remote PB_Tare	X		Allows the network to perform a PB_TARE operation. PB_TARE operation dependant upon indicator configuration.
902	Remote Print	X		Allows the network to perform a PRINT operation. PRINT operation dependant upon indicator configuration.
904	Remote Units	X		Allows the network to perform a UNITS KEY operation. UNITS operation dependant upon indicator configuration.
1001	ID	X	X	Input/Output ID value to/from network
1002	Tare Channels (1 to 10)	X	X	Input/Output the “Active Tare Channel 1-10” value to/from network

Token	Name	Inbound to net1	Outbound from net 1	Description	SIM	MID	ADV	PER	GRAD
1029	Active Grad Zone Weight GRAD (number) is shown on the indicator display.		X	Net Weight Value is only available for a stable scale with a weight value with in a grading zone.					X
1030	Grad 1	X	X	Grading ZONE 1 Assigned Value					X
1031	Grad 2	X	X	Grading ZONE 2 Assigned Value					X
1032	Grad 3	X	X	Grading ZONE 3 Assigned Value					X
1033	Grad 4	X	X	Grading ZONE 4 Assigned Value					X
1034	Grad 5	X	X	Grading ZONE 5 Assigned Value					X
1035	Grad 6	X	X	Grading ZONE 6 Assigned Value					X
1036	Grad 7	X	X	Grading ZONE 7 Assigned Value					X
1037	Grad 8	X	X	Grading ZONE 8 Assigned Value					X
1038	Grad 9	X	X	Grading ZONE 9 Assigned Value					X
1039	Grad 10	X	X	Grading ZONE 10 Assigned Value					X
1040	Grad 11	X	X	Grading ZONE 11 Assigned Value					X
1041	Cnt of Tot Wt		X	Statistical Count of Net Weight			X	X	
1042	Cnt of Under Wt		X	Statistical Count of Under Weight			X	X	
1043	Cnt of Target Wt		X	Statistical Count of Target Weight			X	X	
1044	Cnt of Over Wt		X	Statistical Count of Over Weight			X	X	
1045	Mean Net Wt		X	Statistical Mean Net Weight			X	X	
1046	Median Net Wt		X	Statistical Median Net Weight			X	X	
1047	SD Net Wt		X	Statistical Standard Deviation of Net Weight			X	X	
1048	CV Net Wt		X	Coefficient of Variance of Net Weight			X	X	
1049	Max Net Wt		X	Statistical Maximum Net Weight			X	X	
1050	Min Net Wt		X	Statistical Minimum Net Weight			X	X	
1051	Basis		X	Checkweigh Basis	X	X		X	
1052	Minimum		X	Checkweigh Minimum Value	X	X		X	
1053	Target Lo	X	X	Checkweigh Target Lo Value	X	X		X	
1054	Target Hi	X	X	Checkweigh Target Hi Value	X	X		X	
1055	Tolerance Lo	X	X	Checkweigh Tolerance Lo Value	X	X		X	
1056	Tolerance Hi	X	X	Checkweigh Tolerance Hi Value	X	X		X	
1057	Target	X	X	Checkweigh Target Value	X	X		X	
1060	Maximum		X	Checkweigh Maximum Value	X	X		X	
1061	Under Divisions per Segment	X	X	Checkweigh Under Division per Segment Value	X	X		X	
1062	Over Divisions per Segment	X	X	Checkweigh Over Division per Segment Value	X	X		X	
1063	UAO		X	Under/ Accept/ Over Value (Net WT)	X	X	X	X	
1064	RAR		X	Reject/ Accpet/ Reject Value (Net WT)	X	X	X	X	

Token	Name	Inbound to net1	Outbound from net 1	Description	SIM	MID	ADV	PER	GRAD
1066	PLU TYPE Limits or Sample	X	X	Sample = 0 Limits = 1 Changes mode on entry of new PLU Channel Value			X		
1071	PLU Channel	X	X	PLU Channel (0 - 500)			X		
1072	PLU Number		X	PLU Number of Active PLU Channel			X		
1073	Target Lo “Limits” type only		X	PLU Low Target Value			X		
1074	Target Hi “Limits” type only		X	PLU High Target Value			X		
1075	Tolerance Lo “Sample” type only		X	PLU Low Tolerance Value			X		
1076	Tolerance Hi “ Sample” type only		X	PLU High Tolerance Value			X		
1077	Target		X	PLU Target Value			X		
1078	Transaction Count		X	PLU Transacation Counter			X		
1079	Gross Accum		X	PLU Accum Gross Weight Value			X		
1080	Net Accum		X	PLU Accum Net Weight Value			X		
1081	Under Accum		X	PLU Accum Under Weight Value			X		
1082	Target Accum		X	PLU Accum Target Weight Value			X		
1083	Over Accum		X	PLU Accum Over Weight Value			X		
1084	Under Count		X	PLU Under Weighment Count			X		
1085	Target Count		X	PLU Target Weighment Count			X		
1086	Over Count		X	PLU Over Weighment Count			X		
1087	Pieceweight		X	PLU Piece Weight Value			X		
1091	Transaction Count		X	Checkweigh Trans Counter			X		
1092	Transaction PLU Number		X	Checkweigh Trans PLU Number			X		
1094	Transaction SysCount		X	Checkweigh Trans System Counter			X		
1095	Transaction GrossWt		X	Checkweigh Trans Gross Weight			X		
1096	Transaction NetWt		X	Checkweigh Trans Net Weight			X		
1099	Transaction ID		X	Checkweigh Trans ID			X		

8 Option modules

The ZQ375 has three option modules available. This chapter covers the description and installation of these modules:

- USB Device module
- Current Loop/RS485/RS422
- 802.11g Wireless communication module

On the option modules, S1 switch settings must all be OFF to operate.

8.1 USB Device option module **(PN AWT05-505633)**

Figure 8.1 shows the USB Device option module. This provides connection for a USB client device. See *Options on page 102* for information on configuring the checkweigher and this module.

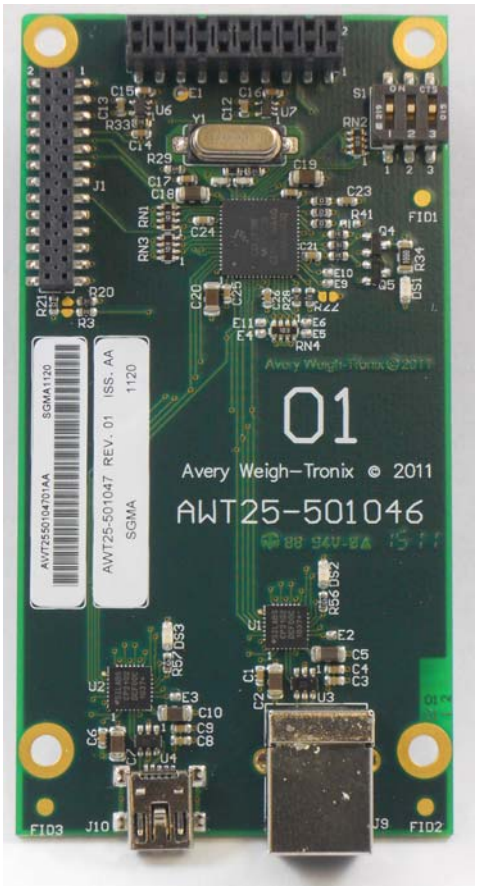


Figure 8.1 USB Device option module

Figure 8.2 shows the option module in place on the main board of the checkweigher. All the option modules connect to the main board at terminal J4. Screws, at the four locations noted by the arrows, hold the board in place.

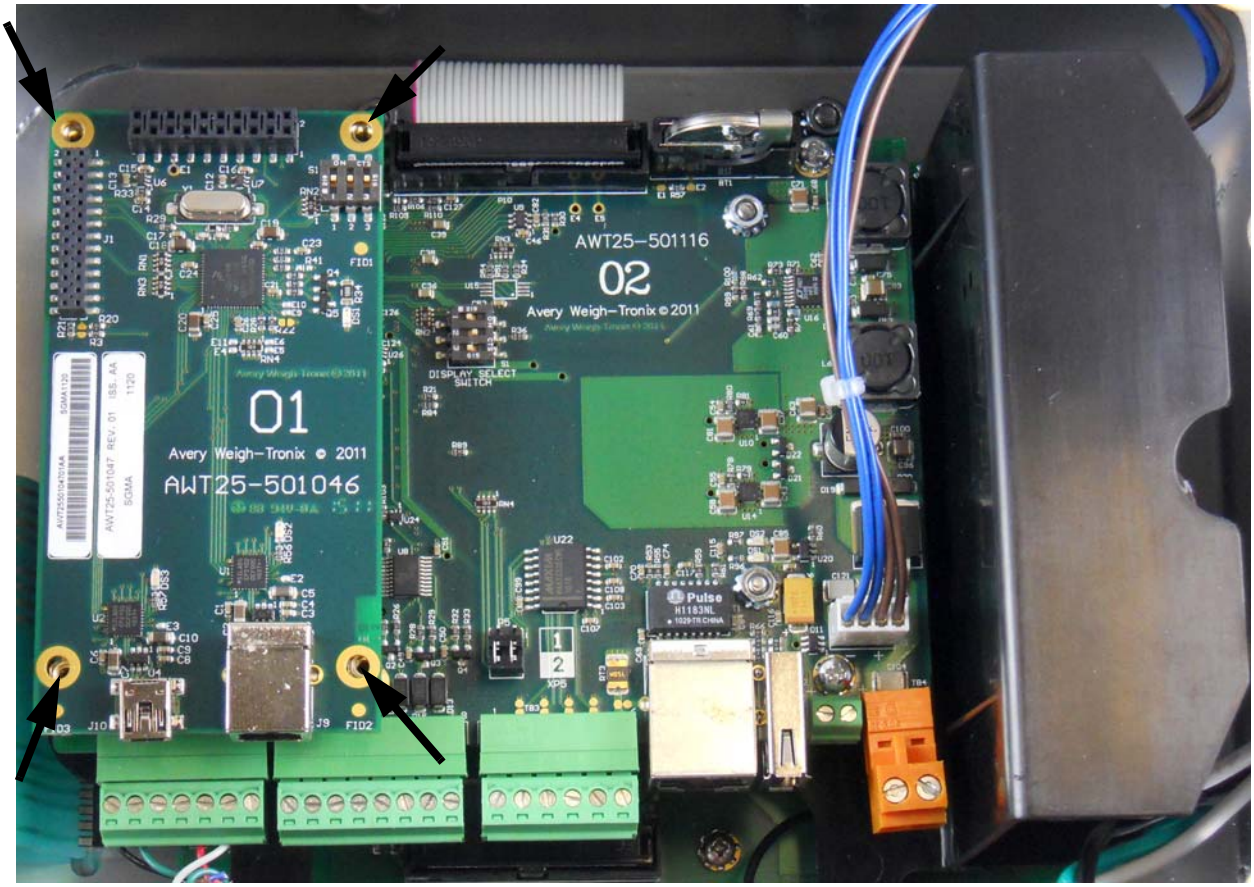


Figure 8.2 USB Device option module on main board

Driver required when connected to a PC. Download driver from the password protected portion of www.wtxweb.com.

8.2 Current Loop/RS485/RS422 module **(PN AWT05-505634)**

Figure 8.3 shows the Current Loop/RS485/RS422 option module. This provides Current Loop/RS485/RS422 communication to and from connected devices. See *Options on page 102* for information on configuring the indicator and this module.

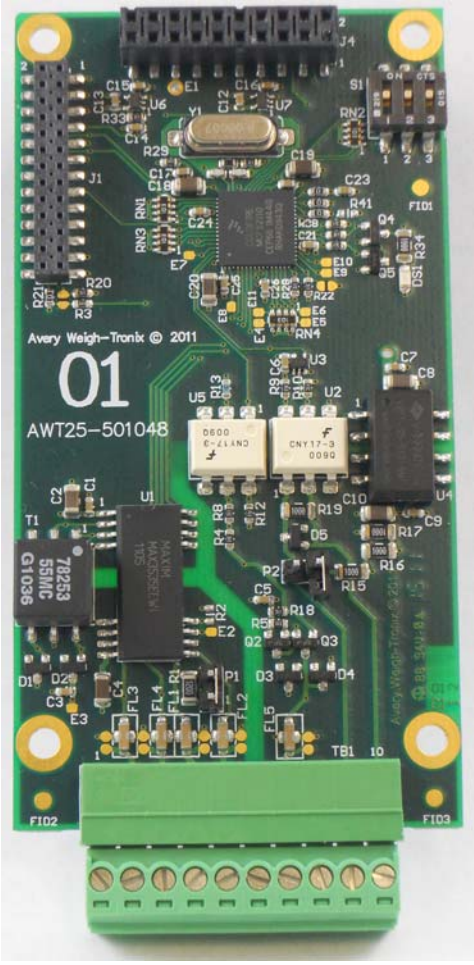


Figure 8.3 Current Loop/RS485/RS422 module

Figure 8.4 shows the option module in place on the main board of the indicator. All the option modules connect to the main board at terminal J4. Screws, at the four locations noted by the arrows, hold the board in place.

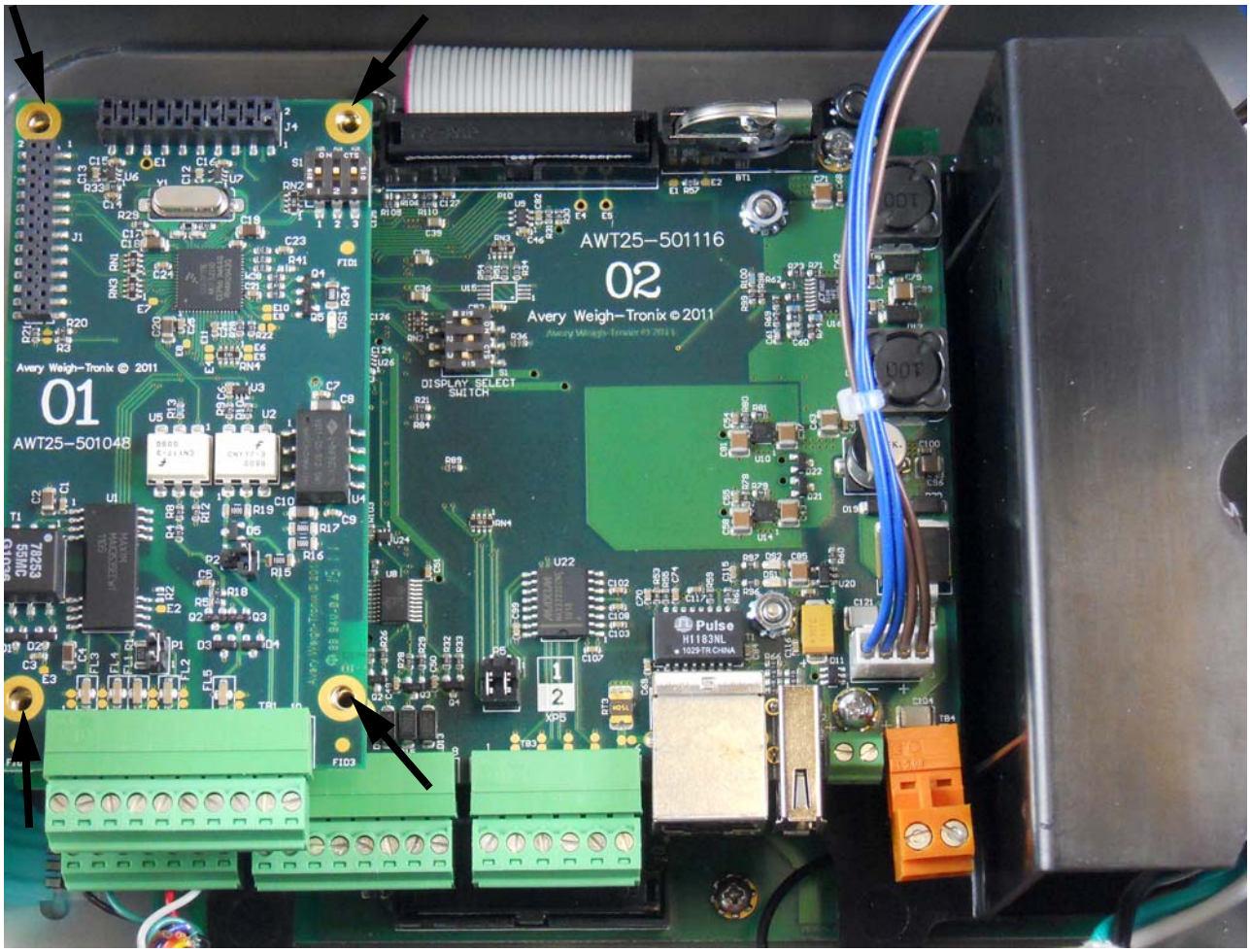


Figure 8.4 Current Loop/RS485/RS422 option module on main board

8.3 802.11g Wireless communication module **(PN AWT05-800049)**

Figure 8.5 shows the 802.11g wireless communication option module. This provides 802.11g wireless communication.

The 802.11 wireless communications option can only be configured through the use of the Ztools computer software package. This is due to the complexity of the security and SSID settings required.

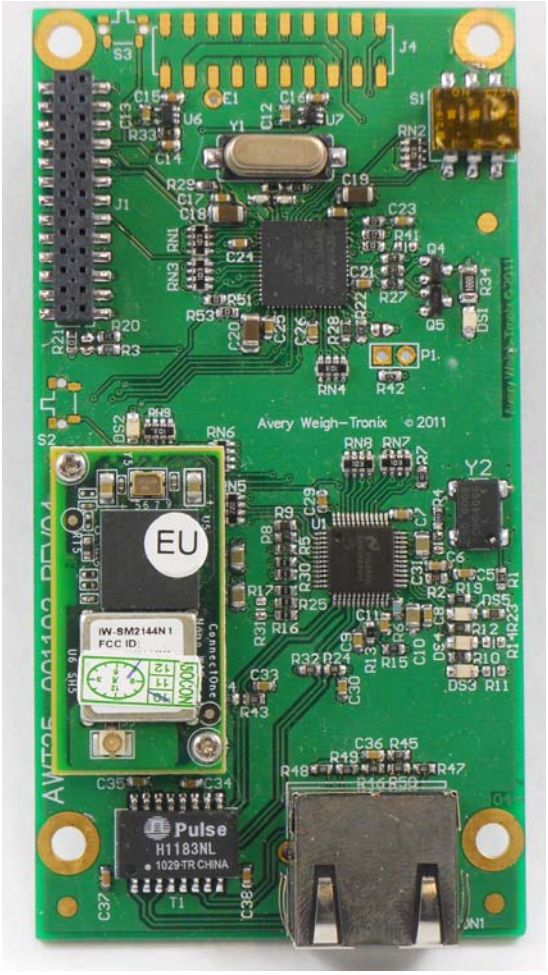


Figure 8.5 802.11g wireless communication option module

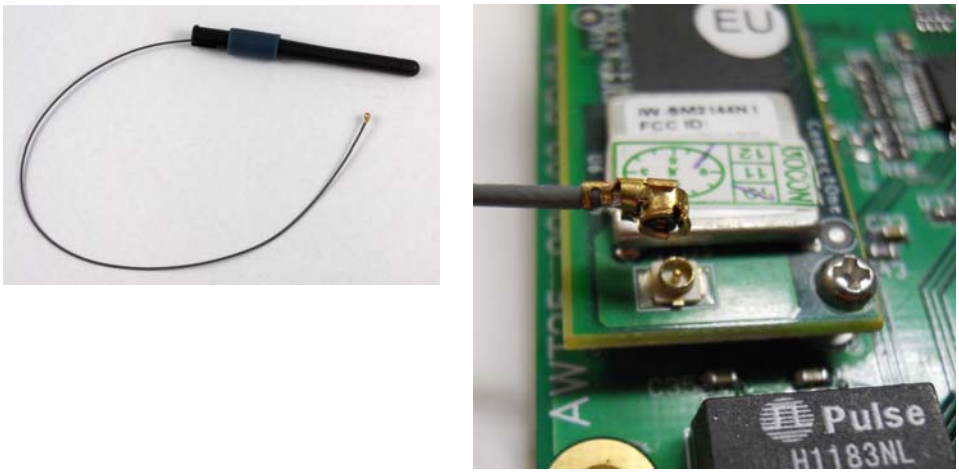


Figure 8.6 802.11g wireless communication antenna and connection point

Figure 8.7 shows the option module in place on the main board of the checkweigher. All the option modules connect to the main board at terminal J4. Screws, at the four locations noted by the arrows, hold the board in place.

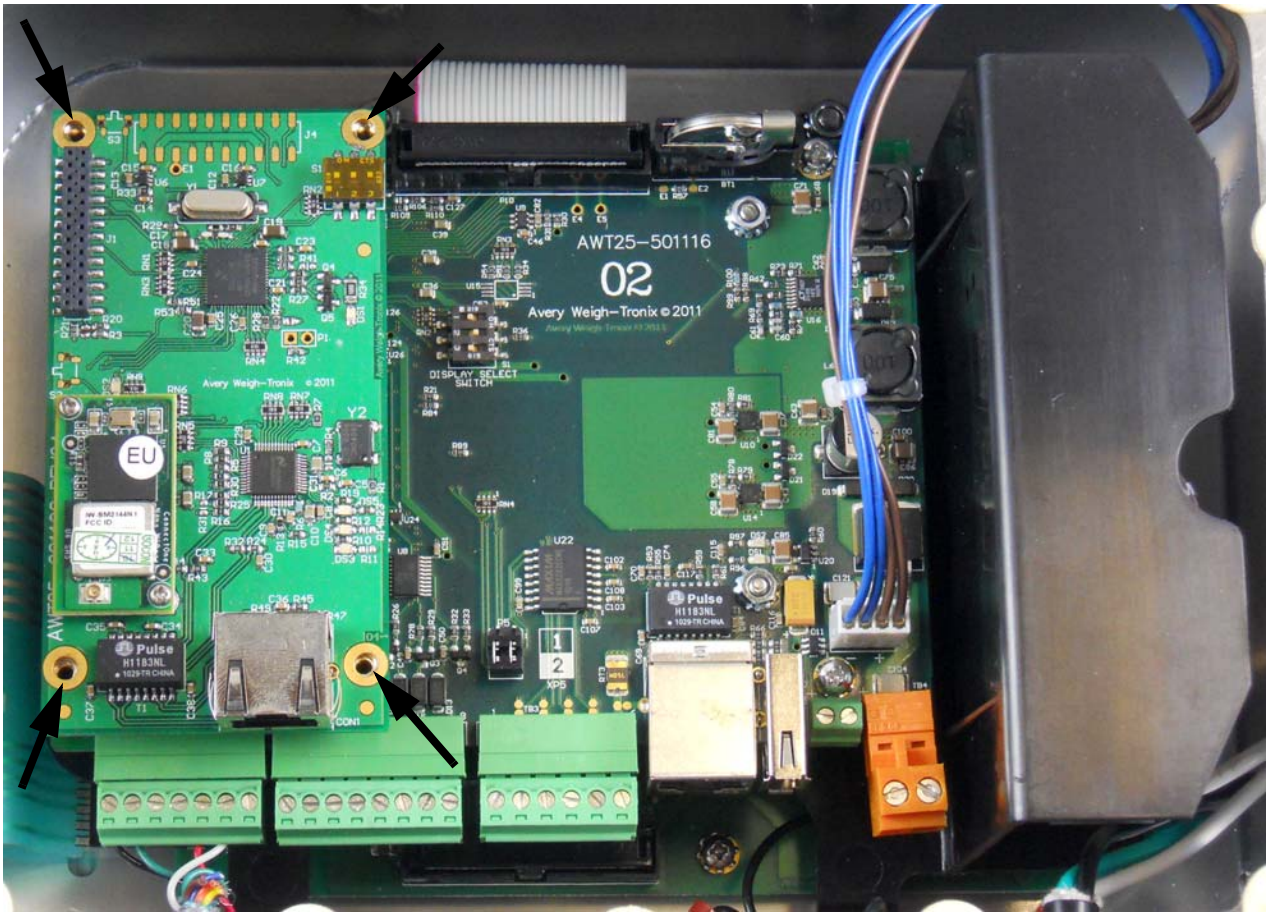


Figure 8.7 802.11g wireless communication option module on main board

8.4 AC relay module

The AC relay converts three logic level outputs into AC solid state relays internal to the indicator. The AC relay module is shown in Figure 8.8.

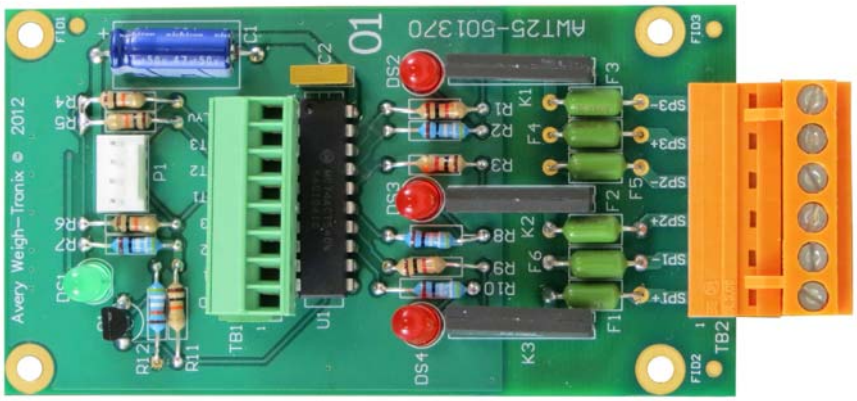


Figure 8.8 AC relay option module

8.4.1 Accessing the main PC board

Stainless steel case

1. Remove the acorn nuts on the back panel of the indicator.
2. Carefully remove the back. Be aware of the ground wire attached to the back plate.

WARNING: Risk of Electrical Shock. Insure power is removed from the indicator before installing the option card.

This option card is capable of switching up to 1Amp Max. per channel at 20-120VAC.

Please refer to the appropriate National Electrical Code regulations with regards to the switched AC mains voltage wiring sizes and insulation requirements.

8.4.2 Installing the option module

1. Plug the option module into terminal J4 on the main board. See Figure 8.9. Use the included standoffs and screws to fasten the module to the main board at the four locations noted by the arrows.

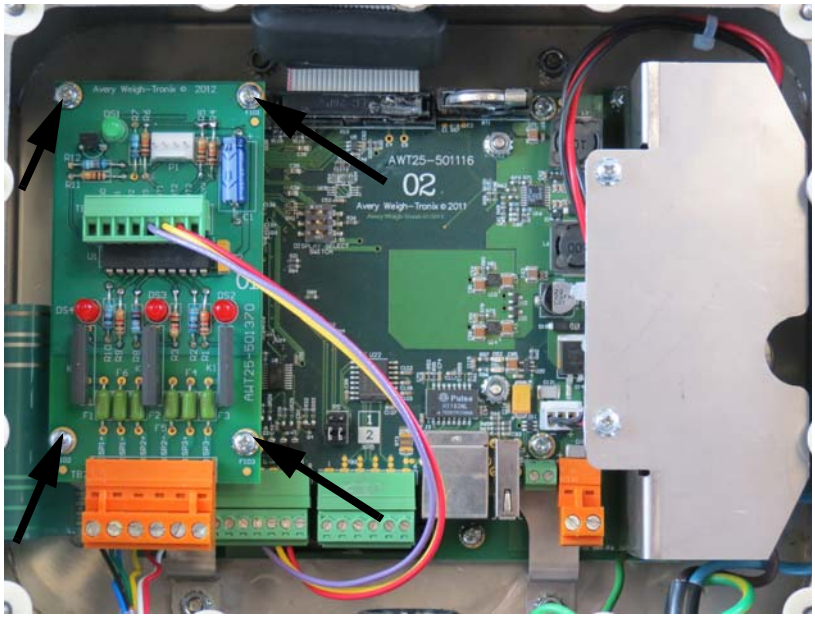


Figure 8.9 AC Relay option module on main board

2. Attach 22AWG min. wires between the:

   Option card TB1 pin 5 (OUT1) and the Main Board TB2 pin 5 (OUT1) : SP1

   Option card TB1 pin 6 (OUT2) and the Main Board TB2 pin 6 (OUT2) : SP2

   Option card TB1 pin 7 (OUT3) and the Main Board TB2 pin 7 (OUT3) : SP3

   These wires are shown in place in Figure 8.9.

8.4.3 Option Setup

See the ***Setpoints*** section of the Service manual for your indicator for information on configuring the indicator and this module.

9 Printed reports

9.1 Configuration report

Below is a partial sample printout of a configuration report.

Parameter	Value	Data Type
SCALE_1_STABILITY_DIV	3	DOUBLE
SCALE_1_STABILITY_TIME	1	DOUBLE
SCALE_1_AZT_DIV	3	DOUBLE
SCALE_1_AZT_TIME	1	DOUBLE
SCALE_1_ZERO_RANGE	100	DOUBLE
SCALE_1_OVER_CAP_BASIS	0	ENUM
SCALE_1_OVER_CAP_DIV	9	INTEGER
SCALE_1_OVER_CAP_PER	105	DOUBLE
SCALE_1_UNDER_CAP_DIV	250	INTEGER
SCALE_1_UNDER_CAP_PER	20	DOUBLE
SCALE_1_CZERO	0.25	DOUBLE
SCALE_1_GZERO_BAND	10	INTEGER
DISPLAY_SEPARATOR	0	ENUM
DISPLAY_UPDATE_RATE	10	INTEGER
SITE_ID	SiteId	STRING
CALIBRATION_PASSWORD	2580	INTEGER
COM1_BAUD_RATE	9600	INTEGER
COM1_DATA_BITS	8	INTEGER
COM1_PARITY	0	ENUM
COM1_STOP_BITS	0	ENUM
COM1_CONTROL	0	ENUM

etc.

9.2 Calibration report

CALIBRATION REPORT

Parameter	Value
SCALE_1_ZERO_COUNTS	255037
SCALE_1_LIN_FACTOR_1_WT	0.00000000
SCALE_1_LIN_FACTOR_1_CNT	0
SCALE_1_LIN_FACTOR_2_WT	0.00000000
SCALE_1_LIN_FACTOR_2_CNT	0
SCALE_1_LIN_FACTOR_3_WT	0.00000000
SCALE_1_LIN_FACTOR_3_CNT	0
SCALE_1_SPAN_FACTOR	0.00000909
SCALE_1_GRAVITY	9.8043
SCALE_1_ZERO_MV	0.38003510
SCALE_1_SPAN_MV	1.63769878
SCALE_1_ALTITUDE	0.00000000
SCALE_1_LATITUDE	0.00000000
SCALE_1_SPAN_COUNTS	1099040
SCALE_1_CAL_WEIGHT	10.0000000
UNIT SERIAL NUMBER	20120111

9.3 Audit report

AUDIT LOG REPORT

Parameter	old value	new value	Time
PROTOCOL_1_TYPE	0	1	2012-03-20 10:12:30
SCALE_1_UNIT3	2	4	2012-03-20 10:08:17
PROTOCOL_1_TYPE	1	0	2012-03-20 10:00:27
PROTOCOL_2_FORMAT_1	1	40	2012-03-20 09:14:45
SCALE_1_UNIT4	0	5	2012-03-20 09:10:35
SCALE_1_UNIT3	0	2	2012-03-20 09:10:30
SCALE_1_UNIT2	0	2	2012-03-20 09:10:27
SCALE_1_SPAN_FACTOR	0.00003265	0.00003707	2012-03-20 09:09:43
SCALE_1_ZERO_COUNTS	394685	-651448	2012-03-20 09:09:27
PROTOCOL_2_BIND	0	0	2012-03-20 09:09:14
PROTOCOL_2_TYPE	0	3	2012-03-20 09:09:12

10 Print formatting

10.1 Print Format Editor

The Print Format Editor creates custom print formats by letting you insert ASCII characters, scale tokens and variables into a print string. See *Print tokens, parameters and default print formats on page 139* for the ASCII characters, scale tokens and variables that can be used.

When you use scale tokens or variables, you must append a function number to the token or variable. The function number used depends on whether you want to print the Value, Name or Data Type of the token. The most common function usage is to print the token Value but in certain situations you may want to print the token Name. The token Data Type is reserved for special application usage.

You can also append optional parameters to a token or variable to modify the default behavior. For example, the optional parameters allow you to change the printed format such as the number of digits or characters, or use leading zeros instead of spaces, etc. The token that is selected will determine what optional parameters are available. See *Print tokens, parameters and default print formats on page 139* for a list of the optional parameter tables.

The ZM series indicator also supports the UTF-8 Unicode character set which is used for numerical HTML Coding values and to support many foreign language character sets.

Following are tables showing the key functions in the string indexing and character editing modes. Use them for reference.

	Table 1: Key Functions for String Indexing					
Action	TARE	SELECT	ZERO	PRINT	UNITS	F1
Momentary Key Press	Deletes current character	Selects the index character for editing using the key actions in Table 2	EXIT	Moves left one position in the index	Moves right one position in the index	ESC/Abort
Long Key Press	Deletes current character	Append new character after this point Default character added is 32 (space)	Does nothing	Page Up (Increments index by 10)	Page Down (Decrements index by 10)	Does nothing

After you select the index number, use key actions described in Table 2, below, to edit the character for that index number.

	Table 2: Key Functions for Character Editing					
Action	TARE	SELECT	ZERO	PRINT	UNITS	F1
Single Key Press	Increments the flashing digit by 1	Decrements the flashing digit by 1	Enter	Delete flashing digit	Add Digit	ESC/Abort
Long Key Press	Move flashing digit left	Move flashing digit right	Does nothing	Delete the entire entry	Does nothing	Does nothing

10.2 Editing an existing print string

Here is an example of how to edit an existing print string.

1. In the Admin menu, under ***Setup***>***Ports*** you will find ***P.F.Edit***. With ***P.F.Edit*** displayed, press **SELECT** …

   PrnFt 1 is displayed. This is Print Format 1.

2. Press **UNITS** or **PRINT** to scroll until the display shows the print format number you want to edit.

   In this example let's use format 1 (standard gross, tare and net printout) and add a company name as the header or first line of the printout. Refer to *Default print formats on page 148* to view the default settings for print format number 1

3. So from ***PRNFT1*** press **SELECT** …

   The first character in the print format will be displayed:

   Since we want to add a header to the beginning of the printout we will want to insert in front of string index number 1. If you wanted to add characters or tokens in a different area of the printout then you would scroll using the **UNITS** key until the string index number you want to insert in front of is displayed.

   For this example let's add the company name ***ABC Company***. Start by adding up the number of characters in the company name including any spaces. Then add to this number the carriage return and line feed if necessary. For this example that would be 13 characters. (example of adding up the 13 characters)

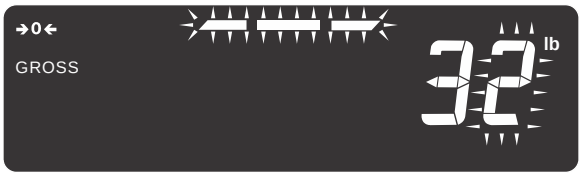
A	**B**	**C**	**Sp**	**C**	**o**	**m**	**p**	**a**	**n**	**y**	**Cr**	**Lf**	← **Text, etc. to insert**
1	2	3	4	5	6	7	8	9	10	11	12	13	← Number of characters to insert
65	*66*	*67*	*32*	*67*	*111*	*109*	*112*	*97*	*110*	*121*	*13*	*10*	← *Decimal value to enter*

   To center the company name on a printed ticket, you must add spaces in front of the company name. This will add to the total count of characters to insert.

4. To insert characters into a print string, press and hold the **SELECT** key. After you hold the **SELECT** key for about 3 seconds the Index number will start to automatically increment by 1 about every second as Spaces (dec 32) are inserted into the print string. You will still see the current string character on the right side of the display but the string index number will increment as spaces are inserted in front of this character. So for this example, press and hold **SELECT** until the display shown below appears, then release the **SELECT** key …

5. To start the entry of the company name press the **PRINT** key to scroll backwards until string index number 1 is again displayed, as shown below.

6. Press **SELECT** and the display will show the center bar segments flashing as well as the right digit. This shows you are in the editing mode.



7. Using the numeric keypad enter 65, the decimal value for ***A*** and press **ZERO**

8. Press **UNITS** to advance to the next string index number and press **SELECT** …

   X, 32 is displayed, where ***X*** is the next string index number

9. Enter the decimal value for the next letter in the company name and press **ZERO**.

10. Repeat steps 8 and 9 until the last character is entered. In this example that would be ***13, 10*** for the line feed.

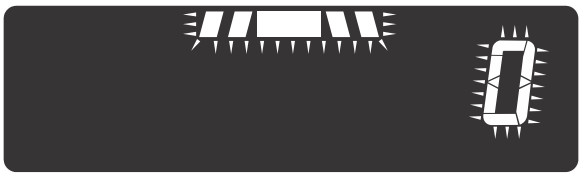
11. Press the **ZERO** to accept the new characters into the print string.

Do not forget step 11 or the changes will not be entered into the print string

12. Press **TARE** or **F1** until ***SAVE NO*** is displayed. Then press **UNITS** and ***SAVEYES*** is displayed. Press **ZERO** to save.
13. After the indicator reboots press the PRINT key to test the results.

10.3 Inserting tokens, etc.

To insert tokens, application variables or optional parameters to add to an existing token there are special characters available to use during character editing. When you are at the string index position where you wish to insert a token or variable, press and hold **SELECT** to insert a space (32). Then press **PRINT** to return to the index position and press **SELECT**. With the ***32***"displayed, press the **C** key. This will be displayed:



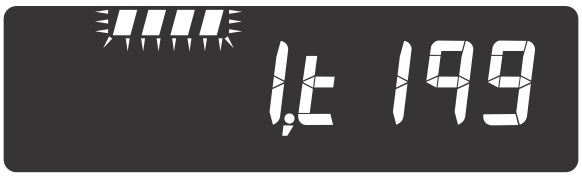
Now press the **SELECT** key to scroll through the following special characters …

] - (Closing bracket)	End an optional parameter. Added automatically when a Start parameter opening bracket [is inserted. See the *Parameter table on page 141*
[- (Opening bracket)	Start an optional parameter. When [is selected a] is automatically added to the string for your benefit.
A - (Application variable)	See *Application variable token table on page 145* for available variables that can be selected to print
t - (Token)	See *System variable token table on page 139* for available print tokens that can be selected to print.

When a token t (or APP variable A) is selected, a decimal 49 is automatically added to indicate printing of the value. If you want to print the name of the token (or APP variable) then change (edit) the 49 to a 50.

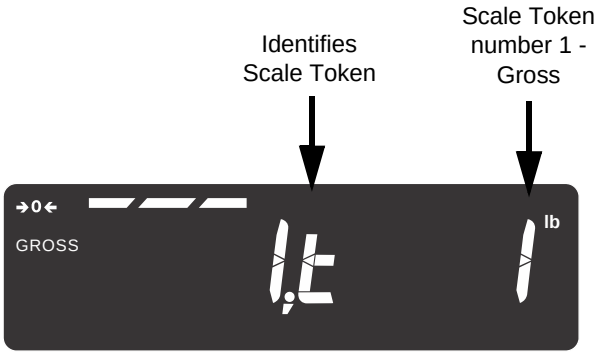
Token entry example

If the token for Time is to be inserted, press the **SELECT** key until a ***t*** is flashing, then enter 200 (decimal value for Time) and press **ZERO**. This will insert the Time into the print string at the selected location. Add appropriate spacing in front or after as needed for proper alignment in the printed data.



*The value **1** in the above screen will be whatever index value you started from.*

More scale token examples



This ASCII number identifies the type of scale token. In this case it identifies the token as the word ***Gross***

Above is a typical example of using a scale token. Upon creating the token, ***t1*** for Gross weight, the indicator automatically appends an additional number in the next character location. The value of the number in this next location identifies what function of the token is being used.

Decimal 1 = 49 is the actual Gross weight value.

Decimal 2 = 50 is the token name, “Gross”, applied to that token

10.4 Other scale tokens

In addition to the above, you can examine the tokens available and do much more with the data. For example suppose the Customer's PC can't cope with decimal point in the weight value from the scale. We can add optional parameters after the Gross weight token to remove the decimal point. This print format character sequence would look like this …

The above token and function will output the text "Gross"

The above token and function will output the Gross weight value.

Characters 5 to 8 will remove the decimal point from the weight transmitted using an attribute parameter. You may need to refer to the *Parameter table on page 141* for more detail on necessary character values.

[= t501 indicates the start of an optional parameter

68 = D for decimal point parameter

50 = 2 for hide decimal point

] = t502 indicates the end of the optional parameter

10.5 Transmitting leading zeroes

A Customer may wish to have the data transmitted with leading zeros and not spaces. The print format sequence would look like this …

The above token and function will output the text “Gross”

The above token and function will output the Gross weight value.

Characters 5 to 8 will add the leading zeros to the weight transmitted using an optional parameter. You may need to refer to *Parameter table on page 141* for more detail on necessary character values.

[= t501 indicates the start of an optional parameter

90 = Z for leading zero parameters

49 = 1 for use leading zeros

] = t502 indicates the end of the optional parameter

For more examples of editing formats consult *Print tokens, parameters and default print formats on page 139*.

10.6 Print format errors

Error	Description
0	No error - print string OK
1	Print format number out of range
2	Parser error - no memory
3	A or T token character not found
4	Token Delimiter is missing.
5	Print token invalid range
6	Application variable invalid range
7	Aspect data invalid, codepoint is NOT 1, 2 or 3
8	Invalid UTF8 string
9	Left parameter bracket not found
10	Right parameter bracket not found
11	Dot separator not found
12	Token tag string is invalid
13	UTF8 codepoint to large
14	Token to large
15	Error within optional parameter

11 Print tokens, parameters and default print formats

11.1 System variable token table

Token #	Token name	Token Description	Function “1” (dec 49)	Function “2” (dec 50)	Parameter Table
decimal			Value	Name	
1	GWT	Gross Weight	value	"Gross "	Weight
2	SAT	Tare Weight	value	"Tare "	Weight
3	NWT	Net Weight	value	"Net "	Weight
9	UNIT	Unit	"lb" (or active unit)	"Units"	Unit
10	PGW	Peak Gross Weight	value	"Peak Gross"	Weight
11	PNW	Peak Net Weight	value	"Peak Net"	Weight
12	CNT	Count	value	"Count"	Integer
13	PCE	Piece Weight	value	"Piece Weight"	Weight
15	WSTAT	Weight Status	" " (space) or "M"	"Weight Status"	String
16	ACT	Active Display Value	value	active display name	Weight
104	GAT	Accumulated Gross Weight Total	value	"Gross Total"	Weight
105	TAT	Accumulated Tare Weight Total	value	"Tare Total"	Weight
106	NAT	Accumulated Net Weight Total	value	"Net Total"	Weight
107	CAT	Accumulated Count Value Total	value	"Count Total"	Integer
200	TIM	Time	value	"Time"	Time
201	DAT	Date	value	"Date"	Date
250	OUT1	Output 1		“OUT1”	
251	OUT2	Output 2		“OUT2”	
252	OUT3	Output 3		“OUT3”	
300	RTN	Transaction Count	value	"Transaction Count"	Integer
302	CKSM	Checksum	see Checksum table	"Checksum"	Checksum
309	SITE	Site ID	value	"Site ID"	String
310	SN	Serial Number	value	"Serial Number"	String
311	LK	Condec Units	"L" or "K"		
312	STAT	Condec Status	" " (space) stable, "M" motion, "O" out of range		
313	DIS	Status Bytes	See *ASCII characters on page 144*	"Status"	
314	UTID	Unique Transaction ID	value	UTID	
500	NULL	Null	null char (dec 0)		
501	SOP	Start Optional Parameters	[		
502	EOP	End Optional Parameters	]		
603		Printer Wrapper Disabled			
650	BOLD	Format Bold	Esc Esc B		

Token #	Token name	Token Description	Function “1” (dec 49)	Function “2” (dec 50)	Parameter Table
651	ITAL	Format Italic	Esc Esc I		
652	UNDR	Format Underline	Esc Esc U		
653	LAND	Format Landscape	Esc Esc L		
654	FF	Format Formfeed	Esc Esc F		
655	WRAP	Format Line Wrap	Esc Esc W		

11.1.1 Additional token tables

WSTAT token table	
"O"	Overload
"U"	Underload
"M"	Motion
"S"	Stable
"E"	Cal error

TARE token table	
"NT"	no tare active
"T"	pushbutton tare active
"PT"	preset tare active

DIS token table: AWTX Status Byte format			
	Byte 1	Byte 2	Byte 3
Bit 0	1 = Under or OverLoad	1 = Center Zero	0
Bit 1	0	1=Gross	1
Bit 2	1=kg	1=Net	1=Overload
Bit 3	1=lb	0	1=Motion
Bit 4	1	1	1
Bit 5	1	1	1
Bit 6	0	0	0
Bit 7	0	0	0

Example: Stable and valid gross weight in lb unit of measure would return "822"

11.2 Parameter table

Parameter Table	Parameter Description	Parameter character	Default Value	Alternate Values	Comments
WEIGHT	Width	W (87)	7	1 - 9 characters	sets minimum width
	Precision	P (80)	0 = normal precision	0 - 8 characters	sets number of digits right of decimal
	Leading Zero	Z (90)	0 = Leading Spaces	1 = Leading Zeros	
	Sign	p (112)	1 = Show -	2 = Show +	
				3 = Show All	
				4 = Hide All	
	Multiplier	m (109)	0 = None	1 = *10, 2 = *100, 3 = *1000, 4 = *10000, 5 = *100000	
	Decimal Point	D (68)	1 = Show	2 = Hide	
	Justification	J (74)	1 = Right	2 = Left	
	Unit of Measure	u (117)	1 = Current	2 = Calibration unit	allows printing in alternate units
				3 = Rounded current unit	
				4 = Rounded calibration unit	
				5 = Unit 1	
				6 = Unit 2	
				7 = Unit 3	
				8 = Unit 4	
	Reset	R (82)		Accumulators and Counters only	clear or reset value after printing
UNIT	Unit of Measure	U (85)	1 = Current	2 = Default calibration unit	
				3 = Unit 1	
				4 = Unit 2	
				5 = Unit 3	
				6 = Unit 4	
	Justification	J (74)	1 = Right	2 = Left	
TIME	Format	F (70)	0 = As Configured	1 = HH:MM:SS (12hr)	
				2 = HH:MM AM/PM	
				3 = HH:MM:SS (24hr)	
	Seperator	s (115)	7 = Colon (:)	1 = None	
				2 = Comma (,)	
				3 = Period or Decimal Point (.)	
				4 = Backslash (\)	
				5 = Space ( )	
				6 = Forward Slash (/)	
				7 = Colon (:)	
				8 = Dash (-)	

Parameter Table	Parameter Description	Parameter character	Default Value	Alternate Values	Comments
DATE	Format	F (70)	0 = As Configured	1 = MM-DD-YY	
				2 = MM-DD-YYYY	
				3 = DD-MM-YY	
				4 = DD-MM-YYYY	
	Seperator	s (115)	8 = Dash (-)	1 = None	
				2 = Comma (,)	
				3 = Period or Decimal Point (.)	
				4 = Backslash (\)	
				5 = Space ( )	
				6 = Forward Slash (/)	
				7 = Colon (:)	
				8 = Dash (-)	
UNIT	Unit of Measure	U (85)	1 = Current	2 = Default calibration unit	allows printing of alternate unit name (used in conjunction with "u" parameter in weight table
				3 = Unit 1	
				4 = Unit 2	
				5 = Unit 3	
				6 = Unit 4	
	Justification	J (74)	1 = Right	2 = Left	
INTEGER	Justification	J (74)	1 = Right	2 = Left	
	Leading Zero	Z (90)	0 = Leading Spaces	1 = Leading Zeros	
	Multiplier	m (109)	0 = None	1 = *10, 2 = *100, 3 = *1000, 4 = *10000, 5 = *100000	
	Reset	R (82)		Accumulators and Counters only	
STRING	Justification	J (74)	1 = Right	2 = Left	

Parameter Table	Parameter Description	Parameter character	Default Value	Alternate Values	Comments
CHECKSUM	Mode	M (77)	0 = None	1 = Stop	Place necessary Checksum type Start parameter in front of first character to calculate checksum Place the Stop checksum after the last character to calculate checksum Place the Send checksum after the Stop checksum
				2 = Transmit LSB First	
				3 = Transmit MSB First	
				4 = Send CRC 7-Bit	
				50 = Start CCITT	
				51 = Start SDLC / HDLC	
				52 = Start CRC 16 (0000)	
				53 = Start CRC 12	
				54 = Start IRCC 16	
				55 = Start IRCC 8	
				56 = Start Xmodem	
				57 = Start Sum 16	
				58 = Start Sum 8	
				59 = Start CRC 16 (FFFF)	
				60 = Start Inverse IRCC 8	
				61 = Start Sum 16 (W/O Twos)	
				62 = BCC	

Code #	Cont. Char.	Print Char.	Hex	Code #	Cont. Char.	Print Char.	Hex	Code #	Cont. Char.	Print Char.	Hex	Code #	Cont. Char.	Print Char.	Code #	Cont. Char.	Print Char.	Code #	Cont. Char.	Print Char.
0	NUL		00	**045**	-	-	2D	**090**	Z	Z	5A	**0128**	NA	Ç	**0173**	NA	¡	**0218**	NA	┌
01	SOH	☺	01	**046**	.	.	2E	**091**	[	[	5B	**0129**	NA	ü	**0174**	NA	«	**0219**	NA	█
02	STX	☻	02	**047**	/	/	2F	**092**	\	\	5C	**0130**	NA	é	**0175**	NA	»	**0220**	NA	▄
03	ETX	♥	03	**048**	0	0	30	**093**	]	]	5D	**0131**	NA	â	**0176**	NA	░	**0221**	NA	▌
04	EOT	♦	04	**049**	1	1	31	**094**	^	^	5E	**0132**	NA	ä	**0177**	NA	▒	**0222**	NA	▐
05	ENG	♣	05	**050**	2	2	32	**095**	_	_	5F	**0133**	NA	à	**0178**	NA	▓	**0223**	NA	▀
06	ACK	♠	06	**051**	3	3	33	**096**	`	`	60	**0134**	NA	å	**0179**	NA	│	**0224**	NA	α
07	BEL		07	**052**	4	4	34	**097**	a	a	61	**0135**	NA	ç	**0180**	NA	┤	**0225**	NA	ß
08	BS		08	**053**	5	5	35	**098**	b	b	62	**0136**	NA	ê	**0181**	NA	╡	**0226**	NA	Γ
09	HT		09	**054**	6	6	36	**099**	c	c	63	**0137**	NA	ë	**0182**	NA	╢	**0227**	NA	π
010	LF	LF	0A	**055**	7	7	37	**0100**	d	d	64	**0138**	NA	è	**0183**	NA	╖	**0228**	NA	∑
011	VT	♂	0B	**056**	8	8	38	**0101**	e	e	65	**0139**	NA	ï	**0184**	NA	╕	**0229**	NA	σ
012	FF	FF	0C	**057**	9	9	39	**0102**	f	f	66	**0140**	NA	î	**0185**	NA	╣	**0230**	NA	µ
013	CR	CR	0D	**058**	:	:	3A	**0103**	g	g	67	**0141**	NA	ì	**0186**	NA	║	**0231**	NA	τ
014	S0	♫	0E	**059**	;	;	3B	**0104**	h	h	68	**0142**	NA	Ä	**0187**	NA	╗	**0232**	NA	Φ
015	S1	☼	0F	**060**	<	<	3C	**0105**	i	i	69	**0143**	NA	Å	**0188**	NA	╝	**0233**	NA	Θ
016	DLE	4	10	**061**	=	=	3D	**0106**	j	j	6A	**0144**	NA	É	**0189**	NA	╜	**0234**	NA	Ω
017	DC1	3	11	**062**	>	>	3E	**0107**	k	k	6B	**0145**	NA	æ	**0190**	NA	╛	**0235**	NA	δ
018	DC2	ø	12	**063**	?	?	3F	**0108**	l	l	6C	**0146**	NA	Æ	**0191**	NA	┐	**0236**	NA	∞
019	DC3	Ø	13	**064**	@	@	40	**0109**	m	m	6D	**0147**	NA	ô	**0192**	NA	└	**0237**	NA	ø
020	DC4	ß	14	**065**	A	A	41	**0110**	n	n	6E	**0148**	NA	ö	**0193**	NA	┴	**0238**	NA	ε
021	NAK	§	15	**066**	B	B	42	**0111**	o	o	6F	**0149**	NA	ò	**0194**	NA	┬	**0239**	NA	∩
022	SYN		16	**067**	C	C	43	**0112**	p	p	70	**0150**	NA	û	**0195**	NA	├	**0240**	NA	≡
023	ETB	—	17	**068**	D	D	44	**0113**	q	q	71	**0151**	NA	ù	**0196**	NA	─	**0241**	NA	±
024	CAN	↑	18	**069**	E	E	45	**0114**	r	r	72	**0152**	NA	ÿ	**0197**	NA	┼	**0242**	NA	≥
025	EM	↓	19	**070**	F	F	46	**0115**	s	s	73	**0153**	NA	Ö	**0198**	NA	╞	**0243**	NA	≤
026	SUB	→	1A	**071**	G	G	47	**0116**	t	t	74	**0154**	NA	Ü	**0199**	NA	╟	**0244**	NA	⌠
027	ESC	←	1B	**072**	H	H	48	**0117**	u	u	75	**0155**	NA	¢	**0200**	NA	╚	**0245**	NA	⌡
028	FS	—	1C	**073**	I	I	49	**0118**	v	v	76	**0156**	NA	£	**0201**	NA	╔	**0246**	NA	÷
029	GS	—	1D	**074**	J	J	4A	**0119**	w	w	77	**0157**	NA	¥	**0202**	NA	╩	**0247**	NA	≈
030	RS	5	1E	**075**	K	K	4B	**0120**	x	x	78	**0158**	NA	₧	**0203**	NA	╦	**0248**	NA	°
031	US	ó	1F	**076**	L	L	4C	**0121**	y	y	79	**0159**	NA	ƒ	**0204**	NA	╠	**0249**	NA	•
032	SP		20	**077**	M	M	4D	**0122**	z	z	7A	**0160**	NA	╨	**0205**	NA	═	**0250**	NA	·
033	!	!	21	**078**	N	N	4E	**0123**	{	{	7B	**0161**	NA	í	**0206**	NA	╬	**0251**	NA	√
034	"	"	22	**079**	O	O	4F	**0124**	|	|	7C	**0162**	NA	ó	**0207**	NA	╧	**0252**	NA	ⁿ
035	#	#	23	**080**	P	P	50	**0125**	}	}	7D	**0163**	NA	ú	**0208**	NA	╨	**0253**	NA	²
036	$	$	24	**081**	Q	Q	51	**0126**	~	~	7E	**0164**	NA	ñ	**0209**	NA	╤	**0254**	NA	■
037	%	%	25	**082**	R	R	52	**0127**	DEL	□	7F	**0165**	NA	Ñ	**0210**	NA	╥	**0255**	NA	
038	&	&	26	**083**	S	S	53					**0166**	NA	ª	**0211**	NA	╙			
039	'	'	27	**084**	T	T	54					**0167**	NA	º	**0212**	NA	╘			
040	(	(	28	**085**	U	U	55					**0168**	NA	¿	**0213**	NA	╒			
041	)	)	29	**086**	V	V	56					**0169**	NA	⌐	**0214**	NA	╓			
042	*	*	2A	**087**	W	W	57					**0170**	NA	¬	**0215**	NA	╫			
043	+	+	2B	**088**	X	X	58					**0171**	NA	½	**0216**	NA	╪			
044	,	,	2C	**089**	Y	Y	59					**0172**	NA	¼	**0217**	NA	┘			

11.4 Application variable token table

If the Application Variable is unavailable for the selected application, the value will be 0 and the name will be “invalid”.

App Variable	Description	"Function ""1" (dec 49)	"Function ""2" (dec 50)	
1	ID	ID	ID	INTEGER
2	Tare Channel	value	"Tare Channel"	INTEGER
29	Grading Net Weight	value	“GradStr”	FLOAT
30	Grade 1	value	“Grad1”	FLOAT
31	Grade 2	value	“Grad2”	FLOAT
32	Grade 3	value	“Grad3”	FLOAT
33	Grade 4	value	“Grad4”	FLOAT
34	Grade 5	value	“Grad5”	FLOAT
35	Grade 6	value	“Grad6”	FLOAT
36	Grade 7	value	“Grad7”	FLOAT
37	Grade 8	value	“Grad8”	FLOAT
38	Grade 9	value	“Grad9”	FLOAT
39	Grade 10	value	“Grad10”	FLOAT
40	Grade 11	value	“Grad11”	FLOAT
41	Net Wt Count	value	“Cnt of Tot Wt”	INTEGER
42	Under Wt Count	value	“Cnt of Under Wt”	INTEGER
43	Target Wt Count	value	“Cnt of Target Wt”	INTEGER
44	Over Wt Count	value	“Cnt of Over Wt”	INTEGER
45	Mean Net Wt	value	“Mean Net Wt”	FLOAT
46	Median Net Wt	value	“Median Net Wt”	FLOAT
47	Standard Dev Wt	value	“SD Net Wt”	FLOAT
48	Coefficent Var Net Wt	value	“CV Net Wt”	FLOAT
49	Max Net Wt	value	“Max Net Wt”	FLOAT
50	Min Net Wt	value	“Min Net Wt”	FLOAT
51	Basis	value	“Basis”	INTEGER
52	Minimum	value	“Minimum”	FLOAT
53	Target Low	value	“Target Lo”	FLOAT
54	Target High	value	“Target Hi”	FLOAT
55	Tolerance Low	value	“Tolerance Lo”	FLOAT
56	Tolerance High	value	“Tolerance Hi”	FLOAT
57	Target	value	“Target”	FLOAT
58	Under Divisons	value	“Under Divisions”	INTEGER
59	Over Divisions	value	“Over Divisions”	INTEGER
60	Maximum	value	“Maximum”	FLOAT
61	Under Segment Div	value	“Under Divisions per Segment”	INTEGER
62	Over Segment Div	value	“Over Divisions per Segment”	INTEGER

App Variable	Description	"Function ""1" (dec 49)	"Function ""2" (dec 50)	
63	Checkweigh Net Wt	value	"UNDER", "ACCEPT", "OVER"	FLOAT
64	Checkweigh Net Wt	value	"ACCEPT" , "REJECT"	FLOAT
65	XR4500	Red / Green Light Control value	“XR4500 Light”	STRING
66	Type	value	“Type”	INTEGER
67	X-Bar	value	“XBar"	FLOAT
68	X-Bar/R	value	“XBar/R"	FLOAT
69	X-Bar Message	value	"XBar Message"	STRING
71	PLU Channel	value	“PLU Channel”	INTEGER
72	PLU Number	PLU Number	“PLU Number”	INTEGER
73	PLU Target Low	value	“Target Lo”	FLOAT
74	PLU Target High	value	“Target Hi”	FLOAT
75	PLU Tolerance Low	value	“Tolerance Lo”	FLOAT
76	PLU Tolerance High	value	“Tolerance Hi”	FLOAT
77	PLU Target	value	“Target”	FLOAT
78	PLU Transaction Count	value	“Transaction Count”	INTEGER
79	PLU Gross Accum	value	“Gross Accum”	FLOAT
80	PLU Net Accum	value	“Net Accum”	FLOAT
81	PLU Under Accum	value	“Under Accum”	FLOAT
82	PLU Target Accum	value	“Target Accum”	FLOAT
83	PLU Over Accum	value	“Over Accum”	FLOAT
84	PLU Under Count	PLU Under Count	“Under Count”	INTEGER
85	PLU Target Count	PLU Target Count	“Target Count”	INTEGER
86	PLU Over Count	PLU Over Count	“Over Count”	INTEGER
87	PLU Piece Weight	value	“Pieceweight”	FLOAT
88	PLU units	PLU units	“units”	STRING
91	Transaction Count	value	“Transaction Count”	INTEGER
92	Transaction PLU Number	Transaction PLU Number	“Transaction PLUNumber”	INTEGER
93	Transaction Time Date	Transaction Time & Date	“Transaction TimeDate”	STRING
94	Transaction Sys Count	value	“Transaction SysCount”	INTEGER
95	Transaction Gross Wt	value	“Transaction GrossWt”	FLOAT
96	Transaction Net Wt	value	“Transaction NetWt”	FLOAT
97	Transaction UOM	Transaction UOM	“Transaction UofM”	STRING
98	Transaction U/A/O	Transaction U/A/O	“Transaction UAO”	STRING
99	Transaction ID	Transaction ID	“Transaction ID”	INTEGER

When application variables are used in a print format they typically only get updated by a Print command. If using ENQ or B-Cast protocols use the P (Print) command to get active values for application variables.

11.5 Control codes

Decimal	Control Code Description	Control Code Name
1	Start of Heading	SOH
2	Start of Text	STX
3	End of Text	ETX
4	End of Transmission	EOT
5	Enquiry	ENQ
6	Acknowledge	ACK
7	Bell	BEL
8	Backspace	BS
9	Horizontal Tab	TAB
10	Line Feed (New Line)	LF
11	Veriticle Tab	VT
12	Form Feed (New Page)	FF
13	Carriage Return	CR
14	Shift Out	SO
15	Shift In	SI
16	Data Link Escape	DLE
17	Device Control 1	DC1
18	Device Control 2	DC2
19	Device Control 3	DC3
20	Device Control 4	DC4
21	Negative Acknowledge	NAK
22	Synchronous Idle	SYN
23	End of Block	ETB
24	Cancel	CAN
25	End of Medium	EM
26	Substitute	SUB
27	Escape	ESC
28	File Separator	FS
29	Group Separator	GS
30	Record Separator	RS
31	Unit Separator	US

Num	Description	Tokenized Format	Example	Print Format Editor Position																	
1	General Weighing	{T.GWT.2[W6]} {T.GWT.1} {T.UNIT.1}#CR#LF{T.SAT.2[W6]} {T.SAT.1} {T.UNIT.1}#CR#LF{T.NWT.2[W6]} {T.NWT.1} {T.UNIT.1}#CR#LF	Gross 272.04 lb Tare 95.88 lb Net 176.16 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.GWT	2	[	W	6	]		T.GWT	1		T.UNIT	1	#CR	#LF	T.SAT	2	[	W	6	]
				t1	50	t501	87	54	t502	32	t1	49	32	t9	49	13	10	t2	50	t501	87	54	t502
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
					T.SAT	1		T.UNIT	1	#CR	#LF	T.NWT	2	[	W	6	]		T.NWT	1		T.UNIT	1
				32	t2	49	32	t9	49	13	10	t3	50	t501	87	54	t502	32	t3	49	32	t9	49
				41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
				#CR	#LF																		
				13	10																		
2	Accumulate Format	{T.RTN.2}: {T.RTN.1}#CR#LF{T.GWT.2[W6]} {T.GWT.1} {T.UNIT.1}#CR#LF{T.SAT.2[W6]} {T.SAT.1} {T.UNIT.1}#CR#LF{T.NWT.2[W6]} {T.NWT.1} {T.UNIT.1}#CR#LF	Transaction Count: 10 Gross 272.04 lb Tare 95.88 lb Net 176.16 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.RTN	2	:		T.RTN	1	#CR	#LF	T.GWT	2	[	W	6	]		T.GWT	1		T.UNIT	1
				t300	50	58	32	t300	49	13	10	t1	50	t501	87	54	t502	32	t1	49	32	t9	49
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				#CR	#LF	T.SAT	2	[	W	6	]		T.SAT	1		T.UNIT	1	#CR	#LF	T.NWT	2	[	W
				13	10	t2	50	t501	87	54	t502	32	t2	49	32	t9	49	13	10	t3	50	t501	87
				41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
				6	]		T.NWT	1		T.UNIT	1	#CR	#LF										
				54	t502	32	t3	49	32	t9	49	13	10										
7	RD Format	{T.ACT.1} {T.UNIT.1} {T.ACT.2[W1]}#CR#LF	272.04 lb G	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.ACT	1		T.UNIT	1		T.ACT	2	[	W	1	]	#CR	#LF						
				t16	49	32	t9	49	32	t16	50	t501	87	49	t502	13	10						
8	Accum Total Format	{T.RTN.2}: {T.RTN.1}#CR#LF{T.GAT.2} {T.GAT.1} {T.UNIT.1}#CR#LF {T.TAT.2} {T.TAT.1} {T.UNIT.1}#CR#LF {T.NAT.2} {T.NAT.1} {T.UNIT.1}#CR#LF	Transaction Count: 10 Gross Total 0.00 lb Tare Total 0.00 lb Net Total 0.00 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.RTN	2	:		T.RTN	1	#CR	#LF	T.GAT	2		T.GAT	1		T.UNIT	1	#CR	#LF	T.TAT	2
				t300	50	58	32	t300	49	13	10	t104	50	32	t104	49	32	t9	49	13	10	t105	50
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
					T.TAT	1		T.UNIT	1	#CR	#LF	T.NAT	2		T.NAT	1		T.UNIT	1	#CR	#LF		
				32	t105	49	32	t9	49	13	10	t106	50	32	t106	49	32	t9	49	13	10		
12	Displayed Weight with Status	{T.ACT.2[W1]} {T.ACT.1} {T.UNIT.1} {T.WSTAT.1[W1]}#CR#LF	G 272.04 lb O	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.ACT	2	[	W	1	]		T.ACT	1		T.UNIT	1		T.WSTAT	1	[	W	1	]	#CR
				t16	50	t501	87	49	t502	32	t16	49	32	t9	49	32	t15	49	t501	87	49	t502	13
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				#LF																			
				10																			

Num	Description	Tokenized Format	Example	Print Format Editor Position																	
13	Basic Weight Ticket with Site ID, Time and Date	{T.TIM.1}#TAB{T.DAT.1}#CR#LF{A.1.2[W6]} {A.1.1[W6]}#CR#LF{T.GWT.2[W6]} {T.GWT.1} {T.UNIT.1}#CR#LF{T.SAT.2[W6]} {T.SAT.1} {T.UNIT.1}#CR#LF{T.NWT.2[W6]} {T.NWT.1} {T.UNIT.1}#CR#LF	03:15:43 02-08-2016 ID 8262 Gross 272.04 lb Tare 95.88 lb Net 176.16 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.TIM	1	#TAB	T.DAT	1	#CR	#LF	A.1	2	[	W	6	]		A.1	1	[	W	6	]
				t200	49	9	t201	49	13	10	a1	50	t501	87	54	t502	32	a1	49	t501	87	54	t502
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				#CR	#LF	T.GWT	2	[	W	6	]		T.GWT	1		T.UNIT	1	#CR	#LF	T.SAT	2	[	W
				13	10	t1	50	t501	87	54	t502	32	t1	49	32	t9	49	13	10	t2	50	t501	87
				41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
				6	]		T.SAT	1		T.UNIT	1	#CR	#LF	T.NWT	2	[	W	6	]		T.NWT	1	
				54	t502	32	t2	49	32	t9	49	13	10	t3	50	t501	87	54	t502	32	t3	49	32
				61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
				T.UNIT	1	#CR	#LF																
				t9	49	13	10																
14	Basic Weight Ticket with Time and Date and Register	{T.TIM.1} {T.DAT.1}#CR#LF {T.GWT.2[W1]} {T.GWT.1} {T.UNIT.1}#CR#LF{A.2.1[W1]} {T.SAT.2[W1]} {T.SAT.1} {T.UNIT.1}#CR#LF {T.NWT.2[W1]} {T.NWT.1} {T.UNIT.1}#CR#LF	03:15:43 02-08-2016 G 272.04 lb 1 T 95.88 lb N 176.16 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.TIM	1		T.DAT	1	#CR	#LF			T.GWT	2	[	W	1	]		T.GWT	1		T.UNIT
				t200	49	32	t201	49	13	10	32	32	t1	50	t501	87	49	t502	32	t1	49	32	t9
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				1	#CR	#LF	A.2	1	[	W	1	]		T.SAT	2	[	W	1	]		T.SAT	1	
				49	13	10	a2	49	t501	87	49	t502	32	t2	50	t501	87	49	t502	32	t2	49	32
				41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
				T.UNIT	1	#CR	#LF			T.NWT	2	[	W	1	]		T.NWT	1		T.UNIT	1	#CR	#LF
				t9	49	13	10	32	32	t3	50	t501	87	49	t502	32	t3	49	32	t9	49	13	10
15	Accumulated Gross	{T.GAT.2} {T.GAT.1} {T.UNIT.1}#CR#LF	Gross Total 0.00 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.GAT	2		T.GAT	1		T.UNIT	1	#CR	#LF										
				t104	50	32	t104	49	32	t9	49	13	10										
16	Accumulated Net	{T.NAT.2} {T.NAT.1} {T.UNIT.1}#CR#LF	Net Total 0.00	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.NAT	2		T.NAT	1		T.UNIT	1	#CR	#LF										
				t106	50	32	t106	49	32	t9	49	13	10										
17	Basic Accum Ticket	{T.GAT.2} {T.GAT.1} {T.UNIT.1}#CR#LF {T.TAT.2} {T.TAT.1} {T.UNIT.1}#CR#LF {T.NAT.2} {T.NAT.1} {T.UNIT.1}#CR#LF	Gross Total 0.00 lb Tare Total 0.00 lb Net Total 0.00 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.GAT	2		T.GAT	1		T.UNIT	1	#CR	#LF	T.TAT	2		T.TAT	1		T.UNIT	1	#CR	#LF
				t104	50	32	t104	49	32	t9	49	13	10	t105	50	32	t105	49	32	t9	49	13	10
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				T.NAT	2		T.NAT	1		T.UNIT	1	#CR	#LF										
				t106	50	32	t106	49	32	t9	49	13	10										

Num	Description	Tokenized Format	Example	Print Format Editor Position																		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				O	D	#CR	#LF	N	#CR	#LF	q	4	6	4	#CR	#LF	Q	8	1	2	,	2	0
				79	68	13	10	78	13	10	113	52	54	52	13	10	81	56	49	50	44	50	48
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				+	0	#CR	#LF	S	2	#CR	#LF	D	8	#CR	#LF	Z	T	#CR	#LF	A	5	5	,
				43	48	13	10	83	50	13	10	68	56	13	10	90	84	13	10	65	53	53	44
				41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
				6	5	0	,	3	,	4	,	1	,	1	,	N	,	"	T.TIM	1	[	F	2
				54	53	48	44	51	44	52	44	49	44	49	44	78	44	34	t200	49	t501	70	50
				61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
				]		T.DAT	1	[	F	2	]	"	#CR	#LF	B	1	0	0	,	6	9	0	,
				t502	32	t201	49	t501	70	50	t502	34	13	10	66	49	48	48	44	54	57	48	44
				81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
				3	,	3	,	2	,	4	,	4	0	,	B	,	"	I	D		A.1	1	"
				51	44	51	44	50	44	52	44	52	48	44	66	44	34	73	68	32	a1	49	34
				101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
19	2.5 in. X 4.0 in. Barcode Ticket with Site ID, Time and Date	OD#CR#LFN#CR#LFq464#CR#LFQ812,20+0#CR#LFS2#CR#LFD8#CR#LFZT#CR#LFA55,650,3,4,1,1,N,"{T.TIM.1}{T.DAT.1}"#CR#LFB100,690,3,3,2,4,40,B,"ID {A.1.1}"#CR#LFB180,690,3,3,2,4,40,B,"G {T.GWT.1}{T.UNIT.1}"#CR#LFB265,690,3,3,2,4,40,B,"T {T.SAT.1}{T.UNIT.1}"#CR#LFB370,690,3,3,2,4,40,B,"N {T.NWT.1}{T.UNIT.1}"#CR#LFP1#CR#LF#FF	02:23 12-08-16 ID 10 G 2242 lb T 0 lb N 2242 lb	#CR	#LF	B	1	8	0	,	6	9	0	,	3	,	3	,	2	,	4	,	4
				13	10	66	49	56	48	44	54	57	48	44	51	44	51	44	50	44	52	44	52
				121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
				0	,	B	,	"	G		T.GWT	1		T.UNIT	1	"	#CR	#LF	B	2	6	5	,
				48	44	66	44	34	71	32	t1	49	32	t9	49	34	13	10	66	50	54	53	44
				141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
				6	9	0	,	3	,	3	,	2	,	4	,	4	0	,	B	,	"	T	
				54	57	48	44	51	44	51	44	50	44	52	44	52	48	44	66	44	34	84	32
				161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
				T.SAT	1		T.UNIT	1	"	#CR	#LF	B	3	7	0	,	6	9	0	,	3	,	3
				t2	49	32	t9	49	34	13	10	66	51	55	48	44	54	57	48	44	51	44	51
				181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
				,	2	,	4	,	4	0	,	B	,	"	N		T.NWT	1		T.UNIT	1	"	#CR
				44	50	44	52	44	52	48	44	66	44	34	78	32	t3	49	32	t9	49	34	13
				201	202	203	204	205	206														
				#LF	P	1	#CR	#LF	#FF														
				10	80	49	13	10	12														

Num	Description	Tokenized Format	Example
20	1.25 x 1.00 Thermal Label Ticket with Time and Date	#CR#LF OD#CR#LF N#CR#LF q248#CR#LF Q173,24+0#CR#LF S2#CR#LF D8#CR#LF ZT#CR#LF A18,8,0,3,1,1,N,"{T.TIM.1[F2]}"#CR#LF A134,8,0,3,1,1,N,"{T.DAT.1[F2]}"#CR#LF A30,47,0,4,1,1,N,"G {T.GWT.1} {T.UNIT.1}"#CR#LF A30,81,0,4,1,1,N,"T {T.SAT.1} {T.UNIT.1}"#CR#LF A30,116,0,4,1,1,N,"N {T.NWT.1} {T.UNIT.1}"#CR#LF P1#CR#LF #FF	02:23 12-8-16 G 2242 lb T 0 lb N 2242 lb

Print Format Editor Position

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
#CR	#LF	O	D	#CR	#LF	N	#CR	#LF	q	2	4	8	#CR	#LF	Q	1	7	3	,
13	10	79	68	13	10	78	13	10	113	50	52	56	13	10	81	49	55	51	44
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	4	+	0	#CR	#LF	S	2	#CR	#LF	D	8	#CR	#LF	Z	T	#CR	#LF	A	1
50	52	43	48	13	10	83	50	13	10	68	56	13	10	90	84	13	10	65	49
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
8	,	8	,	0	,	3	,	1	,	1	,	N	,	"	T.TIM	1	[	F	2
56	44	56	44	48	44	51	44	49	44	49	44	78	44	34	t200	49	t501	70	50
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
]	"	#CR	#LF	A	1	3	4	,	8	,	0	,	3	,	1	,	1	,	N
t502	34	13	10	65	49	51	52	44	56	44	48	44	51	44	49	44	49	44	78
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
,	"	T.DAT	1	[	F	2	]	"	#CR	#LF	A	3	0	,	4	7	,	0	,
44	34	t201	49	t501	70	50	t502	34	13	10	65	51	48	44	52	55	44	48	44
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
4	,	1	,	1	,	N	,	"	G		T.GWT	1		T.UNIT	1	"	#CR	#LF	A
52	44	49	44	49	44	78	44	34	71	32	t1	49	32	t9	49	34	13	10	65
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
3	0	,	8	1	,	0	,	4	,	1	,	1	,	N	,	"	T		T.SAT
51	48	44	56	49	44	48	44	52	44	49	44	49	44	78	44	34	84	32	t2
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
1		T.UNIT	1	"	#CR	#LF	A	3	0	,	1	1	6	,	0	,	4	,	1
49	32	t9	49	34	13	10	65	51	48	44	49	49	54	44	48	44	52	44	49
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
,	1	,	N	,	"	N		T.NWT	1		T.UNIT	1	"	#CR	#LF	P	1	#CR	#LF
44	49	44	78	44	34	78	32	t3	49	32	t9	49	34	13	10	80	49	13	10
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
#FF																			
12																			

Num	Description	Tokenized Format	Example
21	2.50 x 4.00 Thermal Label Ticket with ID, Time and Date	#CR#LFOD#CR#LFN#CR#LFq464#CR#LFQ812,24+0#CR#LFS2#CR#LFD8#CR#LFZT#CR#LFA40,120,0,1,2,2,N,"{T.TIM.1}{T.DAT.1}"#CR#LFA60,225,0,1,3,4,N,"ID {A.1.1}"#CR#LFA30,360,0,1,3,5,N,"G {T.GWT.1}{T.UNIT.1}"#CR#LFA30,490,0,1,3,5,N,"T {T.SAT.1}{T.UNIT.1}"#CR#LFA30,620,0,1,3,5,N,"N {T.NWT.1}{T.UNIT.1}"#CR#LFP1#CR#LF#FF	02:23 12-8-16 ID 10 G 2242 lb T 0 lb N 2242 lb

Print Format Editor Position

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
#CR	#LF	O	D	#CR	#LF	N	#CR	#LF	q	4	6	4	#CR	#LF	Q	8	1	2	,
13	10	79	68	13	10	78	13	10	113	52	54	52	13	10	81	56	49	50	44
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	4	+	0	#CR	#LF	S	2	#CR	#LF	D	8	#CR	#LF	Z	T	#CR	#LF	A	4
50	52	43	48	13	10	83	50	13	10	68	56	13	10	90	84	13	10	65	52
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
0	,	1	2	0	,	0	,	1	,	2	,	2	,	N	,	"	T.TIM	1	[
48	44	49	50	48	44	48	44	49	44	50	44	50	44	78	44	34	t200	49	t501
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
F	2	]		T.DAT	1	[	F	2	]	"	#CR	#LF	A	6	0	,	2	2	5
70	50	t502	32	t201	49	t501	70	50	t502	34	13	10	65	54	48	44	50	50	53
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
,	0	,	1	,	3	,	4	,	N	,	"	I	D		A.1	1	"	#CR	#LF
44	48	44	49	44	51	44	52	44	78	44	34	73	68	32	a1	49	34	13	10
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A	3	0	,	3	6	0	,	0	,	1	,	3	,	5	,	N	,	"	G
65	51	48	44	51	54	48	44	48	44	49	44	51	44	53	44	78	44	34	71
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
	T.GWT	1		T.UNIT	1	"	#CR	#LF	A	3	0	,	4	9	0	,	0	,	1
32	t1	49	32	t9	49	34	13	10	65	51	48	44	52	57	48	44	48	44	49
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
,	3	,	5	,	N	,	"	T		T.SAT	1		T.UNIT	1	"	#CR	#LF	A	3
44	51	44	53	44	78	44	34	84	32	t2	49	32	t9	49	34	13	10	65	51
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
0	,	6	2	0	,	0	,	1	,	3	,	5	,	N	,	"	N		T.NWT
48	44	54	50	48	44	48	44	49	44	51	44	53	44	78	44	34	78	32	t3
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
1		T.UNIT	1	"	#CR	#LF	P	1	#CR	#LF	#FF								
49	32	t9	49	34	13	10	80	49	13	10	12								

<table>
<tr><th>Num</th><th>Description</th><th>Tokenized Format</th><th>Example</th><th colspan="20">Print Format Editor Position</th></tr>
<tr><td rowspan="22">22</td><td rowspan="22">4.00 x 6.00 Thermal Label Ticket with ID, Time and Date</td><td rowspan="22">#CR#LFOD#CR#LFN#CR#LFq816#CR#LFQ1218,20+0#CR#LFS2#CR#LFD8#CR#LFZT#CR#LFA190,135,0,2,2,2,N,"{T.TIM.1}{T.DAT.1}"#CR#LFA190,275,0,2,3,3,N,"ID {A.1.1}"#CR#LFA90,545,0,2,4,4,N,"G {T.GWT.1}{T.UNIT.1}"#CR#LFA90,685,0,2,4,4,N,"T {T.SAT.1}{T.UNIT.1}"#CR#LFA90,825,0,2,4,4,N,"N {T.NWT.1}{T.UNIT.1}"#CR#LFP1#CR#LF#FF</td><td rowspan="22">02:23 12-8-16
ID 10
G 2242 lb
T 0 lb
N 2242 lb</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr>
<tr><td>#CR</td><td>#LF</td><td>O</td><td>D</td><td>#CR</td><td>#LF</td><td>N</td><td>#CR</td><td>#LF</td><td>q</td><td>8</td><td>1</td><td>6</td><td>#CR</td><td>#LF</td><td>Q</td><td>1</td><td>2</td><td>1</td><td>8</td></tr>
<tr><td>13</td><td>10</td><td>79</td><td>68</td><td>13</td><td>10</td><td>78</td><td>13</td><td>10</td><td>113</td><td>56</td><td>49</td><td>54</td><td>13</td><td>10</td><td>81</td><td>49</td><td>50</td><td>49</td><td>56</td></tr>
<tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr>
<tr><td>,</td><td>2</td><td>0</td><td>+</td><td>0</td><td>#CR</td><td>#LF</td><td>S</td><td>2</td><td>#CR</td><td>#LF</td><td>D</td><td>8</td><td>#CR</td><td>#LF</td><td>Z</td><td>T</td><td>#CR</td><td>#LF</td><td>A</td></tr>
<tr><td>44</td><td>50</td><td>48</td><td>43</td><td>48</td><td>13</td><td>10</td><td>83</td><td>50</td><td>13</td><td>10</td><td>68</td><td>56</td><td>13</td><td>10</td><td>90</td><td>84</td><td>13</td><td>10</td><td>65</td></tr>
<tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr>
<tr><td>1</td><td>9</td><td>0</td><td>,</td><td>1</td><td>3</td><td>5</td><td>,</td><td>0</td><td>,</td><td>2</td><td>,</td><td>3</td><td>,</td><td>3</td><td>,</td><td>N</td><td>,</td><td>"</td><td>T.TIM</td></tr>
<tr><td>49</td><td>57</td><td>48</td><td>44</td><td>49</td><td>51</td><td>53</td><td>44</td><td>48</td><td>44</td><td>50</td><td>44</td><td>51</td><td>44</td><td>51</td><td>44</td><td>78</td><td>44</td><td>34</td><td>t200</td></tr>
<tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr>
<tr><td>1</td><td>[</td><td>F</td><td>2</td><td>]</td><td></td><td>T.DAT</td><td>1</td><td>[</td><td>F</td><td>2</td><td>]</td><td>"</td><td>#CR</td><td>#LF</td><td>A</td><td>1</td><td>9</td><td>0</td><td>,</td></tr>
<tr><td>49</td><td>t501</td><td>70</td><td>50</td><td>t502</td><td>32</td><td>t201</td><td>49</td><td>t501</td><td>70</td><td>50</td><td>t502</td><td>34</td><td>13</td><td>10</td><td>65</td><td>49</td><td>57</td><td>48</td><td>44</td></tr>
<tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr>
<tr><td>2</td><td>7</td><td>5</td><td>,</td><td>0</td><td>,</td><td>2</td><td>,</td><td>3</td><td>,</td><td>3</td><td>,</td><td>N</td><td>,</td><td>"</td><td>I</td><td>D</td><td></td><td>A.1</td><td>1</td></tr>
<tr><td>50</td><td>55</td><td>53</td><td>44</td><td>48</td><td>44</td><td>50</td><td>44</td><td>51</td><td>44</td><td>51</td><td>44</td><td>78</td><td>44</td><td>34</td><td>73</td><td>68</td><td>32</td><td>a1</td><td>49</td></tr>
<tr><td>101</td><td>102</td><td>103</td><td>104</td><td>105</td><td>106</td><td>107</td><td>108</td><td>109</td><td>110</td><td>111</td><td>112</td><td>113</td><td>114</td><td>115</td><td>116</td><td>117</td><td>118</td><td>119</td><td>120</td></tr>
<tr><td>"</td><td>#CR</td><td>#LF</td><td>A</td><td>9</td><td>0</td><td>,</td><td>5</td><td>4</td><td>5</td><td>,</td><td>0</td><td>,</td><td>2</td><td>,</td><td>4</td><td>,</td><td>4</td><td>,</td><td>N</td></tr>
<tr><td>34</td><td>13</td><td>10</td><td>65</td><td>57</td><td>48</td><td>44</td><td>53</td><td>52</td><td>53</td><td>44</td><td>48</td><td>44</td><td>50</td><td>44</td><td>52</td><td>44</td><td>52</td><td>44</td><td>78</td></tr>
<tr><td>121</td><td>122</td><td>123</td><td>124</td><td>125</td><td>126</td><td>127</td><td>128</td><td>129</td><td>130</td><td>131</td><td>132</td><td>133</td><td>134</td><td>135</td><td>136</td><td>137</td><td>138</td><td>139</td><td>140</td></tr>
<tr><td>,</td><td>"</td><td>G</td><td></td><td>T.GWT</td><td>1</td><td></td><td>T.UNIT</td><td>1</td><td>"</td><td>#CR</td><td>#LF</td><td>A</td><td>9</td><td>0</td><td>,</td><td>6</td><td>8</td><td>5</td><td>,</td></tr>
<tr><td>44</td><td>34</td><td>71</td><td>32</td><td>t1</td><td>49</td><td>32</td><td>t9</td><td>49</td><td>34</td><td>13</td><td>10</td><td>65</td><td>57</td><td>48</td><td>44</td><td>54</td><td>56</td><td>53</td><td>44</td></tr>
<tr><td>141</td><td>142</td><td>143</td><td>144</td><td>145</td><td>146</td><td>147</td><td>148</td><td>149</td><td>150</td><td>151</td><td>152</td><td>153</td><td>154</td><td>155</td><td>156</td><td>157</td><td>158</td><td>159</td><td>160</td></tr>
<tr><td>0</td><td>,</td><td>2</td><td>,</td><td>4</td><td>,</td><td>4</td><td>,</td><td>N</td><td>,</td><td>"</td><td>T</td><td></td><td>T.SAT</td><td>1</td><td></td><td>T.UNIT</td><td>1</td><td>"</td><td>#CR</td></tr>
<tr><td>48</td><td>44</td><td>50</td><td>44</td><td>52</td><td>44</td><td>52</td><td>44</td><td>78</td><td>44</td><td>34</td><td>84</td><td>32</td><td>t2</td><td>49</td><td>32</td><td>t9</td><td>49</td><td>34</td><td>13</td></tr>
<tr><td>161</td><td>162</td><td>163</td><td>164</td><td>165</td><td>166</td><td>167</td><td>168</td><td>169</td><td>170</td><td>171</td><td>172</td><td>173</td><td>174</td><td>175</td><td>176</td><td>177</td><td>178</td><td>179</td><td>180</td></tr>
<tr><td>#LF</td><td>A</td><td>9</td><td>0</td><td>,</td><td>8</td><td>2</td><td>5</td><td>,</td><td>0</td><td>,</td><td>2</td><td>,</td><td>4</td><td>,</td><td>4</td><td>,</td><td>N</td><td>,</td><td>"</td></tr>
<tr><td>10</td><td>65</td><td>57</td><td>48</td><td>44</td><td>56</td><td>50</td><td>53</td><td>44</td><td>48</td><td>44</td><td>50</td><td>44</td><td>52</td><td>44</td><td>52</td><td>44</td><td>78</td><td>44</td><td>34</td></tr>
<tr><td>181</td><td>182</td><td>183</td><td>184</td><td>185</td><td>186</td><td>187</td><td>188</td><td>189</td><td>190</td><td>191</td><td>192</td><td>193</td><td>194</td><td>195</td><td>196</td><td>197</td><td>198</td><td>199</td><td>200</td></tr>
<tr><td>N</td><td></td><td>T.NWT</td><td>1</td><td></td><td>T.UNIT</td><td>1</td><td>"</td><td>#CR</td><td>#LF</td><td>P</td><td>1</td><td>#CR</td><td>#LF</td><td>#FF</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>78</td><td>32</td><td>t3</td><td>49</td><td>32</td><td>t9</td><td>49</td><td>34</td><td>13</td><td>10</td><td>80</td><td>49</td><td>13</td><td>10</td><td>12</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="22">23</td><td rowspan="22">ZQ375 GTN</td><td rowspan="22">{T.TIM.1[F2]}#TAB{T.DAT.1[F2]}#CR#LF{T.GWT.2[W6]}: {T.GWT.1}{T.UNIT.1}#CR#LF{T.NWT.2[W6]}: {T.NWT.1}{T.UNIT.1}#CR#LF{T.SAT.2[W6]}: {T.SAT.1} {T.UNIT.1}#CR#LF</td><td rowspan="22">03:15 am 02-08-2016
Gross: 272.04 lb
Tare 176.16 lb
Net 95.88 lb</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr>
<tr><td>T.TIM</td><td>1</td><td>#TAB</td><td>T.DAT</td><td>1</td><td>#CR</td><td>#LF</td><td>T.GWT</td><td>2</td><td>[</td><td>W</td><td>6</td><td>]</td><td>:</td><td></td><td>T.GWT</td><td>1</td><td></td><td>T.UNIT</td><td>1</td></tr>
<tr><td>t200</td><td>49</td><td>9</td><td>t201</td><td>49</td><td>13</td><td>10</td><td>t1</td><td>50</td><td>t501</td><td>87</td><td>54</td><td>t502</td><td>58</td><td>32</td><td>t1</td><td>49</td><td>32</td><td>t9</td><td>49</td></tr>
<tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr>
<tr><td>#CR</td><td>#LF</td><td>T.NWT</td><td>2</td><td>[</td><td>W</td><td>6</td><td>]</td><td>:</td><td></td><td>T.NWT</td><td>1</td><td></td><td>T.UNIT</td><td>1</td><td>#CR</td><td>#LF</td><td>T.SAT</td><td>2</td><td>[</td></tr>
<tr><td>13</td><td>10</td><td>t3</td><td>50</td><td>t501</td><td>87</td><td>54</td><td>t502</td><td>58</td><td>32</td><td>t3</td><td>49</td><td>32</td><td>t9</td><td>49</td><td>13</td><td>10</td><td>t2</td><td>50</td><td>t501</td></tr>
<tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr>
<tr><td>W</td><td>6</td><td>]</td><td>:</td><td></td><td>T.SAT</td><td>1</td><td></td><td>T.UNIT</td><td>1</td><td>#CR</td><td>#LF</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>87</td><td>54</td><td>t502</td><td>58</td><td>32</td><td>t2</td><td>49</td><td>32</td><td>t9</td><td>49</td><td>13</td><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

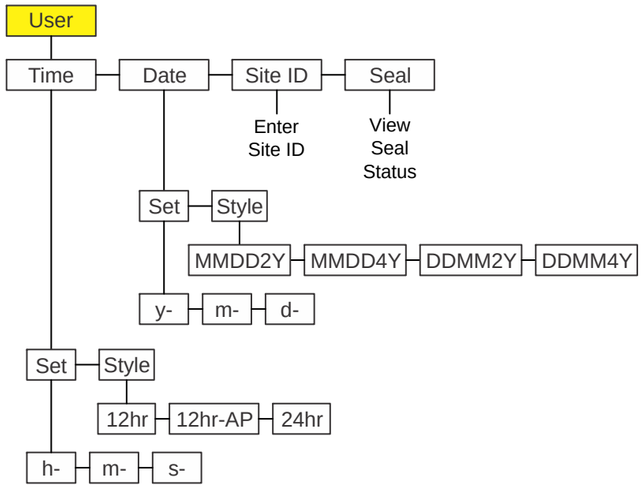
Num	Description	Tokenized Format	Example	Print Format Editor Position																			
24	ZQ375 Checkweigher Under / Accept / Over Band	{A.63.2}: {A.63.1} {T.UNIT.1}#CR#LF	Accept: 176.16 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				A.63	2	:		A.63	1		T.UNIT	#CR	#LF										
				a63	50	58	32	a63	49	32	t9	13	10										
25	ZQ375 Checkweigher Accept / Reject Band	{A.64.2}: {A.64.1} {T.UNIT.1}#CR#LF	Reject: 142 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				A.64	2	:		A.64	1		T.UNIT	#CR	#LF										
				a64	50	58	32	a64	49	32	t9	13	10										
26	Brecknell RD-65 (Setup RD for Data Format #3)	{T.ACT.2[W1]} {T.ACT.1[W6]} {T.UNIT.1[W2]} #CR#LF	G 272.04 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
					T.ACT	2	[	W	1	]		T.ACT	1	[	W	6	]		T.UNIT	[	W	2	]
				32	t16	50	t501	87	49	t502	32	t16	49	t501	87	54	t502	32	t9	t501	87	50	t502
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				#CR	#LF																		
				13	10																		
27	ZQ375 Net Weighment with Band	{T.NWT.1} {T.UNIT.1} {A.63.2}#CR#LF	3.601 lb OVER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.NWT	1		T.UNIT	1		A.63	2	#CR	#LF										
				t3	49	32	t9	49	32	a63	50	13	10										
28	ZQ375 Standard Deviation	{A.56.2} = {A.56.1} {T.UNIT.1}#CR#LF{A.55.2} = {A.55.1} {T.UNIT.1}#CR#LF#CR#LF{A.44.2} = {A.44.1}#CR#LF{A.42.2} = {A.42.1}#CR#LF{A.43.2} = {A.43.1}#CR#LF{A.45.2} = {A.45.1} {T.UNIT.1}#CR#LF{A.49.2} = {A.49.1} {T.UNIT.1}#CR#LF{A.50.2} = {A.50.1} {T.UNIT.1}#CR#LF{A.47.2} = {A.47.1}#CR#LF{A.48.2} = {A.48.1} PCT#CR#LF{A.41.2} = {A.41.1}#CR#LF	ACCEPT: 15.004 lb ACCEPT: 15.003 lb OVER: 17.504 lb OVER: 17.504 lb Tolerance Hi= 0.550 lb Tolerance Lo= 0.240 lb Cnt of Over Wt= 5 Cnt of Under Wt= 4 Cnt of Target Wt= 5 Mean Net Wt= 16.504 lb Max Net Wt= 17.504 lb Min Net Wt= 15.003 lb SD Net Wt= 1.370	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				A.56	2		=	A.56	1		T.UNIT	1	#CR	#LF	A.55	2		=	A.55	1		T.UNIT	1
				a56	50	32	61	a56	49	32	t9	49	13	10	a55	50	32	61	a55	49	32	t9	49
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				#CR	#LF	#CR	#LF	A.44	2		=	A.44	1	#CR	#LF	A.42	2		=	A.42	1	#CR	#LF
				13	10	13	10	a44	50	32	61	a44	49	13	10	a42	50	32	61	a42	49	13	10
				41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
				A.43	2		=	A.43	1	#CR	#LF	A.45	2		=	A.45	1		T.UNIT	1	#CR	#LF	A.49
				a43	50	32	61	a43	49	13	10	a45	50	32	61	a45	49	32	t9	49	13	10	a49
				61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
				2		=	A.49	1		T.UNIT	1	#CR	#LF	A.50	2		=	A.50	1		T.UNIT	1	#CR
				50	32	61	a49	49	32	t9	49	13	10	a50	50	32	61	a50	49	32	t9	49	13
				81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
				#LF	A.47	2		=	A.47	1	#CR	#LF	A.48	2		=	A.48	1		P	C	T	#CR
				10	a47	50	32	61	a47	49	13	10	a48	50	32	61	a48	49	32	80	67	84	13
				101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
				#LF	A.41	2		=	A.41	1	#CR	#LF											
				10	a41	50	32	61	a41	49	13	10											

Num	Description	Tokenized Format	Example	Print Format Editor Position																			
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
29	ZQ375 X-Bar / R (Need TREND Message)	{A.54.2} = {A.54.1} {T.UNIT.1}#CR#LF{A.53.2} = {A.53.1} {T.UNIT.1}#CR#LF#CR#LF{A.45.2} = {A.45.1} {T.UNIT.1}#CR#LF{A.46.2} = {A.46.1} {T.UNIT.1}#CR#LF	OVER = 3.100 lb UNDER = 2.900 lb AVG = 3.5206 lb RANGE = 1.20 lb	A.54	2		=	A.54	1		T.UNIT	1	#CR	#LF	A.53	2		=	A.53	1		T.UNIT	1
				a54	50	32	61	a54	49	32	t9	49	13	10	a53	50	32	61	a53	49	32	t9	49
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				#CR	#LF	#CR	#LF	A.45	2		=	A.45	1	T.UNIT	1	#CR	#LF	A.46	2		=	A.46	1
				13	10	13	10	a45	50	32	61	a45	49	t9	49	13	10	a46	50	32	61	a46	49
				41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
				1	T.UNIT	#CR	#LF																
				49	t9	13	10																
30	ZQ375 Grading	{A.29.2} {A.29.1} {T.UNIT.1}#CR#LF	Grad3 6.005 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				A.29	2		A.29	1		T.UNIT	1	#CR	#LF										
				a29	50	32	a29	49	32	t9	49	13	10										
32	Analog Output	{T.ACT.1}	6.005	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				T.ACT	1																		
				t16	49																		
33	ZQ375 Accept / Reject w/ XR4500 Light Control	{A.65.1}#CR#LF{T.ACT.2[W1]} {T.ACT.1[W6]} {T.UNIT.1}#CR#LF	& G 6.005 lb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				A.65	1	#CR	#LF	T.ACT	2	[	W	1	]		T.ACT	1	[	W	6	]		T.UNIT	[
				t16	49	13	10	t16	50	t501	87	49	t502	32	t16	49	t501	87	54	t502	32	t9	t501
				21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				W	2	]	#CR	#LF															
				87	50	t502	13	10															

12 Complete menu structures

User Menu

See *User menu on page 34*



Menu Navigation Keys:

Press **SELECT**/ ▼ to move down in a menu

Press **TARE**/ ▲ to move up in a menu, except at the bottom item in a menu, then use **ZERO**/ ↵ or **F1**

Press **PRINT**/ ◀ to move left in a menu

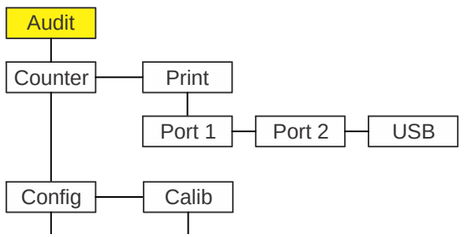
Press **UNITS**/ ▶ to move right in a menu

Press **ZERO**/ ↵ to accept a value or choice and move up in the menu.

Press **F1** to escape and move up in the menu

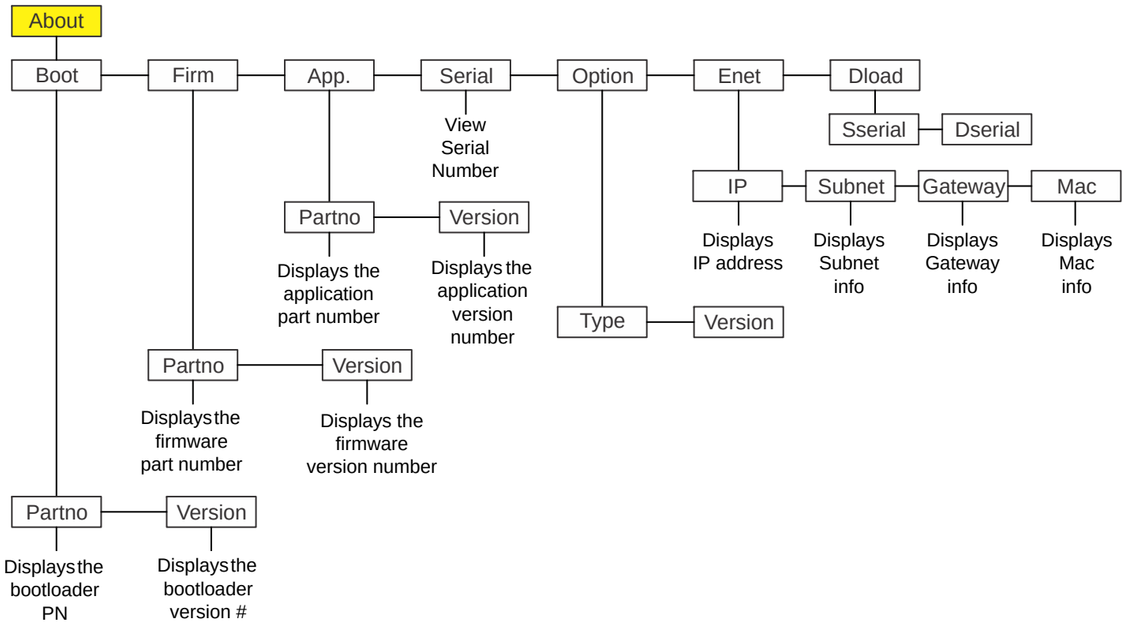
Audit Menu

See *Audit menu on page 42*



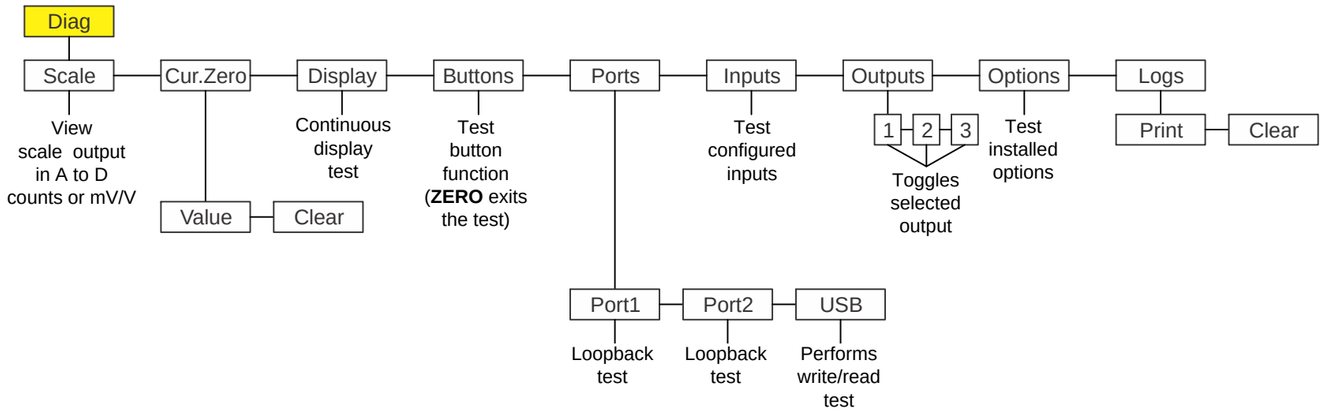
About Menu

See *About menu on page 38*



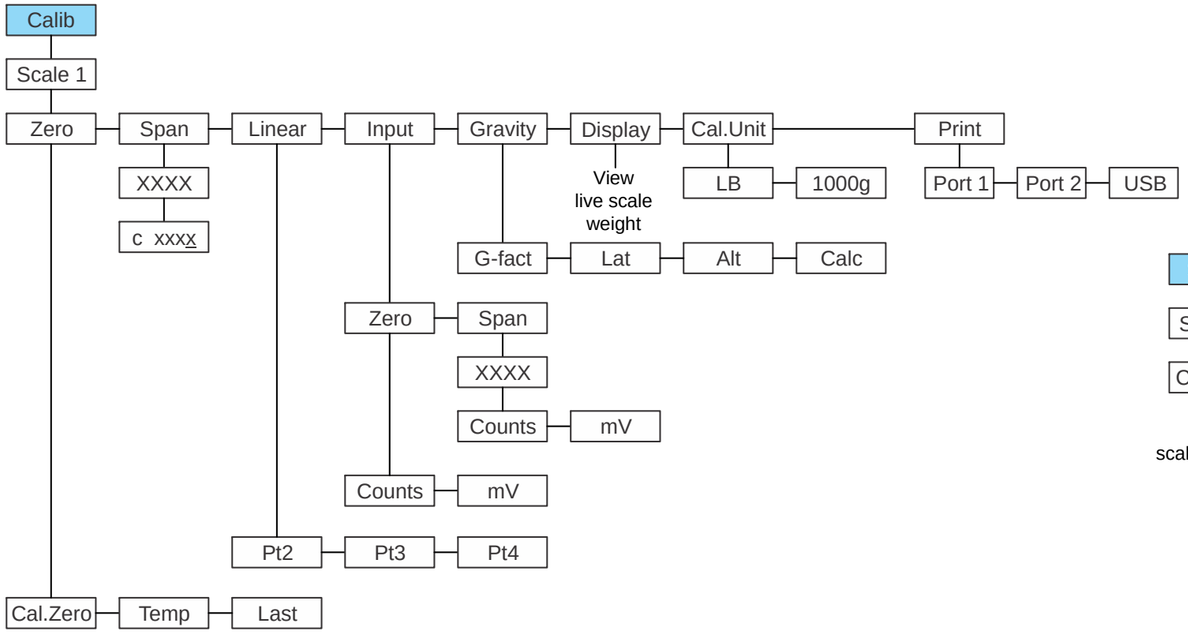
Diagnostics Menu

See *Diag menu on page 45*



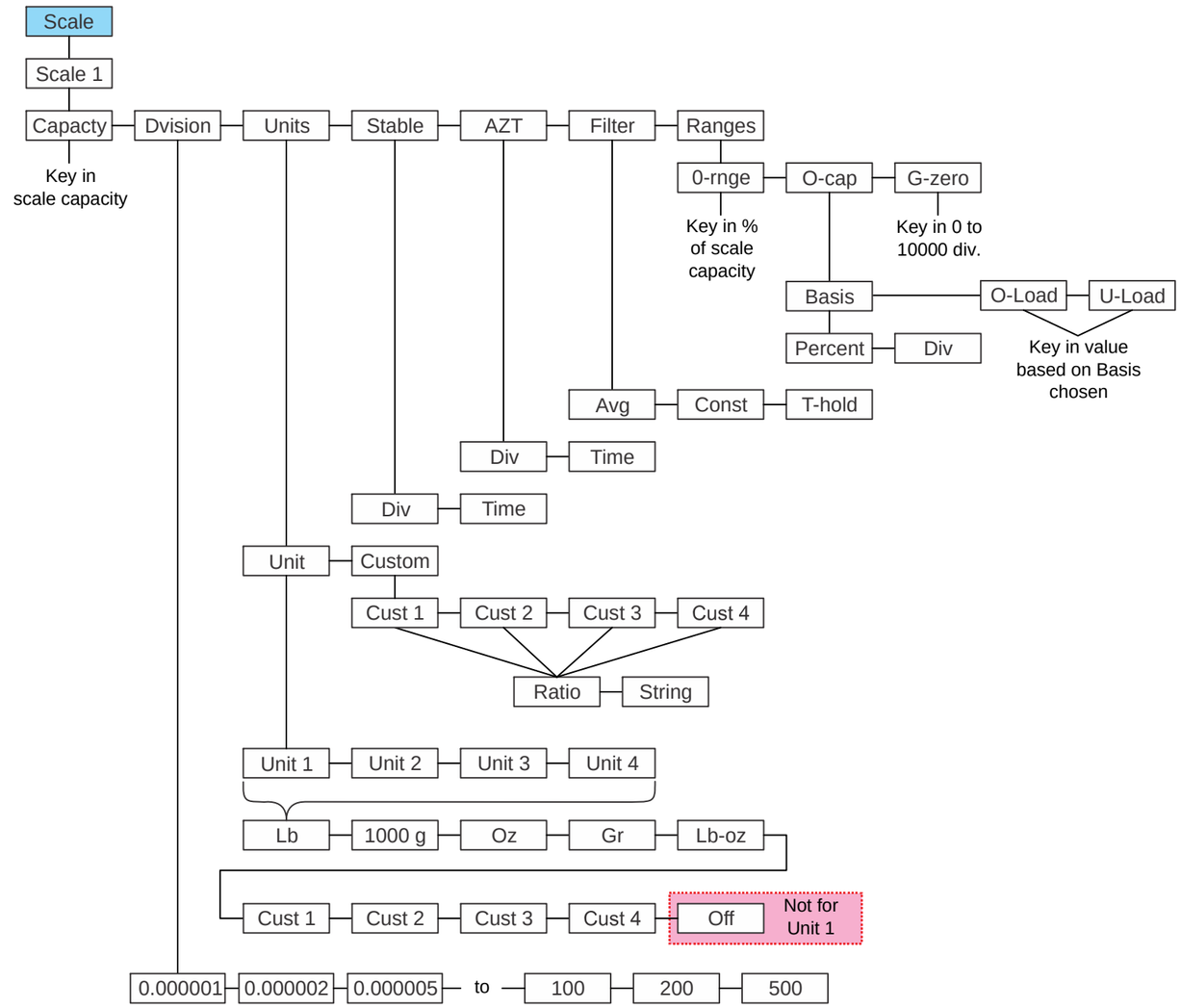
Calibration Menu

See *Calibration Procedure on page 52*



Scale Menu

See *Scale on page 60*



Menu Navigation Keys:

Press **SELECT/** ▼ to move down in a menu

Press **TARE/** ▲ to move up in a menu, except at the bottom item in a menu, then use **ZERO/** ↵ or **F1**

Press **PRINT/** ◀ to move left in a menu

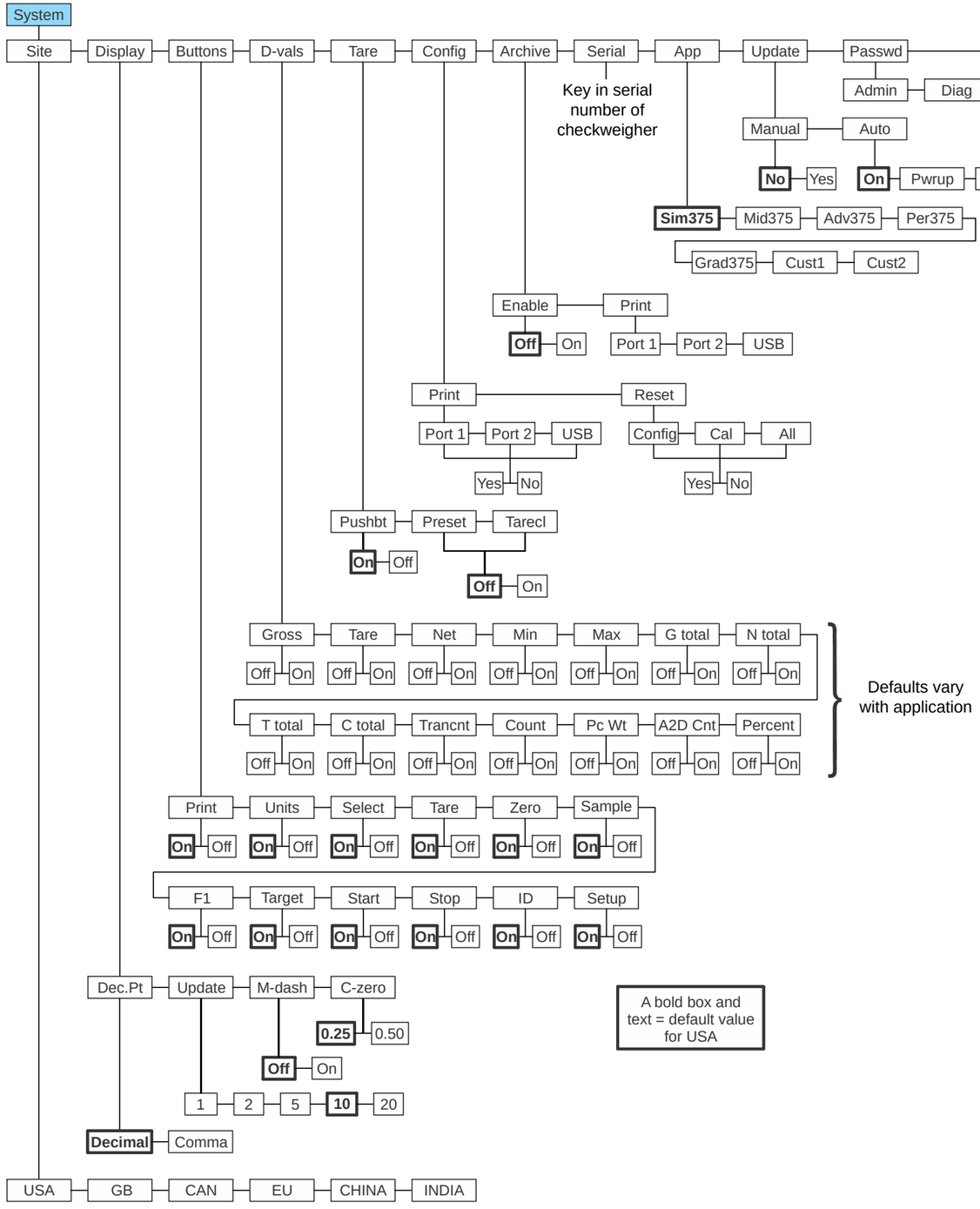
Press **UNITS/** ▶ to move right in a menu

Press **ZERO/** ↵ to accept a value or choice and move up in the menu.

Press **F1** to escape and move up in the menu

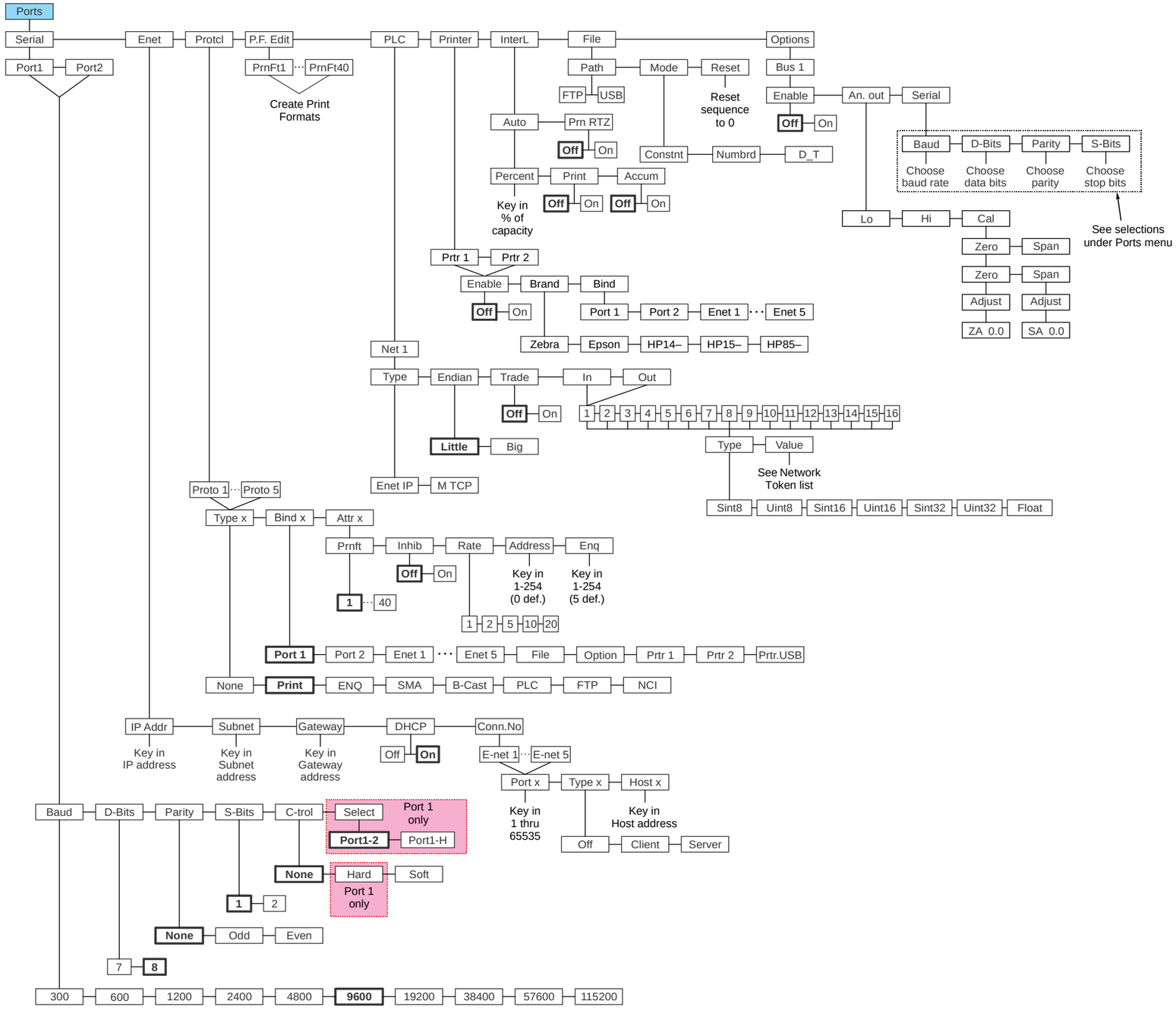
System Menu

See System on page 70

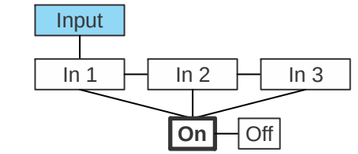


Ports Menu

See *Ports on page 83*

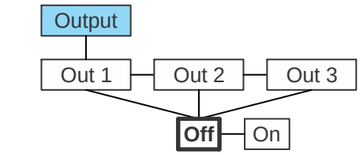


Input Menu



See *Inputs on page 107*

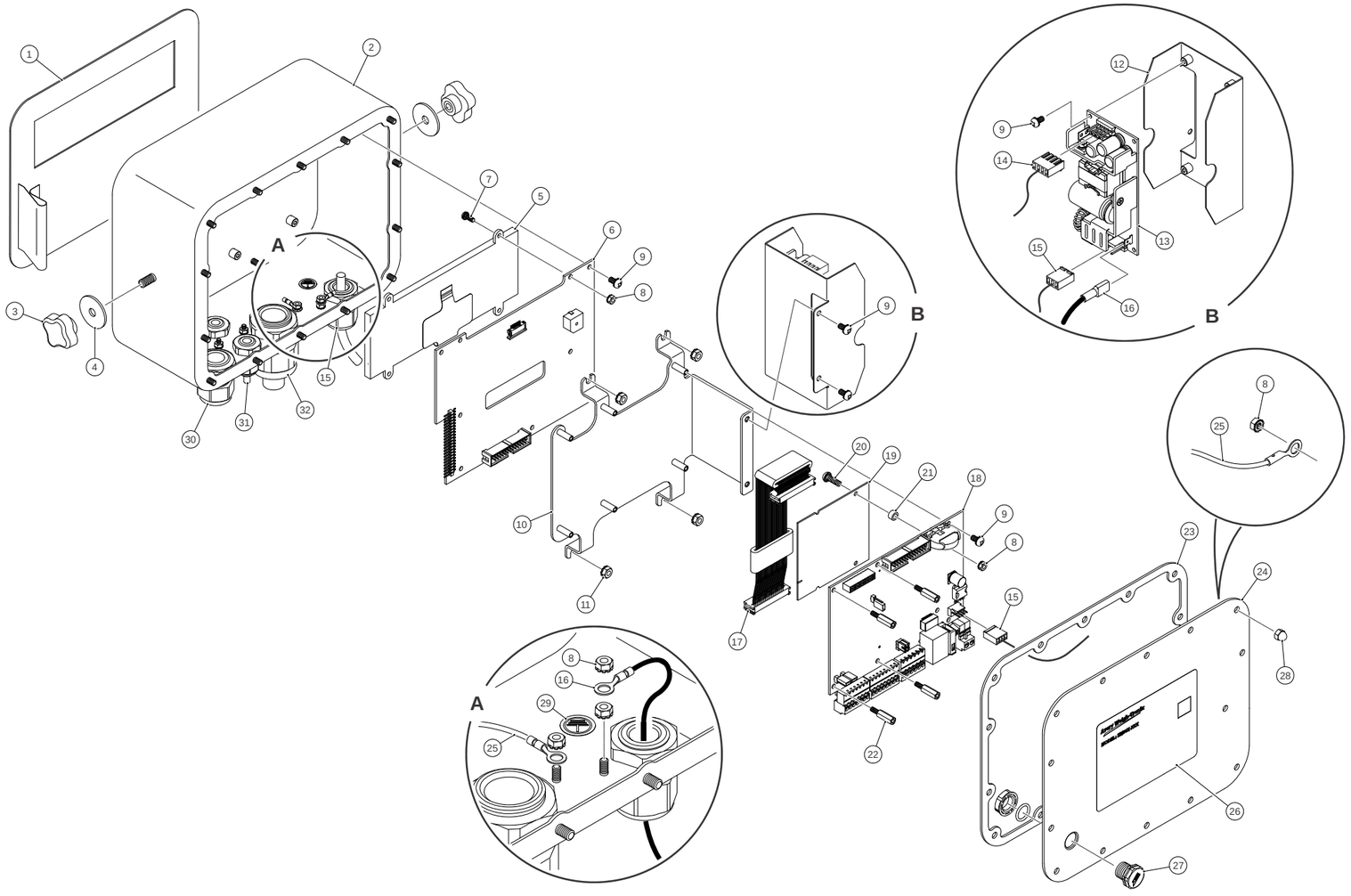
Output Menu



See *Outputs on page 108*

13 Technical illustrations

13.1 Stainless steel enclosure parts and assembly



Strain Relief Torque Specs	3/4” NPT Strain Relief	PG13.5 Strain Relief	PG11 Strain Relief	PG7 Strain Relief
Dome Nut	66.4 lb-in 7.5 N-m	33.2 lb-in 3.75 N-m	33.2 lb-in 3.75 N-m	22.1 lb-in 2.5 N-m
Lock Nut	44.2 lb-in 5 N-m	22.1 lb-in 2.5 N-m	22.1 lb-in 2.5 N-m	14.4 lb-in 1.62 N-m

CAUTION: The acorn nuts holding the back plate of the checkweigher in place must each be tightened, in multiple passes, a criss-cross pattern to a final torque of 0.68 N-m (approximately 6 in-lbs) to ensure proper gasket sealing. See illustration of the pattern in *Torque specifications on page 11*

ITEM	DESCRIPTION	QTY
1	KEYPAD, ZQ375	1
2	ENCLOSURE, WELDMENT-ZM303	1
3	KNOB, 4 LOBE-M6	2
4	WASHER,RUBBER,BLUE	2
5	DISPLAY LCD CHECKMATE IBN SEG	1
6	PCB ASSY DSPL/KYPD INTFC	1
7	SCREW/WASHER ASSY M3.0X0.5X8MM	4
8	NUT,M3 W/EXT LOCK WASHER	12
9	SCREW, M3 x.5 6mm LG SEMS PHILIPS PAN HEAD	13
10	BRACKET, PC BOARD	1
11	NUT,M4 W/EXT LOCK WASHER	11
12	SHIELD, POWER SUPPLY	1
13	POWER SPLY 100-240VAC 65W 24V	1
14	CABLE ASSY, ZMXXX POWER SUPPLY	1
15	POWER CORD KIT, ZMXXX USA	1
16	WIRE GND ZM PWR SUPPLY TO CHAS	1
17	CABLE ASSY MAIN/DSPL INTFC ZM	1
18	PCB ASSY, MAIN ZMXX	1
19	PCB ASSY, CARD ENGINE MCF54450	1
20	SCREW, M3x10mm LONG	2
21	SPACER,RD-3.2MMID X 3.0MM LG	2
22	STANDOFF,HEX M3X0.5X14mm M/F	4
23	GASKET	1
24	PANEL, BACK ENCLOSURE	1
25	WIRE, GROUND ZMXXX SERIES	1
26	LABEL,WHT POLY TAMPER 4X3	1
27	VENT,MEMBRANE GREY W/NUT	1
28	NUT, ACORN-M4	14
29	LABEL,GROUND (YELLOW)	1
30	NUT,LOCK STR RELIEF PG13.5 THR	1
	O-RING PG 13.5 BUNA-N	1
	STRAIN RELIEF,PWR CORD .24-.47	1
31	NUT,LOCK STR RELIEF PG7 THR'D	2
	PG7 'O' RING SEAL:HUMMEL OR-07	2
	STRAIN RELIEF,PWR CORD .11-.26	2
32	NUT,LOCK STR RELIEF 3/4" NPT	1
	O-RING 3/4" NPT BUNA-N	1
	STRAIN RELIEF,PWR CORD .39-.62	1

AWT20-800264 - REPLACEMENT DISPLAY KIT		
Item # (page 160)	Description	QTY
9	SCREW, M3 x.5 6mm LG SEMS PHILIPS PAN HEAD	5
8	NUT,M3 W/EXT LOCK WASHER	4
6	PCB ASSY, DISPLAY/KEYPAD INTERFACE CHECKMATE	1
5	DISPLAY LCD CHECKMATE NEG IMAGE IBN SEG	1
7	SCREW/WASHER ASSY M3.0X0.5X8MM	4
	SPACER, FOAM	1
	TAPE, TRANSPARENT 12.7mm WIDE	60
	LABEL FORMAT, BOX-IND/KIT	1

AWT05-506055 - Universal Hardware Kit (Parts appear in one or more ZM/ZQ body styles)	
Description	Qty.
LOSKID7/16"HEX,1/16"THK W/9672	10
SPACER,RD-3.2MMID X 3.0MM LG	10
SCREW, FHD MACH M3X.5X5MM LG	20
NUT,M3 W/EXT LOCK WASHER	30
SCREW/WASHER ASSY M3.0X0.5X8MM	20
SCREW, M3 x.5 6mm LG SEMS PHILIPS PAN HEAD	65
SCREW, M3x10mm LONG	10
STANDOFF,HEX M3X0.5X14mm M/F	20
SPACER, FOAM	5
AC4 NYL.BLK ARROW CLIP	2
SCREW,MACH P/HD M4X12MM SST	4
STANDOFF,HEX M3X0.5X14mm M/F	4

	AWT05-506052 - SS Hardware kit	
Item # (page 160)	Description	Qty.
3	KNOB, 4 LOBE-M6	10
4	WASHER,RUBBER,BLUE	10
11	NUT,M4 W/EXT LOCK WASHER	55
27	VENT,MEMBRANE GREY W/NUT	5
	CABLE CLAMP	5
	PAD,NEOPRENE-1"DIA	10
	TIE,CABLE	5

Common Parts			
Item # (page 160)	PN	Description	Qty.
	AWT25-501095	CABLE ASSY, POWER ALLOY	1
17	AWT25-501168	CABLE ASSY MAIN/DSPL INTFC ZQ	1
	AWT25-501234	Spacer, Card Engine ZQ Series	1
19	AWT25-500934	PCB ASSY, CARD ENGINE MCF54450	1
6	AWT25-500949	PCB ASSY DSPL/KYPD INTFC	1
1	AWT25-800084	OVERLAY, KEYPAD	1
18	AWT25-501117	PCB ASSY, MAIN	1

AWT05-506054 - Kit, M4 ACORN NUT	
NUT, ACORN-M4	100

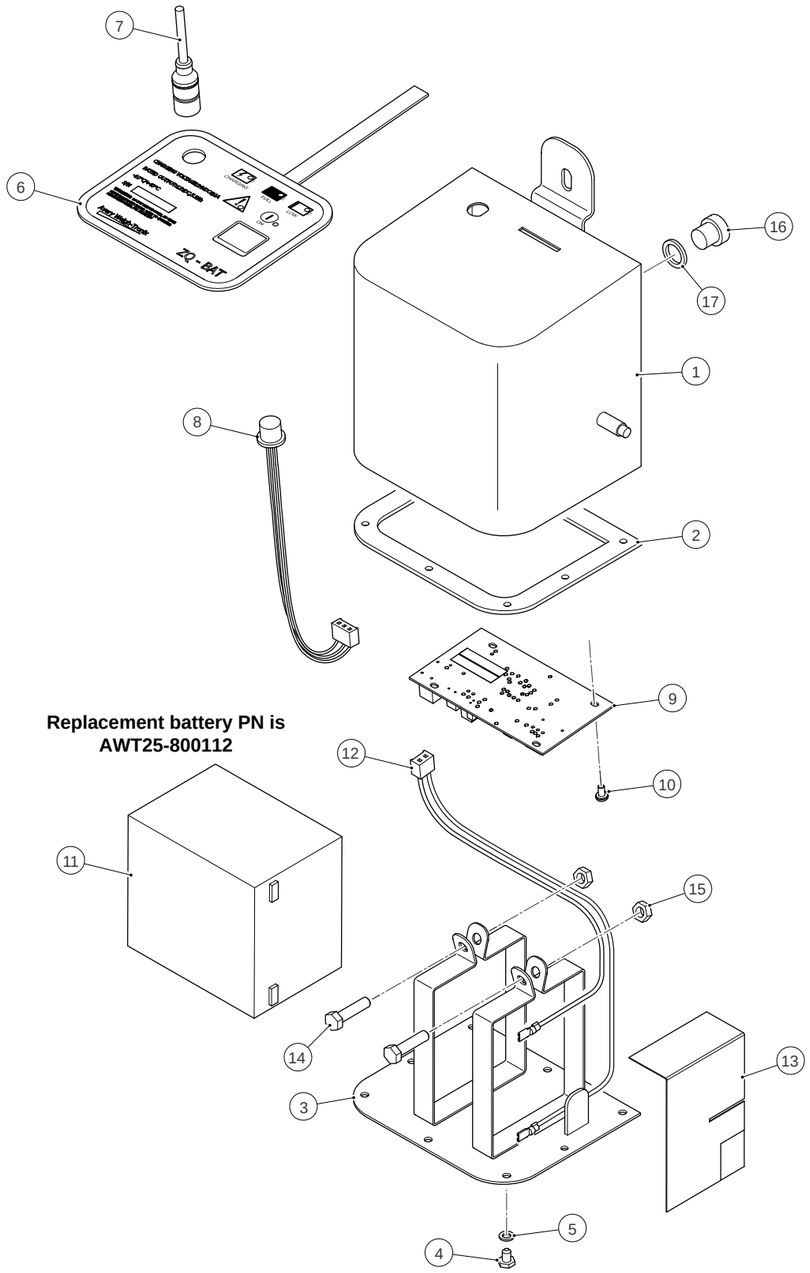
AWT05-506301 - Kit Service Connectors for ZQ Indicator		
PN	DESC	QTY
18009-0011	TERMINAL BLOCK,PLUG 2 PIN	1
AWT25-500782	TERMINAL BLOCK, 7 POS PLUG PHOENIX ONLY	1
AWT25-500945	TERMINAL BLOCK 6 POS PLUG 3.8	1
AWT25-500946	TERMINAL BLOCK 8 POS PLUG 3.5	1

Stainless steel enclosure parts			
Item # (page 160)	PN	Description	Qty.
10	AWT20-505669	BRACKET, PC BOARD	1
12	AWT20-505670	SHIELD, POWER SUPPLY	1
13	AWT25-501098	POWER SPLY 100-240VAC 65W 24V	1
14	AWT25-501063	CABLE ASSY, ZQ POWER SUPPLY	1
15	AWT25-501064	POWER CORD KIT, ZQ NA	1
16	AWT25-501162	WIRE GND ZQ PWR SUPPLY TO CHAS	1
23	AWT20-505668	GASKET, UNIVERSAL ZM303	1
24	AWT20-505912	PANEL, BACK ENCLOSURE	1
25	AWT25-501072	WIRE, GROUND ZQ SERIES	1

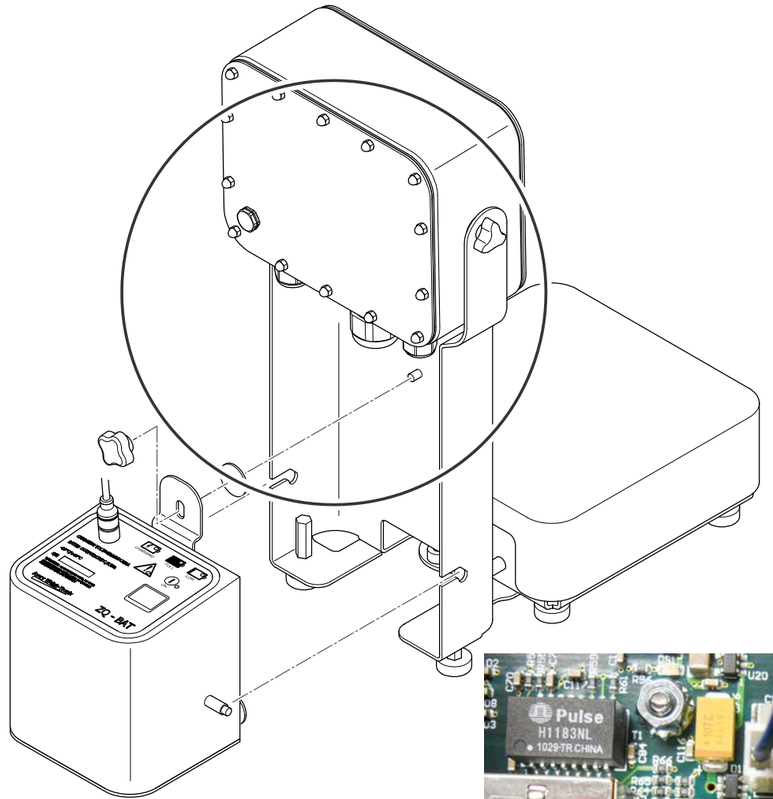
KIT AWT20-800263 - Stainless Steel Enclosure Subassembly		
Item # (page 160)	Description	Qty.
2	ENCLOSURE, WELDMENT	1
	ZQ375 KEYPAD (PN AWT25-800084 can be ordered alone)	1

AWT05-506053 - Strain Relief Kit for Stanless steel enclosure		
Item # (page 160)	Description	Qty.
32	O-RING PG 13.5 BUNA-N	5
34	O-RING 3/4" NPT BUNA-N	5
33	PG7 'O' RING SEAL:HUMMEL OR-07	10
33	STRAIN RELIEF,PWR CORD .11-.26	10
32	STRAIN RELIEF,PWR CORD .24-.47	5
33	NUT,LOCK STR RELIEF PG7 THR'D	10
32	NUT,LOCK STR RELIEF PG13.5 THR	5
34	STRAIN RELIEF,PWR CORD .39-.62	5
	CORD,BLACK NEOPRENE - .25" DIA	5
	CORD,BLACK NEOPRENE - .62" DIA	5

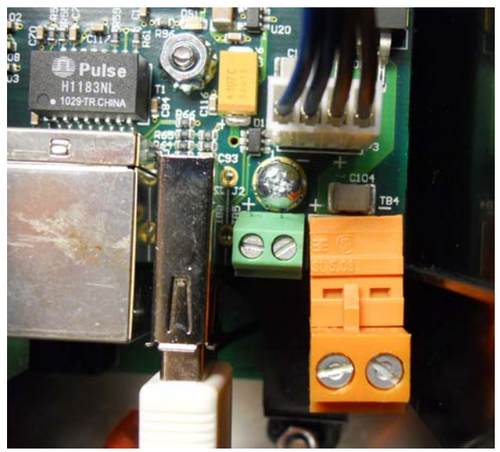
13.3 ZQ-BAT Battery assembly and installation



Replacement battery PN is AWT25-800112

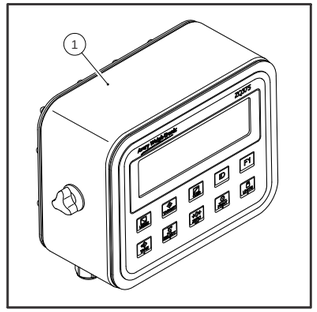


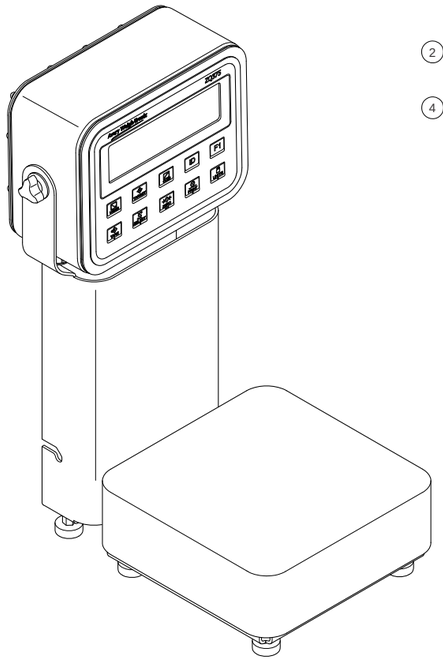
ITEM	DESCRIPTION	QTY
1	BATTERY HOUSING	1
	RUBBER,SPRT	2
2	GASKET,SILICONE	1
3	BATTERY HOUSING,TOP	1
4	SCREW,HEX HD,M4 * 10	10
5	WASHER, NYLON,4.0MM *0.8MM	10
6	KEYPAD, BATTERY, OVERLAY FOR CHECKMATE	1
	LBL BARCODE,30MM*6MM	1
7	LOOM, CONNECT BATTERY PACK WITH INDICATOR	1
8	LOOM,CONNECT CHARGING BOARD AND WATER PROOF CONNECTOR	1
9	PCB ASSY,BATTERY CHARGE,CHECKMATE	1
10	M3X6 REC.PAN HD.(SEMS SHKPRF)	4
11	BATTERY (PN AWT25-800112)	1
12	BATTERY LOOM	1
13	INSULATOR	1
14	BOLT,HEX HEAD,M6*20,SST	2
15	M6 LOCKNUT STAINLESS STEEL	2
16	VENT,MEMBRANE GREY W/NUT	1
17	WSHR,NPRN.453IDX.755ODX.031THK	1

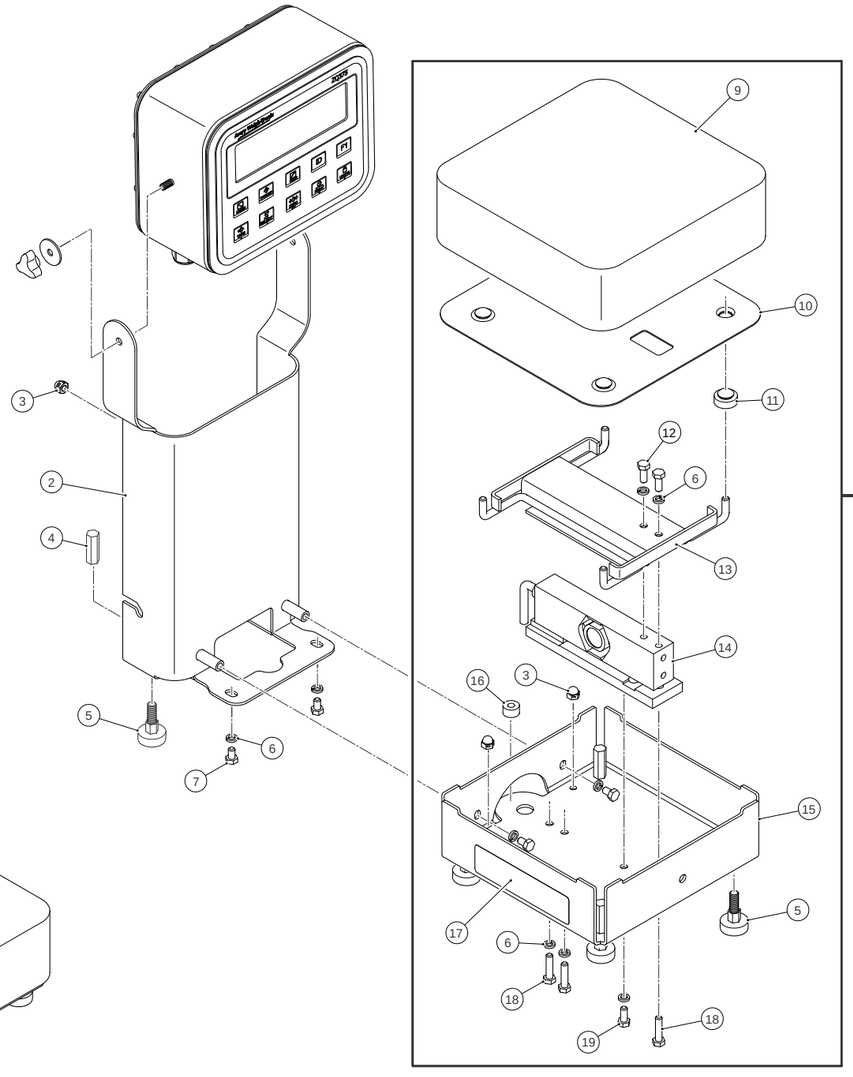


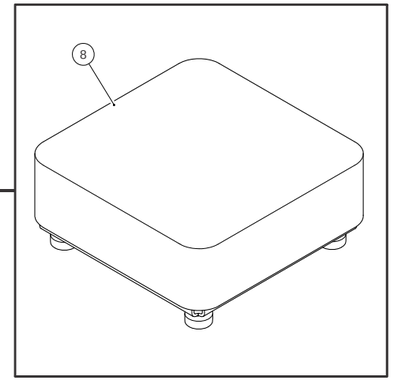
When wiring the checkweigher for the the ZQ-BAT battery pack, the voltage must be taken from TB5, the green connector, not TB4, the orange one in the photo at left. The blue wire in the battery pack must be wired to TB2 pin 7.

Battery pack wiring:
Black goes to TB5 pin 2 (Gnd)
Brown goes to TB5 pin 1 (+V)
Blue goes to TB2 pin 7 (Auto Shutoff Signal)









There are two types of load cells available for the ZQ375 torsion bases:

A **BSG** loadcell is for general use and is IP65 rated.

A **BSF** loadcell is rated for food areas and is IP69K rated.

Loadcell wiring for each base is shown below.

		BSG	BSF
-EXC	=	BLK	BLK
+EXC	=	GRN	BLU
-SEN	=	BRN	GRY
+SEN	=	BLU	GRN
-SIG	=	WHT	RED
+SIG	=	RED	WHT
SHLD	=	YEL	YEL

ITEM	DESCRIPTION	QTY
1	ENCLOSURE ASSY, ZQ375,BP	1
2	COLUMN,SST,290MM	1
3	M6 DOMED NUT : SS	3
4	NUT, M0.31-18UNC, SST	2
5	FOOT, BLUE, M0.31-18UNC	6
6	WASHER, LOCK SST 1/4	7
7	BOLT,M6*8 HEXHD,SST	5
8	BS SUBASSY, 9*9IN, 5LB/3KG	1
9	SHROUD,CLOSED CORNERS 9*9,SST	1
10	PLATE,SST, 9*9IN	1
11	RUBBER,CONDUCTIVE	4
12		
13	BRIDGE LC, LOW PROFILE SST 8*8	1
14	Loadcell (See loadcell kits on page 165)	1
	PLATE, MOUNTING,SST	1
	CUSHION LC, SUPPORT,SST	1
	SCR STOP, M6*0.5 PITCH,SST	1
15	BASE, SST,9*9IN	1
16	SPIRIT-LEVEL BUBBLE	1
17	LBL RATING,9IN*9IN,5LB/3KG	1
	FOIL TRANSPARENT, BACK ADH3M467	1
18	BOLT,M6*25, HEX HD SST	3
19	PROTECTION SCREW M6 0.5 PITCH SS	1

BSF Loadcell Spare Parts Kits

BSF 10kg Replacement Kit, PN AWT20-800253		
Item on page 163	Description	Qty
14	LC,10KG,C3,PW15AH	1
19	PROTECTION SCREW M6 0.5 PITCH SS	1

BSF 20kg Replacement Kit, PN AWT20-800254		
Item on page 163	Description	Qty
14	LC,20KG,C3,PW15AH	1
19	PROTECTION SCREW M6 0.5 PITCH SS	1

BSF 50kg Replacement Kit, PN AWT20-800255		
Item on page 163	Description	Qty
14	LC 50KG,C3,PW15AH	1
19	PROTECTION SCREW M6 0.5 PITCH SS	1

BSF 100kg Replacement Kit, PN AWT20-800256		
Item on page 163	Description	Qty
14	LC,100KG,C3,PW15AH	1
19	PROTECTION SCREW M6 0.5 PITCH SS	1

BSG Loadcell Spare Parts Kits

BSG 10kg Replacement Kit, PN AWT20-800257		
Item on page 163	Description	Qty
14	LC,10KG,IP66,VISHAY MODEL 1130	1
19	SCR,M1/4-28UNF*3/4IN	1

BSG 20kg Replacement Kit, PN AWT20-800258		
Item on page 163	Description	Qty
14	LC,20KG,IP66,VISHAY MODEL 1130	1
19	SCR,M1/4-28UNF*3/4IN	1

BSG 50kg Replacement Kit, PN AWT20-800259		
Item on page 163	Description	Qty
14	LC,50KG,IP66,VISHAY MODEL 1130	1
19	SCR,M1/4-28UNF*3/4IN	1

BSF Hardware Kit - PN AWT20-800260

Description	Qty.
NUT,HALF THREAD,0.31-18UNC,SST	20
PLUG, NYLON,7.1MM*3MM	10
BOLT,HEX HEAD,M6*20,SST	10
BOLT,M6*8 HEXHD,SST	5
BOLT,M6*25,SST	25
WASHER, LOCK SST 1/4	25

BSG Hardware Kit - PN AWT20-800261

Description	Qty.
NUT,HALF THREAD,0.31-18UNC,SST	20
BOLT,0.25IN-20UNC,1.5IN	10
BOLT,0.25IN-20UNC-1IN	10
BOLT,0.25IN-28UNF,1.25IN	5
BOLT,M6*8 HEXHD,SST	5
WASHER, LOCK SST 1/4	25
BOLT,0.25IN-28UNF,1.25IN	5

Torsion Foot Spare Parts Kit - AWT05-800075

Description	Qty.
FOOT, BLUE, M0.31-18UNC	6
NUT, HALF THREAD, 0.31-18UNC, SST	6
NUT, M0.31-18UNC, SST	2

Misc. Spare Parts for the Torsion Base

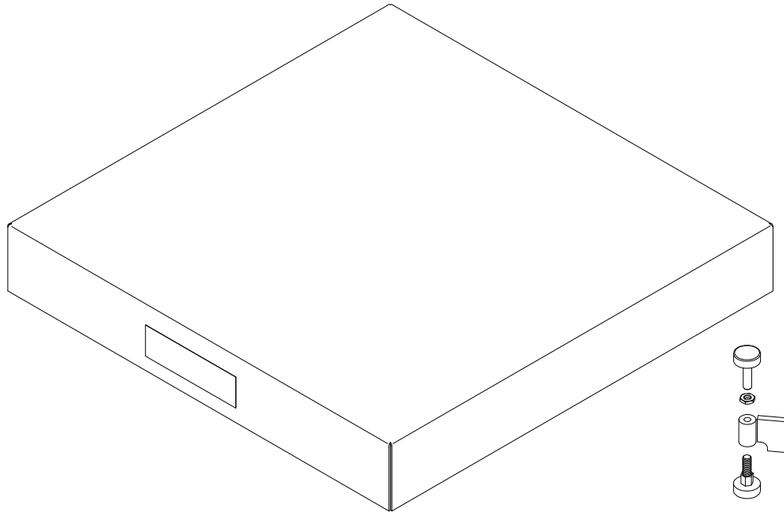
Item on page 163	PN	Description	Qty.
10	AWT05-800081	SUPPORT PLATE, ASSY, SST 12X14	1
9	AWT20-800066	SHROUD, CLOSED CORNERS, 12x14 IN	1
9	AWT20-800059	SHROUD,CLOSED CORNERS 9x9,SST	1
9	AWT05-800080	SUPPORT PLATE ASSY, SST, 9X9 IN	1
16	AWT20-800017	SPIRIT-LEVEL BUBBLE	5

AWT15-501383 -Diamond Base Hardware Kit

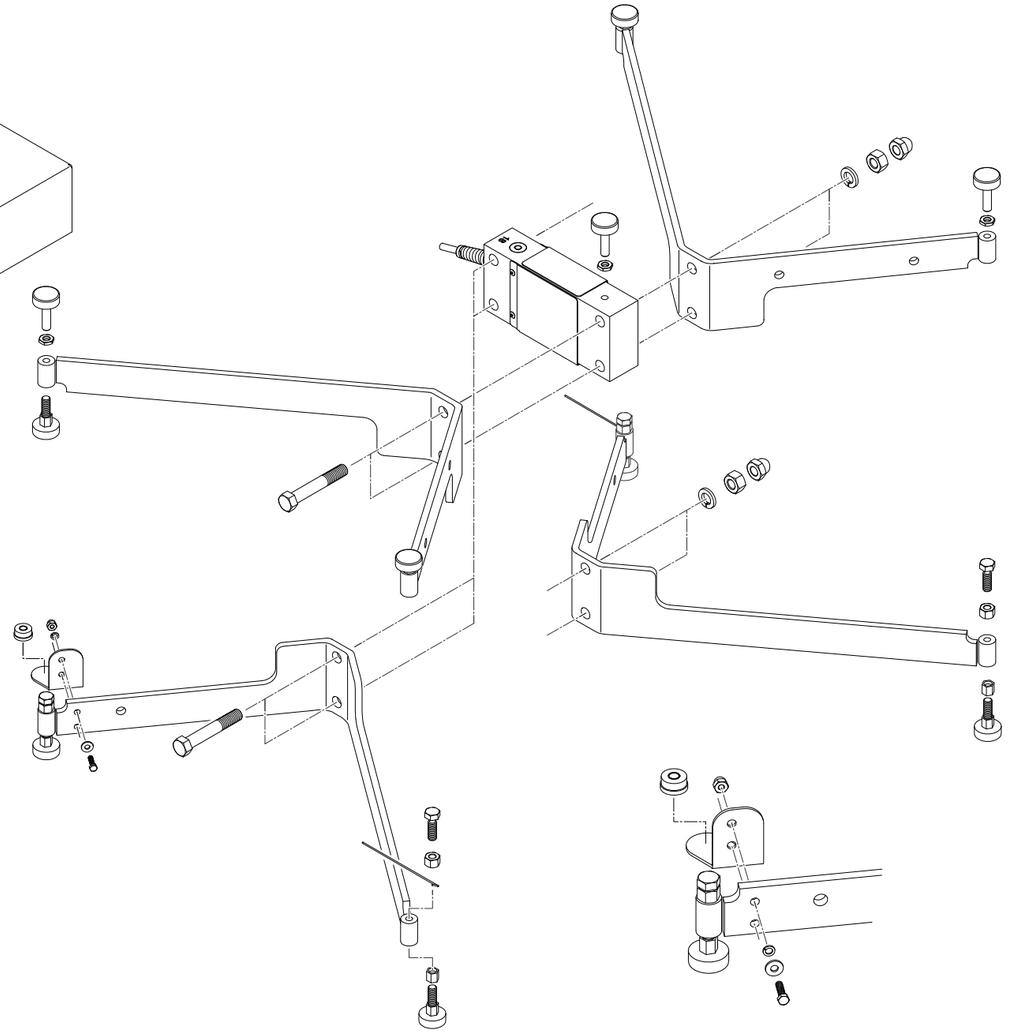
Description	Qty.
WASHER,SST,M8	5
WASHER, LOCK SST 7/16	20
WASHER, LOCK SST 5/16	20
WASHER, LOCK SST 1/4	30
WASHER, LOCK SST #8	10
WASHER, FLAT SS 5/16	20
WASHER, FLAT SS #8	10
SPRING,GRNDG-DIAMOND BENCH SCA	10
SCREW,HEX HD SS 8-32 X .625	10
NUT,JAM HEX SST .31-18UNC	25
NUT,CAP-SST,8-32UNC-2B	10
NUT,CAP-SST,8-32UNC-2B	10
NUT,CAP-SST,.31-18UNC-2B	20
NUT, M0.31-18UNC, SST	5
NUT, HEX SS 7/16-14UNC	20
NUT, HEX SS 1/4-20UNC	30
NUT, HEAVY HEX, .3125-18, SST	20
NUT, CAP, HEXAGON, .44-14 UNC	20
NUT, CAP HEX SS 1/4-20UNC	30
M6 DOMED NUT : SS	5
CABLE CLAMP,MALLORY# N4B	5
BRACKET, LEVEL	5
BOLT,HEX HD,SS 7/16 X2 3/4	20
BOLT, THREAD RELIEF,.31-18 X 1	20
BOLT, HEX HD SS .31-18 X .75	20
BOLT, HEX HD SS .25-20 X .62	20

AWT15-501402 - Level Bubble Replacement Kit

Description	Qty.
LEVEL BUBBLE .63DIA	5
ADH TAPE .025THK .660DIA DBL/S	5



Diamond base wiring	
Description	Color
+Excitation	GRN
+Sense	YEL
+Output	WHT
Shield (Gnd)	WHT/ORN
-Output	RED
-Sense	BLU
-Excitation	BLK



AWT20-800262 - Feet - Spare Parts Kit

Description	Qty.
FOOT, .31-18 UNC, FULL THREAD	5
FOOT, BLUE, M0.31-18UNC	6
NUT,HALF THREAD,0.31-18UNC,SST	6

13.7 Diamond base loadcell kits

Parts for Scale PN AWT05-800027		
Part Number	Description	Qty
49098-0075	WEIGH BAR ASSY,FLS 125LB W/TIN LEADS	1
AWT15-501351	SET, SPIDER WELDMENT, 20 X 20, SST 100/200 LB	1
AWT20-800186	DECK MACHINING, BS2020, SST	1

Parts for Scale PN AWT05-800028		
Part Number	Description	Qty
49098-0083	WEIGH BAR ASSY,FLS 250LB W/TIN LEADS	1
AWT15-501351	SET, SPIDER WELDMENT, 20 X 20, SST 100/200 LB	1
AWT20-800186	DECK MACHINING, BS2020, SST	1

Parts for Scale PN AWT05-800029		
Part Number	Description	Qty
49098-0083	WEIGH BAR ASSY,FLS 250LB W/TIN LEADS	1
AWT15-501379	SET, SPIDER WELDMENT, BS2424-A	1
AWT20-800195	DECK MACHINING, SST, BS2424	1

Parts for Scale PN AWT05-800030		
Part Number	Description	Qty
49098-0109	WEIGH BAR ASSY,FLS 625LB W/TIN LEADS	1
AWT15-501385	SET, SPIDER WELDMENT, BS2424-A, 500 LB	1
AWT20-800195	DECK MACHINING, SST, BS2424	1

Parts for Scale PN AWT05-506057		
Part Number	Description	Qty
49098-0067	WEIGH BAR ASSY,FLS 70 LB W/TIN LEADS	1
AWT15-501376	SET, SPIDER WELDMENT, BS1414-A	1
AWT20-507242	DECK, BS1414, SST	1

Parts for Scale PN AWT05-506058		
Part Number	Description	Qty
49098-0067	WEIGH BAR ASSY,FLS 70 LB W/TIN LEADS	1
AWT15-501377	SET, SPIDER WELDMENT, BS1818-A	1
AWT20-507247	DECK, BENCH SCALE, BS1818-A, SST	1

Parts for Scale PN AWT05-506106		
Part Number	Description	Qty
49098-0075	WEIGH BAR ASSY,FLS 125LB W/TIN LEADS	1
AWT15-501379	SET, SPIDER WELDMENT, BS2424-A1	1
AWT20-800195	DECK MACHINING, SST, BS2424	1

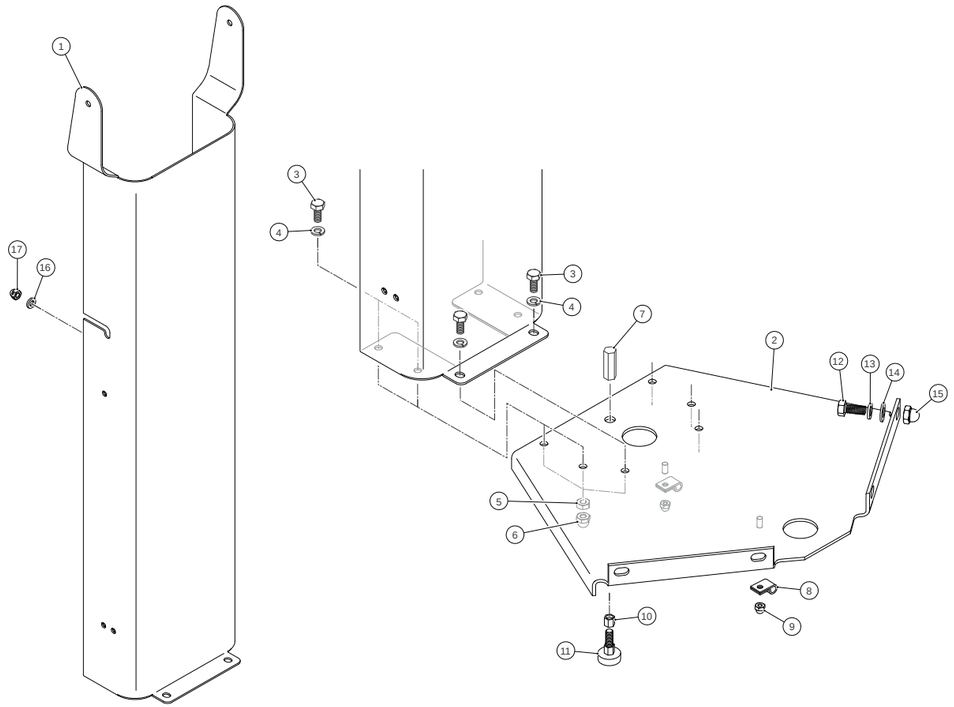
Parts for Scale PN AWT05-800053		
Part Number	Description	Qty
49098-0083	WEIGH BAR ASSY,FLS 250LB W/TIN LEADS	1
AWT15-501379	SET, SPIDER WELDMENT, BS2424-A	1
AWT20-800195	DECK MACHINING, SST, BS2424	1

Parts for Scale PN AWT05-506059		
Part Number	Description	Qty
49098-0083	WEIGH BAR ASSY,FLS 250LB W/TIN LEADS	1
AWT15-501378	SET, SPIDER WELDMENT, BS1824-A	1
AWT20-507254	DECK, BENCH SCALE, BS1824-A, SST	1

Parts for Scale PN AWT05-800054		
Part Number	Description	Qty
49098-0109	WEIGH BAR ASSY,FLS 625LB W/TIN LEADS	1
AWT15-501385	SET, SPIDER WELDMENT, BS2424-A, 500 LB	1
AWT20-800195	DECK MACHINING, SST, BS2424	1

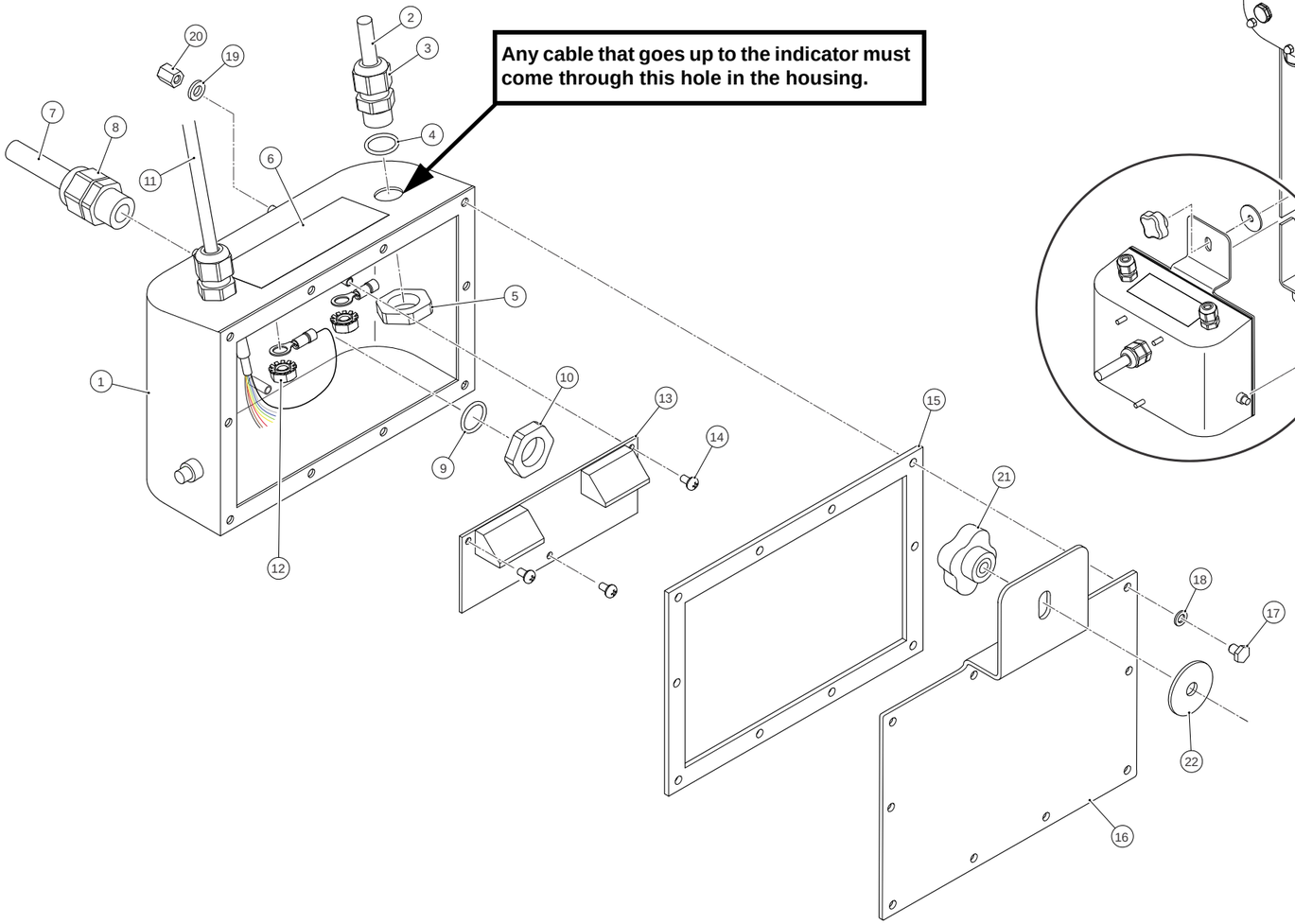
Parts for Scale PN AWT05-800051		
Part Number	Description	Qty
49098-0075	WEIGH BAR ASSY,FLS 125LB W/TIN LEADS	1
AWT15-501351	SET, SPIDER WELDMENT, 20 X 20, SST 100/200 LB	1
AWT20-800186	DECK MACHINING, BS2020, SST	1

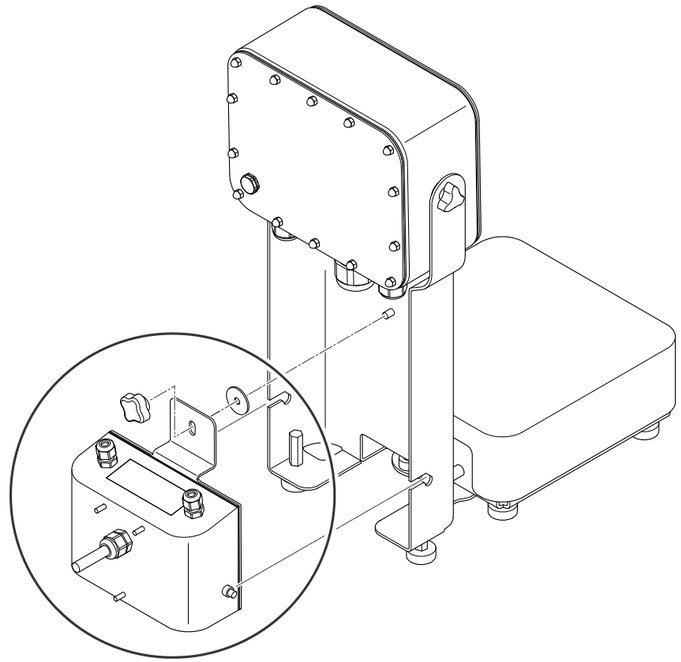
Parts for Scale PN AWT05-800052		
Part Number	Description	Qty
49098-0083	WEIGH BAR ASSY,FLS 250LB W/TIN LEADS	1
AWT15-501351	SET, SPIDER WELDMENT, 20 X 20, SST 100/200 LB	1
AWT20-800186	DECK MACHINING, BS2020, SST	1



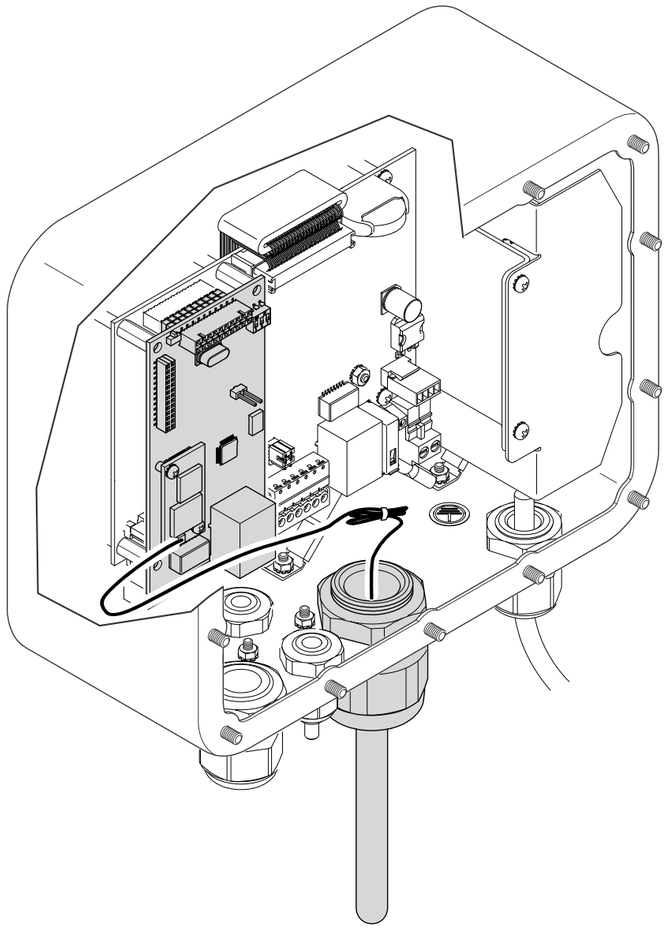
ITEM	DESCRIPTION	QTY
1	ASSY, COLUMN, BSAO SERIES	1
2	BRACKET, IND MTG, WLD BS2020 or BRACKET, IND MTG, WLD BS2424	1 1
3	BOLT, HEX HD SS .25-20 X .62	4
4	WASHER, LOCK SST 1/4	6
5	NUT, HEX SS 1/4-20UNC	4
6	NUT, CAP HEX SS 1/4-20UNC	6
7	NUT, M0.31-18UNC, SST	1
8	CABLE CLAMP,MALLORY# N4B	2
9	NUT,CAP-SST,8-32UNC-2B	2
10	NUT,HALF THREAD,0.31-18UNC,SST	1
11	FOOT, BLUE, M0.31-18UNC	1
12	BOLT, HEX HD SS .31-18 X .75	4
13	WASHER, LOCK CS/ZP 5/16	4
14	WASHER, FLAT SS 5/16	4
15	NUT,CAP-SST,.31-18UNC-2B	4
16	WASHER,SST,M8	1
17	M6 DOMED NUT : SS	1

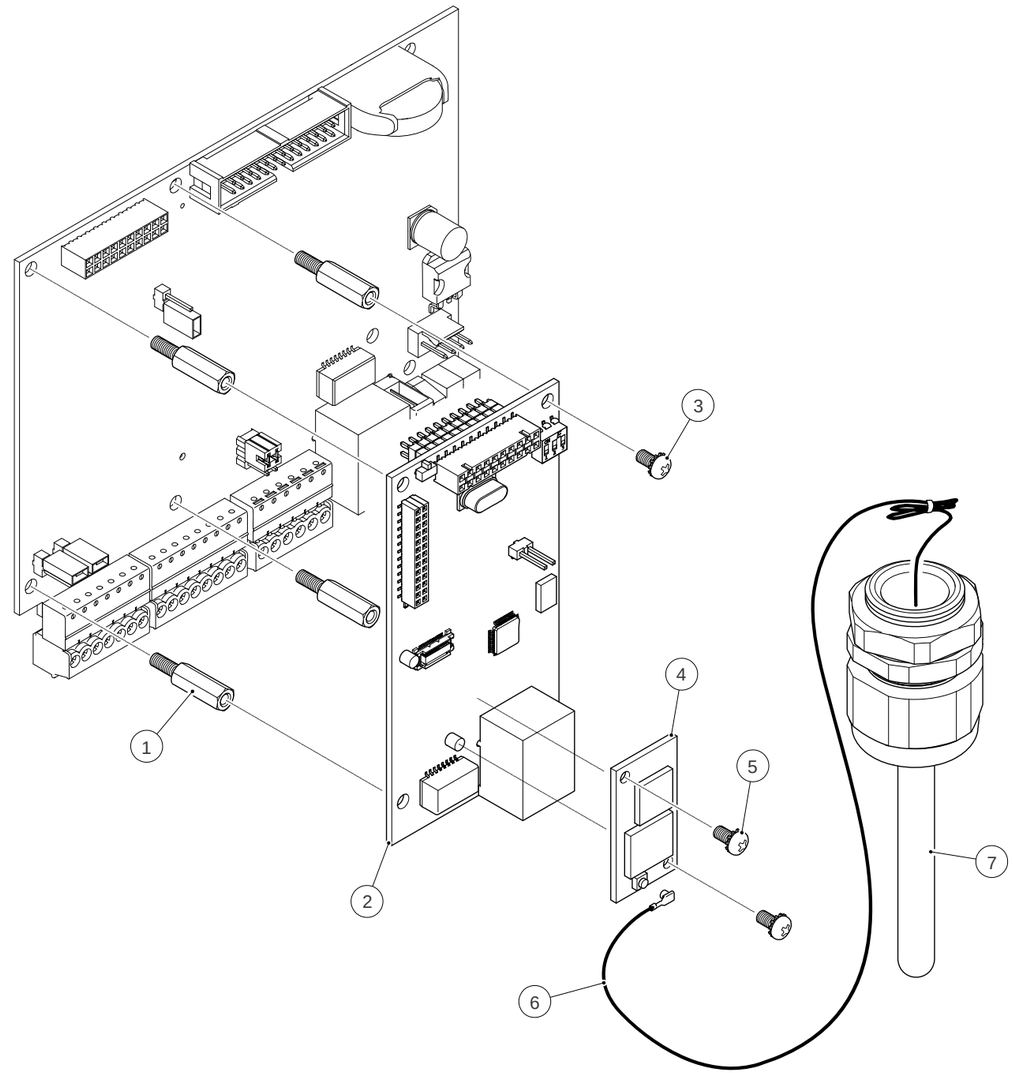
13.9 Opto 22 Assembly





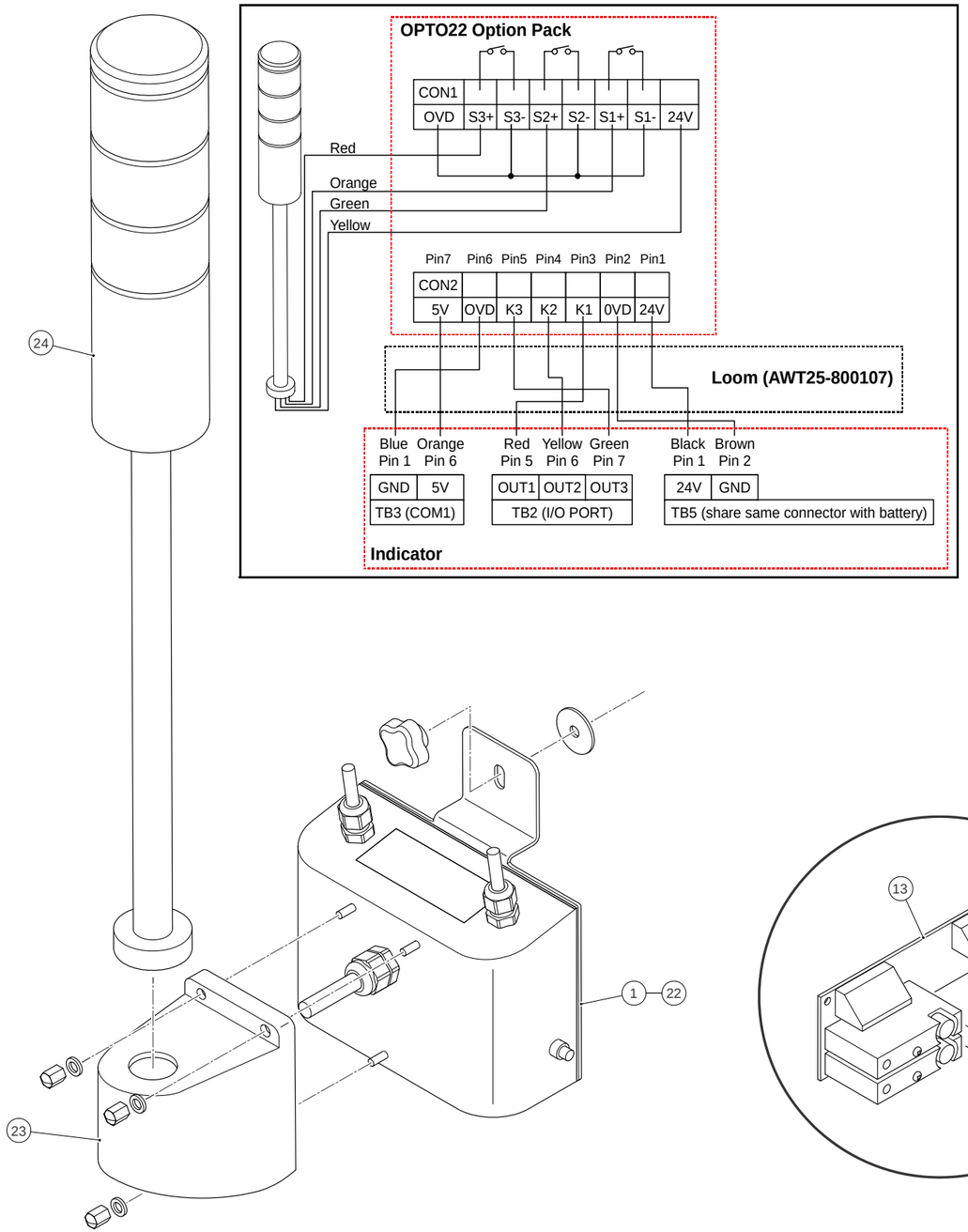
ITEM	DESCRIPTION	QTY
1	BOT,OPT22 BOX,SST	1
2	CORD,BLACK NEOPRENE - .25" DIA	1
3	STRAIN RELIEF,PWR CORD .11-.26	2
4	PG7 'O' RING SEAL:HUMMEL OR-07	2
5	NUT,LOCK STR RELIEF PG7 THR'D	2
6	LAB RATING,OPT22	1
	FOIL CLEAR, BACK 3M467	1
7	CORD,BLACK NEOPRENE - 9MM DIA	0.15
8	STRAIN RELIEF,PWR CORD .16-.31	1
9	O-RING PG9 BUNA-N	1
10	NUT,LOCK STR RELIEF PG9 THR'D	1
11	CABLE,USED FOR THE CONNECTION BETWEEN ZQ-OPTO BOX AND INDICATOR	1
12	M3 NUT+CAPT SHKPF WSHR:MS BRZN	2
13	PCB ASSY,OPTO 22 IF,CHECKMATE PN AWT25-001120	1
14	Unknown (Screw)	3
15	SEALING , OPT22 BOX	1
16	COVER,OPT22 BOX,SST	1
17	SCREW, M4 * 10 HEX HD	10
18	WASHER, NYLON,4.0MM *0.8MM	10
19	Unknown (washer)	3
20	NUT,M3*13,SST	3
21	KNOB, 4 LOBE-M6	1
22	PAD,NEOPRENE-1"DIA	1

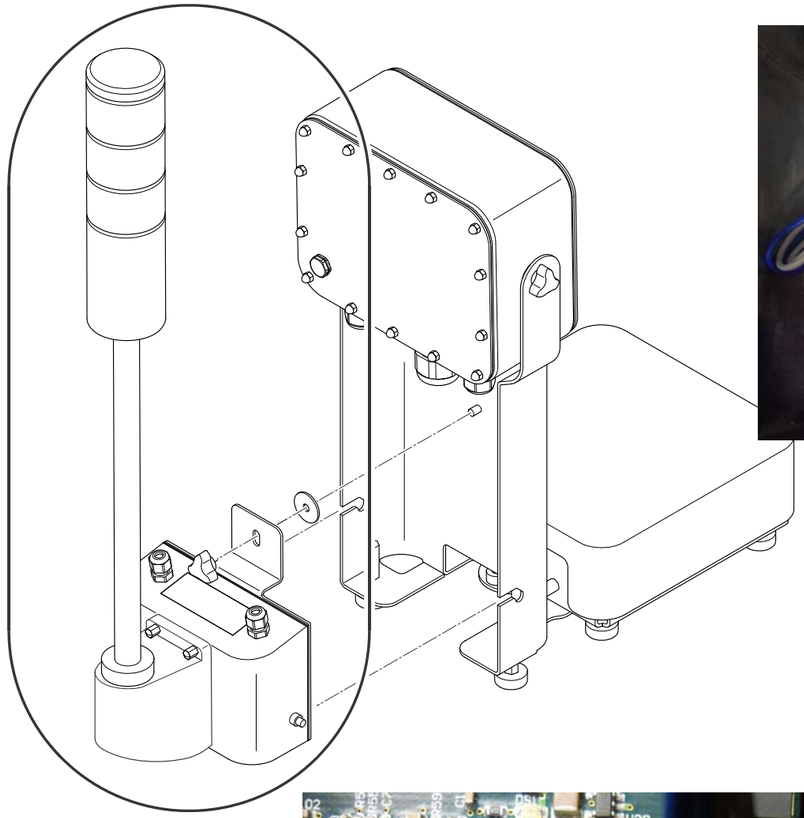


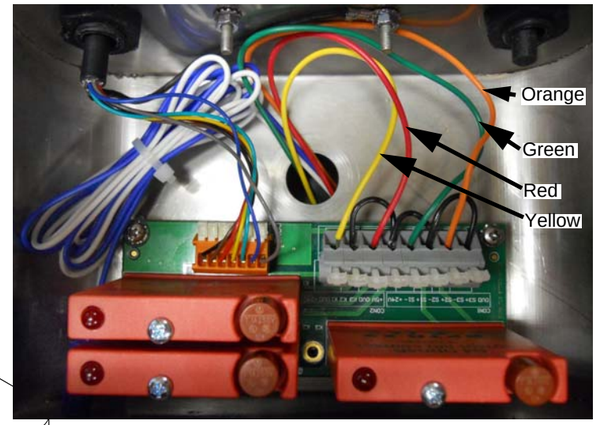


ITEM	DESCRIPTION	QTY
1	STANDOFF,HEX M3X0.5X14mm M/F	4
2	PCB ASSY,WIFI CONVERSION,CHECKMATE	1
3	SCREW,MACH P/HD M3X0.5 5MM SST	4
4	PCB MODULE,WIFI,2.4GHZ	1
5	M2 X 4MM SS SCREW PAN	2
6	CABLE ASSY,RJ45 TO RJ45 1' BLK	1
7	WiFi ANTENNA ASSEMBLY	1

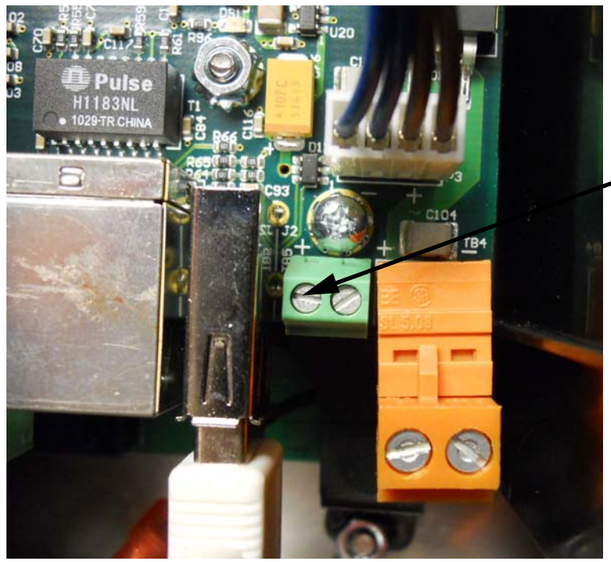
13.11 Light stack option



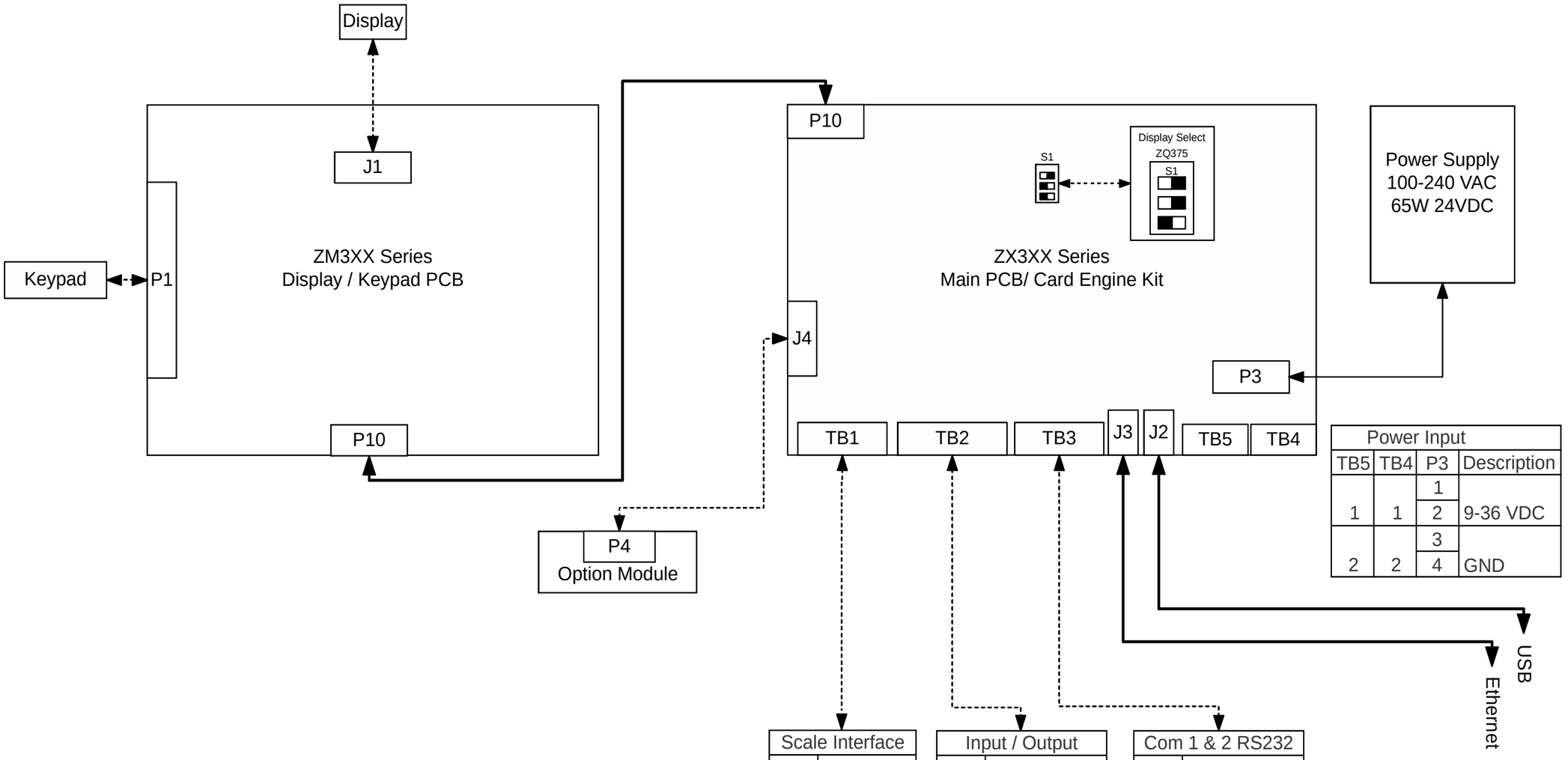




Wiring inside the light stack box.



When making connnections inside the checkweigher for the light stack, voltage must be taken from the + pin of TB5, the green connector in the photo at left.



Power Input			
TB5	TB4	P3	Description
1	1	1 2	9-36 VDC
2	2	3 4	GND

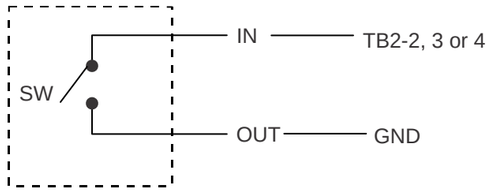
Scale Interface	
TB1	Description
1	-EXC
2	+EXC
3	-SEN
4	+SEN
5	-SIG
6	+SIG
7	SHIELD

Input / Output	
TB2	Description
1	GND
2	Input 1
3	Input 2
4	Input 3
5	Digital Out 1
6	Digital Out 2
7	Digital Out 3
8	Relay Voltage

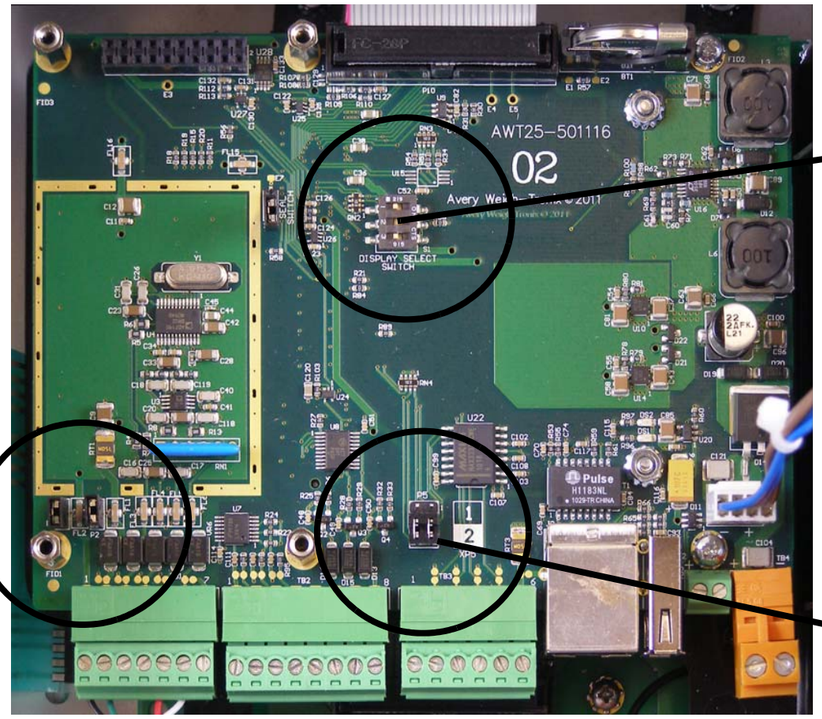
Com 1 & 2 RS232	
TB3	Description
1	GND
2	TX1
3	RTS / TX2
4	RX1
5	CTS / RX2
6	5VDC

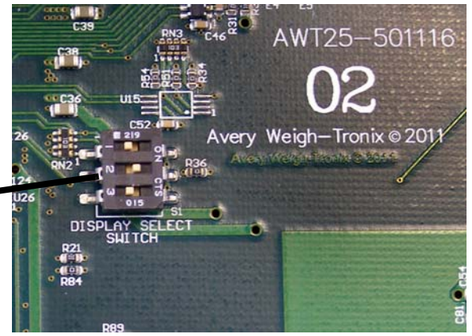
13.13 Wiring, jumpers and switches

Remote Input Wiring Chart		
Origin	Destination	Signal
Remote Input	Main Board	
GND	TB2-1	GND
IN	TB2-2, 3 or 4	Input 1, 2, or 3



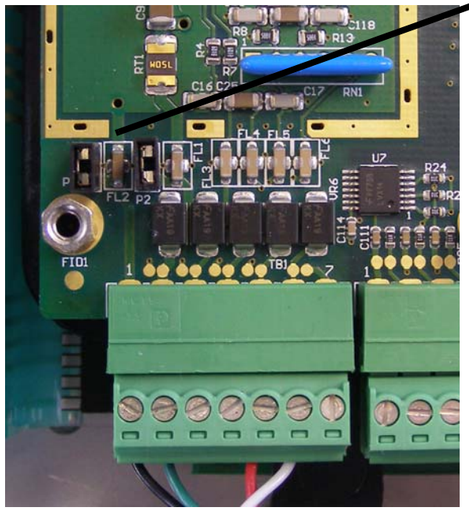
ZQ375 Main PC board





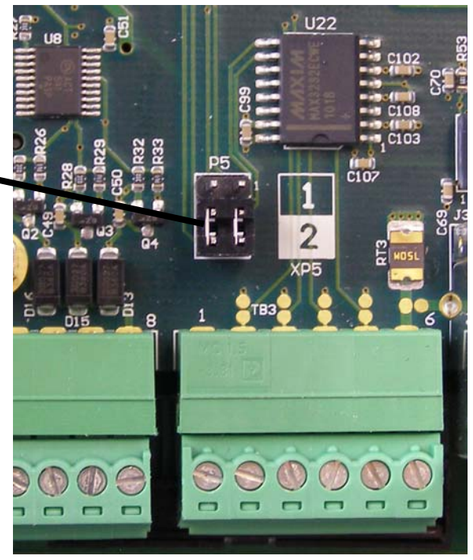
Display Select Switch

See the settings for these switches in the *System block diagram on page 172*.



Sense (Excitation) jumpers shown in the jumpered position.

4 wire loadcells require jumper.
6 wire loadcells do not require jumper.



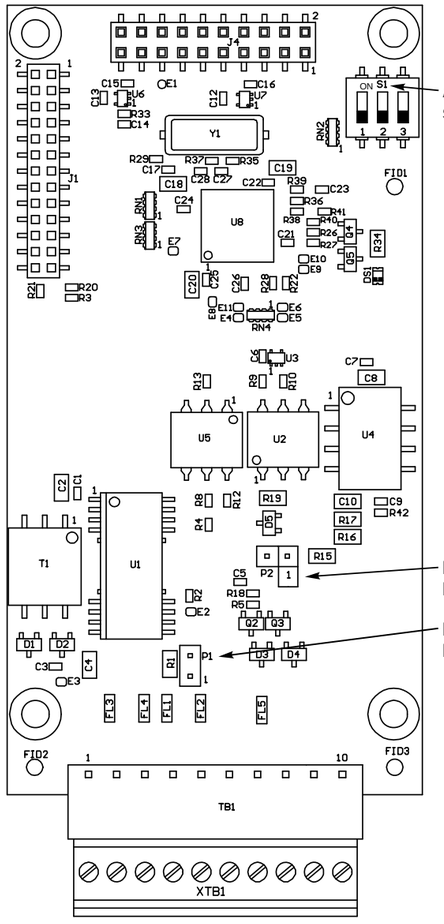
Flow control jumper

Jumper shown in position 2 (default) for 2 comm ports.

Position 1 = Hardware flow control for port 1.

RS485 Current Loop Option module

(PN AWT05-505634)



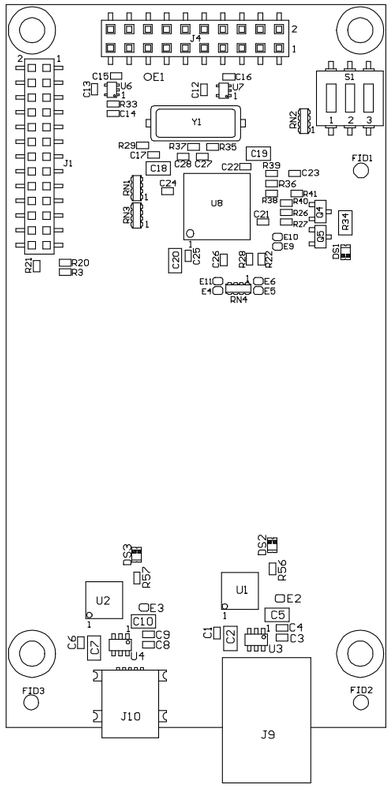
Component Side

TB1	
Pin	**Function**
1	GND (isolated)
2	XMTA
3	XMTB
4	RCVA
5	RCVB
6	NC
7	20ma TX Out
8	20ma TX Return
9	20ma RCV Input
10	20ma RCV Return

USB Device Module

(PN AWT05-505633)

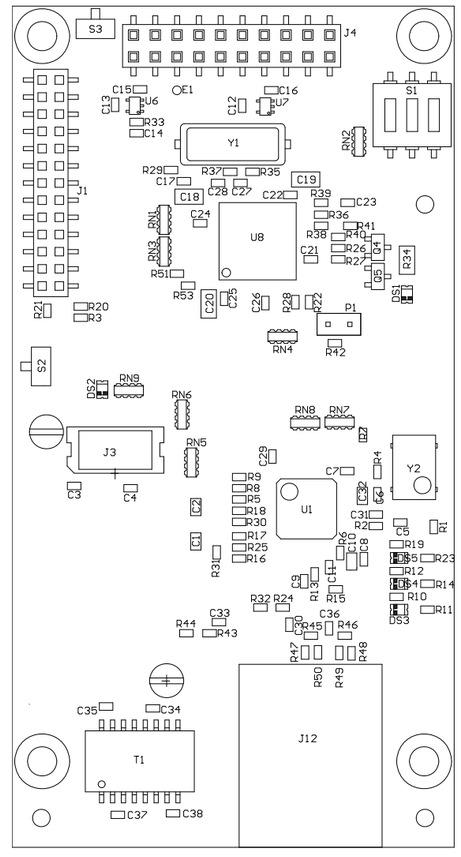
Component Side



Wireless 802.11g Module

(PN AWT05-800049)

Component Side



13.15 Keypad overlay replacement procedure

Problems that arise due to the keypad being changed are not warrantable, such as keys not functioning correctly or water ingress through the front panel.

The IP69K rating cannot be guaranteed when changing the keypad overlay. If you are in an environment that requires the IP69K rating, it is advised that you order the keypad/enclosure assembly instead of changing out the keypad.

13.15.1 To change the keypad you will need these tools:

- A razor blade
- A container big enough to place the indicator case in
- Rubbing alcohol.
- A large wooden dowel or wooden kitchen rolling pin.

13.15.2 Process to remove and replace the keypad overlay

1. Open the enclosure and remove all electronic P.C. boards, including the display board.
2. Use the razor blade to remove the old overlay and remove as much of the glue as possible.
3. Place some rubbing alcohol in the container, enough to be able to submerge the front of the enclosure where the keypad was. No more than ½ an inch should be needed.
4. Place the enclosure face down in the rubbing alcohol and soak it for 30 minutes.
5. Use the razor blade to remove all remaining glue.
6. Let the enclosure dry for at least 5 minutes.
7. Place new keypad on the enclosure; ensure that the keypad is aligned correctly.
8. Use rolling pin on the overlay to ensure good contact between the enclosure and the keypad overlay.

ZQ375 SST

- AWT20-800263 Enclosure

Avery Weigh-Tronix

Avery Weigh-Tronix USA
1000 Armstrong Dr.
Fairmont MN 56031 USA
Tel:507-238-4461
Fax:507-238-4195
Email: usinfo@awtxglobal.com
www.wtxweb.com

Avery Weigh-Tronix UK
Foundry Lane,
Smethwick, West Midlands,
England B66 2LP
Tel:+44 (0)870 903 4343
Fax: +44 (0)121 224 8183
Email: info@awtxglobal.com
www.averyweigh-tronix.com