Avery Weigh-Tronix

Model 1080

Weight Indicator

Standard Scale & Supply Company
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Service Manual

AWT35-500446 Issue AD February 2011

Table of Contents

Manual revision history

Current Issue	Date Created	Details of Changes
AA	January 2010	New manual
AB	January 2011	Added two pages in chapter 11. PC board illustrations.
AC	February 2011	Correction to step 3 and note in section 2.1, moved label on page 149.
AD	February 2011	Removed erroneous paragraph in section 4.1 about RS485 jumper

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 as shown by the 1 and 1.1 headings shown above. 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 signal words have specific meanings to alert you to additional information or the relative level of hazard.

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 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.

1.2.2 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

Do not use sharp objects such as screwdrivers or long fingernails to operate 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.

1.8 Declaration of Conformity

Avery Weigh-Tronix

Foundry Lane, Smethwick, West Midlands B66 2LP, England

CE

Declaration of Conformity
Verklaring van Overeenstemming
Déclaration de Conformité
Konformitätserklärung
Dichiarazione di conformità
Declaración de Conformidad

Manufacturer	Avery Weigh-Tronix Limited
Type	1080
No. of EC type approval certificate	UK2880
corresponds to the requirements of the following EC directives:	
EMC Directive	2004/108/EC
Low Voltage Directive	2006/95/EC
Non-Automatic Weighing Instruments Directive	2009/23/EC[1]
The applicable harmonised standards are:	
EN 45501 : 1994 EN 60950–1 : 2006	EN 61000–6–1 : 2006 EN 61000–6–3 : 2006

Note [1]:
This declaration is only valid if the non–automatic weighing instrument was verified by the manufacturer or with a certificate of conformity issued by a notified body.

Avery Weigh-Tronix Limited
Reg. Office: Foundry Lane, Smethwick,
West Midlands B66 2LP, England.
Registered in England No: 595129

Fabrikant	Avery Weigh-Tronix Limited
Type	1080
Nummer van de Verklaring van EG–typegoedkeuring	UK2880
is in overeenstemming met de voorschriften van de volgende EG richtlijnen:	
EMC Richtlijn	2004/108/EC
Laagspanningsrichtlijn	2006/95/EC
Richtlijn niet-automatische weegwerktuigen	2009/23/EC[1]
Toegepaste geharmoniseerde normen:	
EN 45501 : 1994 EN 60950–1 : 2006	EN 61000–6–1 : 2006 EN 61000–6–3 : 2006

Noot [1]:
Deze verklaring is alleen geldig indien het weegwerktuig door de fabrikant is geverifieerd, of met een Verklaring van overeenstemming, afgegeven door een bevoegde instantie.

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Reg. Office: Foundry Lane, Smethwick,
West Midlands B66 2LP, England.
Registered in England No: 595129

Fabricant	Avery Weigh-Tronix Limited
Type	1080
No. de certificat d'approbation de type CE	UK2880
correspond aux exigences des directives CE suivantes :	
Directive CEM	2004/108/EC
Directive Basse Tension	2006/95/EC
Directive pour les instruments de pesage à fonctionnement non automatique	2009/23/EC[1]
Les normes harmonisées applicables sont :	
EN 45501 : 1994 EN 60950–1 : 2006	EN 61000–6–1 : 2006 EN 61000–6–3 : 2006

Nota [1] :
Cette déclaration est valide seulement si l'instrument de pesage à fonctionnement non automatique a été vérifié par le fabricant ou avec une attestation de conformité délivrée par un organisme notifié.

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Reg. Office: Foundry Lane, Smethwick,
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Registered in England No: 595129

Hersteller	Avery Weigh-Tronix Limited
Typ	1080
Nr. der EG–Bauartzulassung	UK2880
entspricht den Anforderungen folgender EG–Richtlinien:	
EMV-Richtlinie	2004/108/EC
Niederspannungs Richtlinie	2006/95/EC
Waagenrichtlinie für nichtselbsttätige Waagen	2009/23/EC[1]
Die angewendeten harmonisierten Normen sind:	
EN 45501 : 1994 EN 60950–1 : 2006	EN 61000–6–1 : 2006 EN 61000–6–3 : 2006

Anmerkung [1]:
Diese Erklärung gilt nur, wenn die nichtselbsttätige Waage vom Hersteller geeicht wurde oder in Verbindung mit einer Konformitätsbescheinigung einer benannten Stelle.

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Reg. Office: Foundry Lane, Smethwick,
West Midlands B66 2LP, England.
Registered in England No: 595129

Produttore	Avery Weigh-Tronix Limited
Modello	1080
N. di certificato di approvazione di tipo CE	UK2880
è conforme alle caratteristiche previste dalle seguenti direttive CE:	
Normativa EMC	2004/108/EC
Normativa per la bassa tensione	2006/95/EC
Normativa per strumenti di pesatura non automatici	2009/23/EC[1]
Le norme standard armonizzate e nazionali applicate sono:	
EN 45501 : 1994 EN 60950–1 : 2006	EN 61000–6–1 : 2006 EN 61000–6–3 : 2006

Nota [1]:
Questa dichiarazione è valida solamente se lo strumento di pesatura non automatico è stato verificato dal produttore o provvisto di un certificato di conformità rilasciato da un ente riconosciuto.

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Reg. Office: Foundry Lane, Smethwick,
West Midlands B66 2LP, England.
Registered in England No: 595129

Fabricante	Avery Weigh-Tronix Limited
Tipo	1080
Número del certificado de aprobación de tipo CE	UK2880
conforme a las exigencias de las siguientes directivas CE:	
Directiva CME	2004/108/EC
Directiva de baja tensión	2006/95/EC
Directiva para equipos de pesaje no automáticos	2009/23/EC[1]
Las normas armonizadas en vigor son:	
EN 45501 : 1994 EN 60950–1 : 2006	EN 61000–6–1 : 2006 EN 61000–6–3 : 2006

Nota [1]:
Esta declaración es válida solamente si el equipo de pesaje no automático ha sido verificado por el fabricante o con certificado de conformidad emitido por un organismo notificado.

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West Midlands B66 2TE, England.
Registered in England No: 595129

Signature/Name Handtekening/Naam Signature/Nom Unterschrift/Name Firma/Nome Firma/Nombre	S. Hine Head of R & D (UK)	Authorised signatory for Avery Weigh-Tronix Limited Namens van Avery Weigh-Tronix Limited Signataire autorisé d'Avery Weigh-Tronix Limited Unterschriftsberechtigter für Avery Weigh-Tronix Limited Firmatorio autorizzato per Avery Weigh-Tronix Limited Firmante autorizado para Avery Weigh-Tronix Limited	5 January 2010	Date Datum Date Datum Data Fecha

76501-313 Issue 2

2 Introduction

This manual covers the information you need to setup, configure and service your 1080 indicator.

2.1 Unpacking and Setup

Unpack your indicator and check for any shipping damage. If shipping damage is found, save all packing materials and contact the shipping company immediately.

1. Use the included material and i nstall the indicator into an IP54 enclosure.
2. Connect all necessary cables to the appropriate connector on the back of the indicator. See Figure 2.2. The function of each connector and pinout is clearly marked.

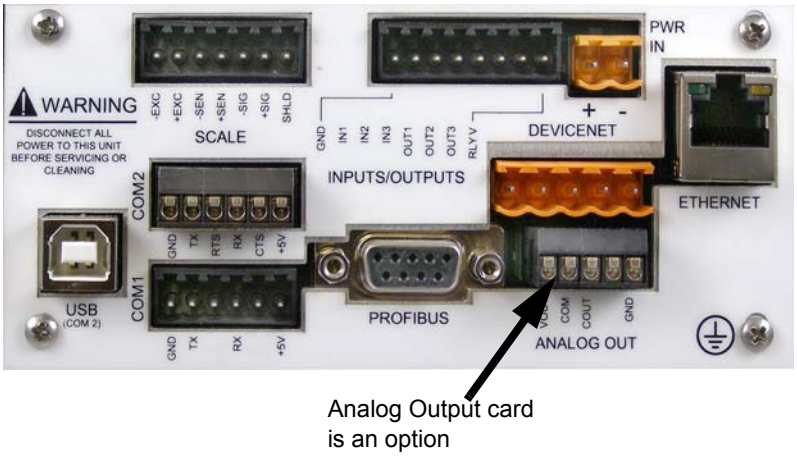


Figure 2.1 Figure 2.2 Rear panel connections on the 1080

3. Connect DC voltage (9-36 VDC @ 5A) to the indicator.

IMPORTANT: *See the System Block Diagram or Main Board Assembly pages in the technical illustrations at the back of this manual for wiring instructions.*

2.2 Front Panel

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

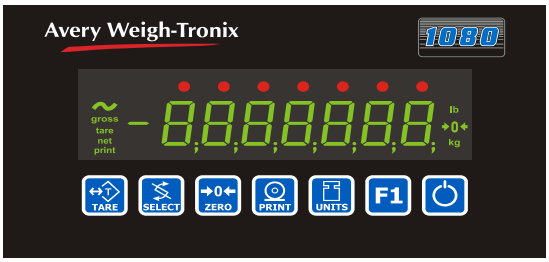


Figure 2.2 1080 front panel

2.2.1 Keys

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

Press the TARE key to perform a tare function. Also acts as a left arrow key when in the menu structure.

Press the SELECT key to toggle between Gross, Net, Tare, Count, Gross Accumulator, Net Accumulator, Transaction Counter, Piece Weight, and Peak. Dependent on the current application. Also acts as an up arrow key when in the menu structure.

Press the ZERO key to zero the display. Also acts as an ESCAPE key when in the menu structure.

Press the PRINT key to send information to a peripheral device through the Comm port. Also acts as a down arrow key when in the menu structure.

Press the UNITS key to scroll through the available units of measure while in normal operating mode. Also acts as a right arrow key when in the menu structure.

Press the F1 key to select application specific choices. Press and hold to access the outputs menu. Also acts as an ENTER key in the menu structure.

Press and release the ON/OFF key to turn the unit on. Press and hold the key until the unit turns off.

2.3 Numeric Entry Procedure

Some keys have alternate functions when you need to enter numbers. See Figure 2.

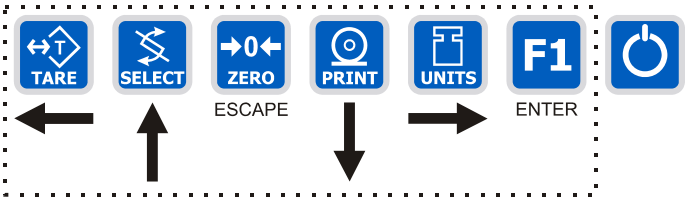


Figure 2.3 Alternate key functions

*Press the **ZERO** key to terminate a value entry and leave the previous value, if any, active*

In screens where numeric entry is possible, choose the first digit using the **UP** or **DOWN** keys. Use the **LEFT** and **RIGHT** keys to advance or backspace through the entry. Press the **F1** key to accept an entry. Below is an example:

Example: To enter the number 507-

Press the **SELECT** or **PRINT** key until ***5*** appears on the display.

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

Press the **SELECT** or **PRINT** key until ***0*** appears on the display.

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

Press the **SELECT** or **PRINT** key until **7** appears on the display.

Press the **F1** key to enter the value.

You can move the entry function one digit to the left with a press of the TARE key. This effectively deletes the current value in that position and allows you to enter a new value in that position.

2.4 Annunciators

There are several annunciators around the edge of the display. Figure 2.4 explains each one.

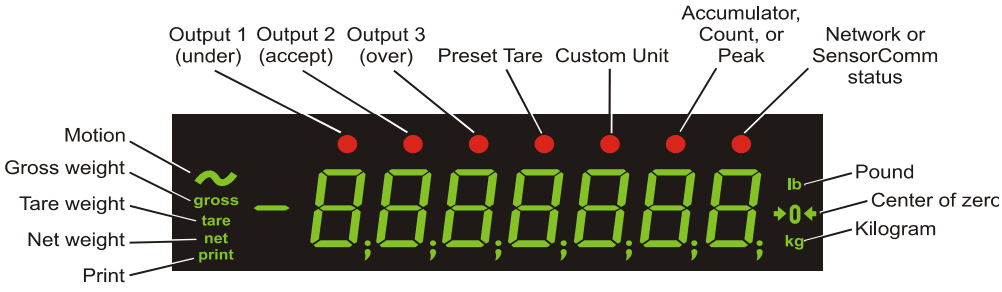


Figure 2.4 Annunciators.

Motion	Lights during scale motion. Goes out when scale is stable
Gross	Lights when gross weight is displayed
Net	Lights when net weight is displayed
Tare	Lights when tare weight is displayed
Print	Lights when print format sent through serial port
OP 1 (under)	Lights when output one is activated or for Under condition during checkweighing
OP 2 (accept)	Lights when output two is activated or for Accept condition during checkweighing
OP 3 (over)	Lights when output three is activated for Over condition during checkweighing
PT	Lights when preset tare is active
Custom Unit	Lights when a custom unit of measure is active
Accumulator, Count	Lights when an accumulation occurs and while in the count and peak applications
Network & SensorComm Status	This is configurable to light to show status of the Network 1, Network 2 or SensorComm. See the note following this table.
LB	Lights when pounds is the active unit of measure
Center of Zero	Lights when weight on the scale is within the zero range
KG	Lights when kilograms is the active unit of measure

Far Right LED color
(Chosen as SCOM or Network in configuration. Can't be both.) SCOM:
Red – a cell has been ghosted. Check the ghost log.
Green – a sensorcomm error has occurred. Check the error log.
Off – Scale is functioning normally.

Network 1 or 2:
Red – A network error has occurred. Check the network settings on the indicator and PLC, and reboot the indicator.
Green – The network connection has been established.
Amber – The network is ready for a connection, but no connection has been established

2.5 Error Messages

The following are displayed messages you may see if problems occur or if invalid operations are attempted with your indicator:

Display	Description
--------	Overrange weight. Scale is overloaded.
--------	Underrange weight. Scale is underloaded.
CAnt	The unit cannot perform a function. Displayed only while key is held down.
SEALEd	Displayed while a key is pressed when attempting to modify a sealed selection without edit privileges.

When you are in the Linearity menu item in the Service menu, you may see the following errors:.

Display	Description
Err 0	Out of ascending order.
Err 1	Entered value is less than 1% of scale capacity.
Err 2	Entered value causes resolution of greater than 100,000 divisions.

Linear points must be done in order from lightest weight to heaviest.

When you are in the Span menu item in the Service menu, you may see the following errors:

Display	Description
Err 0	Entered value is greater than the configured scale capacity.
Err 1	Entered value is less than 1% of scale capacity.
Err 2	Entered value causes resolution of greater than 100,000 divisions.
Err 3	No ADC counts OR in Overload OR in Underload All these relate to mV/V input

3 Using the Menus

3.1 Available Menus

There are several menus you use to setup or service the 1080. You access the menus through the front panel. Each menu is briefly described here. For in depth information about a menu, go to that menu's section in this manual.

3.1.1 User menu (password is 111)

The first menu covered in this manual is the User menu. This menu allows the user to:

- view software part numbers and revision level
- view mV/V output of the scale
- test the display and buttons
- test the serial ports
- audit the number of configurations and calibrations performed on the indicator

For complete information, see *User Menu on page 19*.

3.1.2 Service menu (password is 0801)

The second menu covered is the Service menu. (See the note below about unsealing the indicator.) In it you can:

- calibrate the scale system
- configure the metrological functions of the indicator
- enable or disable available applications
- configure serial ports
- test the display and buttons, test the serial ports, test the inputs and outputs
- audit the number of configurations and calibrations performed on the indicator
- configure inputs and outputs and options

For complete information, see *Service Menu on page 22*.

3.1.3 Supervisor menu (password is 1793)

The third menu is the Supervisor menu. This section lets you:

- set time and date
- clear and/or print data gathered by each application
- choose special modes of operation for applications:
  - configure a recipe, set sample mode, set over/under values, etc.
- test the display and buttons, test the serial ports, test the inputs and outputs, analog output, pulse counter input and networks
- audit the number of configurations and calibrations performed on the indicator

For complete information, see *Supervisor Menu on page 102*.

The indicator must be unsealed to change anything in the Service menu. To access the menu a jumper must be placed over the pins of P2, shown below. Remove the screws on the sides and top of the indicator to access the PC boards.

Remove the jumper to seal the indicator.

Sealed

Unsealed

3.2 Accessing the Menus

1. Access the menus by pressing and holding the **ZERO** key for 3-5 seconds. See the note below.

   PASS_ is displayed.

You must begin to scroll in the password within 10 seconds or the display returns to normal operation mode.

2. Scroll in the password of the menu you want to enter by using the steps shown in *Numeric Entry Procedure on page 13* and press **F1**.

   The first item in that menu is displayed.

3. Use the navigation keys shown in the box near each menu to move through the menu.

3.3 User Menu

The User menu lets you test various functions of the indicator. The User menu is shown in Figure 3.1.

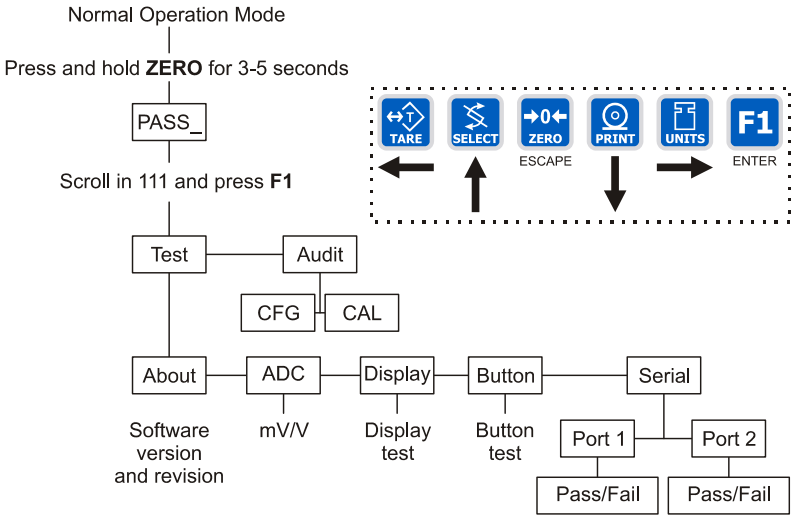


Figure 3.1 User menu

Following are specific instructions for the User menu.

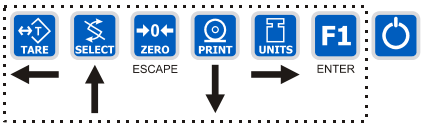
1. Access the User menu by pressing and holding the **ZERO** key for 3-5 seconds.

   PASS_ is displayed.

2. Key in the User menu password (111) and press **F1**.

   tESt is displayed.

Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.



3. Press the **PRINT** key.

   About is displayed. Press the **PRINT** key then the **UNITS** key to view the part number and revision level for the software found in your indicator.

   Press **SELECT** key to return to ***About***.

4. Press the **UNITS** key…

   AdC is displayed. This is the calibrated mV/V output of the connected analog scale.

5. Press the **PRINT** key…

   The mV/V value is displayed. This value should increase as weight is applied to the scale

6. Press the **SELECT** key…

   AdC is displayed.

7. Press the **UNITS** key…

   diSP is displayed. This is the display test item.

8. Press the **PRINT** key to perform a dynamic test of the display…

   All parts of the display flash.

9. Press the **ZERO** key to stop the test…

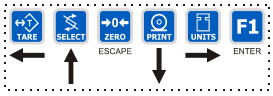
   The display flashes a couple more times and then ***diSP*** is shown.

10. Press the **UNITS** key…

    button is displayed. This is the button test item.

11. Press the **PRINT** key to perform a button test. Each key you press will be reflected on the display screen to confirm the button is functioning correctly. The **ZERO** key is excluded from this test. It is used to stop the testing and return to the menu item

12. Press **ZERO** key to stop the button test.

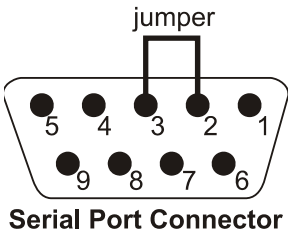


    button is displayed.

13. Press the **UNITS** key…

    SEriAL is displayed. This is the serial test item.

14. Press the **PRINT** key to access the serial test.



Serial Port Connector

    Port1 is displayed. If you jumper the transmit and receive lines on the serial port and press the **PRINT** key, the display should show ***PASS***. If there is a problem the display will show ***FAIL***.

15. Press the **SELECT** key after checking the port function…

    Port1 is displayed.

16. Press the **UNITS** key…

    Port2 is displayed. Repeat the test from step 14 to check the port.

17. Press the **SELECT** key twice to exit the serial test.

    SEriAL is displayed.

18. Press the **SELECT** key…

    tESt is displayed.

19. Press the **UNITS** key…

    Audit is displayed.

20. Press the **PRINT** key…

    CFG is displayed. This stands for the configuration audit counter.

Calibration and configuration counters cannot be reset.

21. Press the **PRINT** key to see the number of times the configuration has been altered on this indicator.
22. Press the **SELECT** key…

    CFG is displayed.

23. Press the **UNITS** key…

    CAL is displayed. This stands for the calibration audit counter.

24. Press the **PRINT** key…

    The number of times the indicator has been calibrated is displayed.

25. Press the **ZERO** key twice…
26. The display returns to normal operation mode.

This completes the User menu.

3.4 Service Menu

The first level of the Service menu is shown in Figure 3.2. Under these items you can do most of the configuration and calibration procedures to ready the indicator for use.

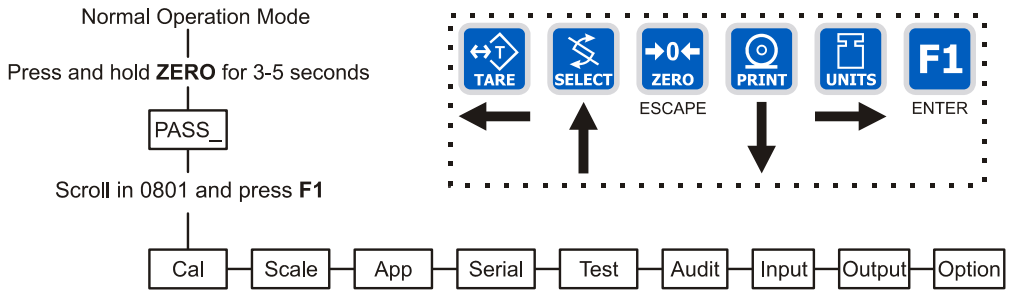


Figure 3.2 Service menu top level flowchart

Password for the Service menu is 0801.

While in a menu, the annunciators at the top of the display flash as a reminder.

Since the complete Service menu is quite large, it has been broken up into its individual submenus. Each submenu is illustrated on the following pages with specific instructions for that submenu. A full menu can be seen in *Service Menu on page 146*.

3.4.1 CAL Submenu for Analog Scales

If your system is configured for analog scales, use the menu shown in Figure 3.3.

If your system is configured for SensorComm, follow the instructions in *CAL submenu for SensorComm scales (North America only) on page 128*.

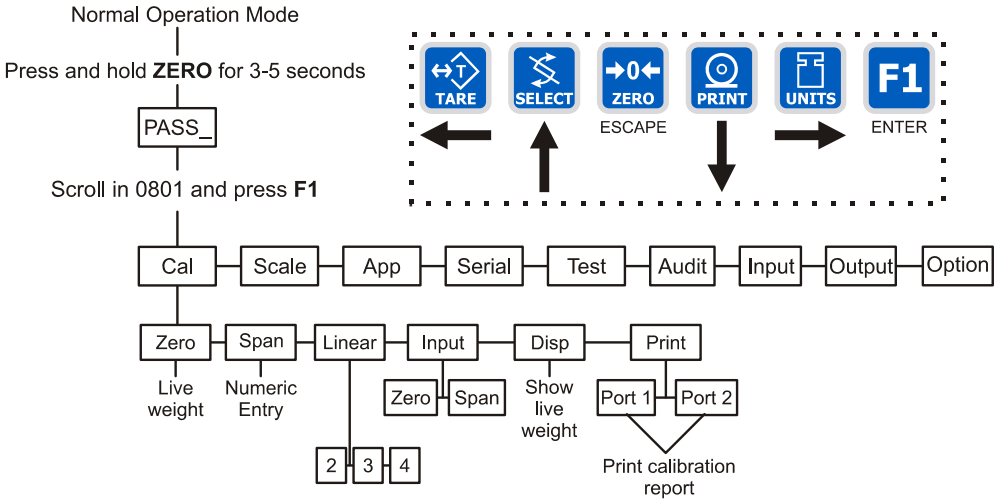


Figure 3.3 CAL submenu for analog scales

Password for the Service menu is 0801.

While in a menu, the annunciators at the top of the display flash as a reminder.

1. Access the Service menu…

   CAL is displayed.

Zero (Setting Zero Reference Point)

2. Press the **PRINT** key…

   ZEro is displayed. Use this item to set the zero reference for the indicator/scale.

Press the **ZERO** *key to abort calibration.*

3. Remove all weight from the scale and press the **F1** key…

   Live weight is shown.

4. Press the **F1** key to perform the zero procedure…

   buSY is briefly displayed then the live weight which should be ***0***.

5. Press the **F1** key to save and return to the **ZERO** menu item…

   ZEro is displayed.

SPAN (Setting Span)

1. Press the **UNITS** key…

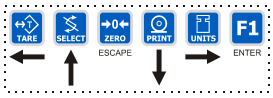
   SPAn is displayed. Use this item to set the span for the indicator/scale.

2. Press the **PRINT** key…

   Current capacity is displayed.

3a. Scroll in a new span weight value using the numeric entry procedure and press **F1**

OR



3b. Press **F1** to accept current span weight value…

The live weight is displayed.

4. Place the correct span weight on the scale and press **F1** when weight is stable.

   buSY is briefly displayed then the weight.

5. Press the **F1** key to accept the calibration and return to the ***SPAn*** menu item…

   SPAn is displayed.

6a. Press **ZERO** to exit to normal weighing mode (You will be prompted to save the changes. Press **F1** to save changes)

OR

6b. Go to step 1 below.

LINEAR (Linearization)

1. Press the **UNITS** key…

   LinEAr is displayed. Use this item to set extra calibration points.

2. Press the **PRINT** key…

   2 is displayed. This represents cal point 2.

3. Press the **F1** key to set this calibration point…

   A numeric value is displayed.

Linear points must be done in order from lightest weight to heaviest.

4. Scroll in a weight value for this calibration point using the numeric entry procedure and press the **F1** key.

   Live weight on the scale is displayed.

5. Place the test weight for this calibration on the scale and press **F1**.

   Busy is briefly displayed and then ***2***.

6. Press the **UNITS** key to move to the next calibration point…

   3 is displayed.

7. Repeat steps 3 through 6 for cal point 3 and 4.

   When you are done, ***4*** will be displayed.

8a. Press the **SELECT** key to return to the ***LinEAr*** menu item.

OR

8b. Press the **ZERO** key to return to normal operating mode. You will be prompted to save the changes. Press **F1** to save them or the **ZERO** key to abort the save process and return to normal operating mode without saving calibration.

INPUT (Input Calibration)

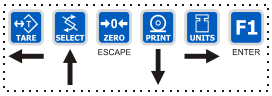
Use this item to hand enter zero and span calibration factors. This is useful if one indicator fails and is replaced with another but no test weights are available. Linearization factors cannot be entered.

To use this item you must have recorded the calibration factors from your previously installed 1080 indicator.

Calibration factors can be viewed under CAL>INPUT or you can print them out using the CAL>PRINT menu item.

1. With ***LinEAr*** displayed, press the **UNITS** key…

   InPut is displayed.



2. Press the **PRINT** key…

   ZEro is displayed.

3. Press the **PRINT** key…

   A numeric value is displayed.

4. Scroll in the zero factor from your previous indicator using the numeric entry procedure and press the **F1** key.

   buSY is briefly displayed, then ***ZEro***.

5. Press the **UNITS** key…

   SPAn is displayed.

6. Press the **PRINT** key…

   A numeric value is displayed.

7. Scroll in the span factor from your previous indicator using the numeric entry procedure and press the **F1** key…

   A span weight is displayed.

8. Accept the span weight by pressing the **F1** key or key in a new span weight and press the **F1** key to accept it…

   buSY is briefly displayed, then ***SPAn***.

9. Press the **SELECT** key to return to the ***InPut*** menu item.

DISP (Live Weight Display)

1. With ***InPut*** displayed, press the **UNITS** key…

   diSP is displayed. Use this item to view the live weight on the scale without exiting the Service menu.

2. Press the **PRINT** key…

   The live weight is displayed.

3. Press the **SELECT** key…

   diSP. is displayed.

OR

3a. Press the **SELECT** key to move to the top of the Service menu…

   CAL is displayed.

PRINT (Print a Calibration Report)

1. With ***CAL*** displayed, press the **UNITS** key…

   Print is displayed. This item lets you print a calibration report. The information printed can be very useful in case of service issues later.

2. Press the **PRINT** key…

   Port 1 is displayed. The other choice is ***Port 2***. This allows you to choose a port through which the calibration report is printed.

3. Toggle between the choices using the **TARE** or **UNITS** key and press **F1** when your choice is displayed…

   The report is printed and the display returns to ***Print***.

4. Press the **ZERO** key to return to normal operation mode.

   SAvE is displayed.

5. Press the **F1** key to save changes or press the **ZERO** key to exit the menu without saving.

This completes the CAL section of the Service menu for analog scales. If you have a SensorComm system, see the chapter *SensorComm Configuration and Calibration on page 126* for calibration and configuration information.

The next Service menu item, ***SCALE***, is covered in *SCALE Submenu on page 27*.

3.4.2 SCALE Submenu

Use this section of the Service menu for scale configuration. Figure 3.4 shows this menu item. Follow the directions and explanations below to set up these items.

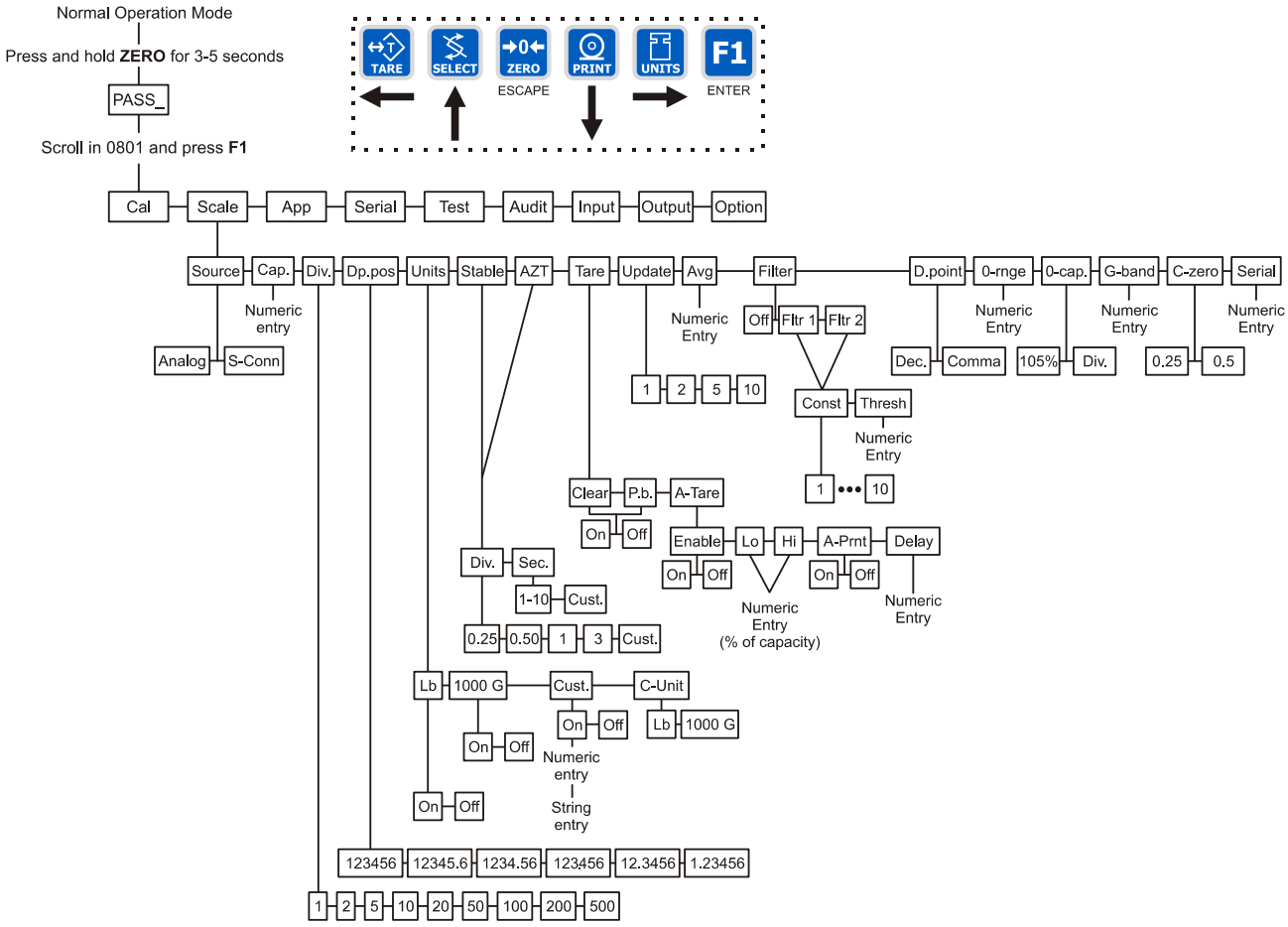


Figure 3.4 Scale submenu flowchart

1. Access the Service menu using the procedures in *Accessing the Menus on page 18*…

   CAL is displayed.

2. Press the **UNITS** key…

   SCALE is displayed.

Source (Analog or SensorComm)

Calibration instructions for Analog scales are in CAL Submenu for Analog Scales on page 23.

Calibration instructions for SensorComm scales are in CAL submenu for SensorComm scales (North America only) on page 128.

3. Press the **PRINT** key…

   SourCE is displayed. Use this item to choose between an analog or SensorComm based system.

4. Press the **PRINT** key…

   The current setting is displayed.

5. Toggle between the ***AnALoG*** and ***S-Com*** (North America only) choices using the **TARE** or **UNITS** key. When your choice is displayed press the **F1** key…

   SourCE is displayed.

CAP. (Capacity)

1. Press the **UNITS** key…

   CAP. is displayed. Use this item to set the capacity for the scale.

2. Press the **PRINT** key…

   The current capacity value is shown.

3. Press **F1** to accept this value or key in a new capacity and press **F1**…

   CAP. is displayed.

DIV. (Division)

This item and the next one, ***DP.POS.***, set the division size.

1. Press the **UNITS** key…

   div. is displayed. This stands for the division value of your displayed weight.

2. Press the **PRINT** key…

   The current division value is shown.

3. Scroll through the choices by using the **TARE** or **UNITS** key.

   Pick from the following values; 1, 2, 5, 10, 20, 50, 100, 200 and 500

   All of these capacities function in conjunction with the decimal place position. For example, if you choose a division value of 5 and a decimal position of 12345.6, your division size will be .5.

4. When your choice is displayed, press **F1**.

   div. is displayed.

DP.POS. (Decimal point position)

Use this item to set the decimal point position in the displayed weight.

1. Press the **UNITS** key…

   dP.PoS. is displayed. This stands for decimal point position.

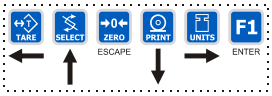
2. Press the **PRINT** key…

   The current decimal point position is shown. Choices available are; 123456, 12345.6, 1234.56, 123.456, 12.3456 and 1.23456.

3. Scroll through the choices by using the **TARE** or **UNITS** key. When your choice is displayed, press **F1**.

   dP.PoS. is displayed.

UNITS (Unit of measure)



You can have up to three units of measure active. They are lbs, kgs, or a custom unit of measure.

Follow these steps:

1. Press the **UNITS** key…

   UnitS is displayed.

2. Press the **PRINT** key…

   Lb is displayed.

3. Turn each unit of measure on or oFF by scrolling to the unit by using the **TARE** or **UNITS** key and pressing the **PRINT** key…

   The current state of the unit is displayed.

4. For lbs and kgs, toggle between on or oFF by using the **TARE** or **UNITS** key. Press **F1** when your choice is displayed…

   Display returns to ***Lb*** or ***1000 G***.

4a. If you choose to activate the custom unit of measure you will be prompted for a multiplier which defines the custom unit in relation to the calibration unit of measure and a string entry for a unit label. See the note below. Key the multiplier in and press **F1** to enter the value.

String entry screen is displayed. Edit the string (up to seven characters long) to create a name for the custom unit of measure. For directions on string editing, see the section *Extra Info: Print Format Editing on page 47*. String editing is covered in that section.

If your new custom unit is larger than one CAL UNIT, then you key in how many CAL **UNITS** *make up 1 new custom unit. For example 1 TON = 2000 pounds so with pounds selected as our CAL UNIT we would key in 2000 for the multiplier.*

$$\frac{\textbf{one cal unit}}{\textbf{number of custom units}}$$

If your new custom unit is smaller than one CAL UNIT, then you divide one cal unit by the number of custom units it takes to make up a single CAL UNIT. Multipliers are limited to a total of seven digits by the display.

Example #1:
16 ounces = 1 pound.
Do the math: (one cal unit / number of custom units = the multiplier)
1/16=0.0625
So with pounds selected as our CAL UNIT we would key in 0.0625 for the multiplier.

Example #2: 1000 Grams = 1 KG.
Do the math: (one cal unit / number of custom units = the multiplier)
1/1000=0.001
So with KG selected as our CAL UNIT we would key in 0.001 for the multiplier.

5. Press **F1** key to accept the string values …

CUSt. is displayed.

6. Press the **UNITS** key…

C-Unit is displayed. This stands for calibration unit. Use this item to set the calibration unit of measure; lbs or kgs (1000 G).

7. Press the **PRINT** key…

Current calibration unit is displayed. Choices are lb or 1000G.

8. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the choice…

C-Unit is displayed.

9. Press the **SELECT** key…

UnitS is displayed.

STABLE (Stability window)

Use this item to define the stability window in terms of ±X divisions for a period of time, in seconds, you set.

1. From the ***UnitS*** display, press the **UNITS** key…

   StAbLE is displayed.

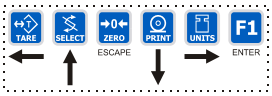
2. Press the **PRINT** key…

   div. is displayed.

3. Press the **PRINT** key…

   The current division size is displayed. If a weight changes less than this number of divisions in the time period you select in the next steps, the motion light turns off and the weight is considered stable.

   You choices are 0.25, 0.5, 1, 3 and CUST. (custom).



4. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   div. is displayed for any choice other than CUST. If you pick CUST. go to step 5. If you picked any other division size, go to step 6.

5. If you pick a custom window size you are shown the current value. Scroll in a custom size using the numeric entry procedure and press **F1** to save the custom value…

   div. is displayed.

6. Press the **UNITS** key…

   SEC. is displayed. Use this item to set the time window for stability determination.

7. Press the **PRINT** key…

   The current time window size is displayed. If a weight changes less than this number of divisions, set above, in the time period you select, the motion light turns off and the weight is considered stable.

   You choices are ***1***-***10*** seconds and ***CUST.*** (custom)

If CUSTOM is selected, only fractional time between 0-10 seconds can be entered.

Example: 1.5 seconds, 2.25 seconds, etc.

8. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   SEC. is displayed for any choice other than CUST. If you pick CUST. go to step 9. If you picked any other division size, got to step 10.

9. If you pick a custom time you are shown the current value. Scroll in a custom time using the numeric entry procedure and press **F1** to save the custom value…

   SEC. is displayed.

10. Press the **SELECT** key…

    StAbLE is displayed.

AZT (Automatic Zero Tracking)

Use this item to set the division size and seconds. The division size you pick defines a range above and below zero. When scale weight is inside this range for the number of seconds you picked, ½ of the weight will be zeroed. The indicator will repeat removing ½ the weight every X seconds. X being the number of seconds you have picked.

1. From the ***StAbLE*** display, press the **UNITS** key…

   AZt is displayed.

2. Press the **PRINT** key…

   div. is displayed.

3. Press the **PRINT** key…

   The current division size is displayed.

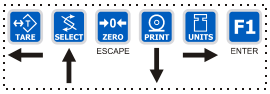
   You choices are ***0.25***, ***0.5***, ***1***, ***3*** and ***CUST.*** (custom)

For the purpose of explaining all items in the menus, these instructions show an orderly accessing of each part of the menu. You do not have to access an item in this way. Use the navigation buttons to skip around to the item you want to change or view.

4. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   div. is displayed for any choice other than CUST. If you pick CUST. go to step 4a. If you picked any other division size, got to step 5.

4a. If you pick a custom window size you are shown the current value. Scroll in a custom size using the numeric entry procedure and press **F1** to save the custom value…



   div. is displayed.

5. .Press the **UNITS** key…

   SEC. is displayed. Use this item to set the time window for stability determination.

6. Press the **PRINT** key…

   The current time window size is displayed.

   You choices are ***1***-***10*** seconds and ***CUST.*** (custom)

7. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   SEC. is displayed for any choice other than CUST. If you pick CUST. go to step 7a. If you picked any other division size, got to step 8.

If CUSTOM is selected, only fractional time between 0-10 seconds can be entered.

Example: 1.5 seconds, 2.25 seconds, etc.

7a. If you pick a custom time you are shown the current value. Scroll in a custom time using the numeric entry procedure and press **F1** to save the custom value…

   SEC. is displayed.

8. Press the **SELECT** key…

   AZt is displayed.

TARE (Tare parameters)

Use this item to set the tare function parameters;

Clear tare If you enable this item (***on***), the tare will be automatically cleared when the weight falls below the value set under the G-Band menu item.

Pushbutton tare If you enable this item (***on***), you can use the **TARE** key to tare a weight from the scale. If you disable (***oFF***) this item, you cannot tare using the **TARE** key.

A-Tare If you enable this item (***on***), the indicator will automatically tare off any weight on the scale when the weight is both above a configurable threshold and stable. Under this item set the following:

- **Enable** Enable (***on***) or disable (***oFF***) the Auto-tare feature.
- **Lo** Set the lower threshold (***Lo***) in % of scale capacity. When the weight on the scale is above the lower threshold and below the upper threshold and the delay has expired and the weight is stable, an auto-tare is triggered.
- **Hi** Set the upper (***Hi***) threshold in % of scale capacity. When the weight on the scale is above the lower threshold and below the upper threshold and the delay has expired and the weight is stable, an auto-tare is triggered.
- **A-Print** Enable (***on***) or disable (***oFF***) the Auto-print feature. If on, a print will occur whenever an automatic tare is done.
- **Delay** This defines the amount of time (in seconds), after the weight falls into the auto-tare window, until an auto-tare is done.

Follow these steps to set the Tare item:

1. From the ***AZt*** display, press the **UNITS** key…

   tArE is displayed.

2. Press the **PRINT** key…

   CLEAr is displayed.

3. Press the **PRINT** key…

   on or ***oFF*** is displayed. Use this to enable or disable the Clear tare item.

4. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   CLEAr is displayed.

5. Press the **UNITS** key…

   P.b. is displayed.

6. Press the **PRINT** key…

   on or ***oFF*** is displayed. Use this to enable or disable the Pushbutton tare item.

7. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   P.b. is displayed.

8. Press the **UNITS** key…

   A-tarE is displayed.

9. Press the **PRINT** key…

   EnAbLE is displayed. Use this to enable or disable the Pushbutton tare item.

10. Press the **PRINT** key…

    on or ***oFF*** is displayed. Use this to enable or disable the Auto-tare item.

11. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

    EnAbLE is displayed.

12. Press the **UNITS** key…

    Lo is displayed.

13. Press the **PRINT** key…

    A numeric entry screen appears.

14. Use the numeric entry procedure to enter in a low threshold value and press the **F1** key to accept.

    Lo is displayed.

15. Press the **UNITS** key…

    Hi is displayed.

16. Press the **PRINT** key…

    A numeric entry screen appears.

17. Use the numeric entry procedure to enter in a high threshold value and press the **F1** key to accept.

    Hi is displayed.

18. Press the **UNITS** key…

    A-Prnt is displayed.

19. Press the **PRINT** key…

    on or ***oFF*** is displayed. Use this to enable or disable the Auto-tare print function.

20. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

    A-Prnt is displayed.

21. Press the **UNITS** key…

    Delay is displayed.

22. Press the **PRINT** key…

    A numeric entry screen appears.

23. Use the numeric entry procedure to enter in a delay time, in seconds, and press the **F1** key to accept.

    Delay is displayed.

24. Press the **SELECT** key twice…

    tArE is displayed. This completes the Tare item.

UPDATE (Display Update Rate)

Use this item to set the number of display updates/second. Choices are 1, 2, 5 and 10 times/second. **10 is the default value.**

1. From the ***tArE*** display, press the **UNITS** key…

   UPdAtE is displayed.

2. Press the **PRINT** key…

   Current update rate is displayed. Choices are ***1***, ***2***, ***5*** and ***10*** times per second.

3. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   UPdAtE is displayed.

AVG (Averaging of A-D)

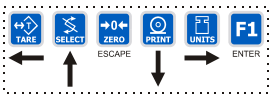
General Filtering Information
*The **AvG** and **FiLtEr** menu items discussed on the following pages are best explained by an example of how the filtering works in this indicator.*

Filtering is used to counteract vibration of the scale. The A-D weight conversion happens 100 times per second in the 1080. AVG is the number of conversions you want to average. For example, if you pick 50, the unit will average the weight values from the last 50 conversions or ½ second and uses that value for displayed data.

If you turn the filtering on you need to set the Constant. Typical values are between 1-10. Set the number low for small vibration problems and higher for more dampening effect.

The purpose of the Threshold is so the indicator will respond quickly to large weight changes. Threshold is the amount of weight change, in calibration units, beyond which the filter will be temporarily disabled. For example, if you set this to 10 lbs, a weight change over 10 pounds occurring during the sample time (½ sec. in our example) will disable the filter until the weight change during the sample time drops below 10 lbs.

The A-D weight conversion happens 100 times per second in this indicator. ***AvG*** is the number of conversions you want to average for the weight that is displayed. **20 is the default value.**



1. From the ***UPdAtE*** display, press the **UNITS** key…

   AvG is displayed.

2. Press the **PRINT** key…

   The current value is displayed.

3a. Press **F1** to accept the current value

OR

3b. Scroll in a new value, between 0 and 512, using the numeric entry procedure and press **F1** to accept it…

buSY is briefly displayed, then ***AvG***.

FILTER (Noise filtering)

Use this item to set the noise filtering parameters.

1. From the ***AvG*** display, press the **UNITS** key…

   FiLtEr is displayed.

2. Press the **PRINT** key…

   Current setting is displayed. Choices are ***oFF***, ***FLtr 1*** and ***FLtr 2***.

   Off means no filtering. FLTR 1 filtering is slower response to weight in a longer time period with improved accuracy. FLTR 2 filtering is faster response to weight in a short time.

3. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   If you choose ***oFF***, display returns to ***FiLtEr***. You can continue to the next menu item, *D.POINT (Decimal point) on page 38*.

   If you choose ***FLtr 1*** or ***2***, continue to step 4.

4. With ***FLtr 1*** or ***FLtr 2*** displayed, press the **PRINT** key…

   ConSt is displayed. This stands for Constant and is one of two filtering parameters you need to set.

5. Press the **PRINT** key…

   Current value is displayed. For the Constant value you can pick a value between 1 and 10. Set the number low for small vibration problems and use a higher setting for more dampening effect.

6. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   ConSt is displayed.

7. Press the **UNITS** key…

   tHrESH is displayed. This stands for Threshold, the 2nd filtering parameter.

   Threshold causes the indicator to respond quickly to large weight changes. Threshold is the amount of weight change, in calibration units, beyond which the filtering will be temporarily disabled. For example, if you set this to 10 lbs, a weight change over 10 pounds occurring during the sample time will disable the filtering until the weight change during the sample time drops below 10 lbs.

A threshold setting of 0 will turn filtering on all the time.

8. Press the **PRINT** key…

   Current value is displayed.

9. Scroll in a value using the numeric entry procedure. Press the **F1** key…

   tHrESH is displayed.

10. Press the **SELECT** key…

    FLtr 1 or ***FLtr 2*** is displayed.

11. Press the **SELECT** key…

    buSY is displayed briefly then ***FiLtEr***. Whichever filter you set up becomes the active filter for the indicator.

D.POINT (Decimal point)

Use this item to toggle between decimal point and a comma for the fraction delimiter for the display. For example, if you pick ***DEC*** the display will show 10.5. If you pick ***COMMA***, the display will show 10,5.

1. From the ***FiLtEr*** display, press the **UNITS** key…

   d.Point is displayed.

2. Press the **PRINT** key…

   The current setting is displayed.

Example:
decimal = 000.00
comma = 000,00

3. Toggle between the choices, ***dEc*** or ***coma***, by using the **TARE** or **UNITS** key and press the **F1** key to accept the choice…

   d.Point is displayed.

0-RANGE (Zero range)

Use this item to key in a percentage of capacity, within which the **ZERO** key will zero the scale.

1. From the ***d.Point*** display, press the **UNITS** key…

   0-rngE is displayed.

2. Press the **PRINT** key…

   The current setting is displayed. This is a percentage of capacity.

3a. Scroll in a new value using the numeric entry procedure and press **F1** to accept the value

OR

3b. Press the **F1** key to accept the displayed choice…

   0-rngE is displayed.

O-CAP. (Over capacity range)

Use this item to set the point at which over range (upper) dashes are displayed. You can choose between 105% of capacity or Divisions (+9/-20 div.) over and under capacity.

1. From the ***0-rngE*** display, press the **UNITS** key…

   O-CAP. is displayed.

2. Press the **PRINT** key…

   The current setting is displayed.

3. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the choice…

   O-CAP. is displayed.

G-BAND (Gross zero band)

Use this item to set the gross zero band. This is a parameter used to trigger the tare clear function covered previously in the Scale submenu. It also sets the Return to Zero range for Autoprint, Accumulate, Checkweighing and Counting functions. You can enter values between 0 and 100 divisions.

1. From the ***O-CAP.*** display, press the **UNITS** key…

   G-bAnd is displayed.

2. Press the **PRINT** key…

   The current setting is displayed.

3a. Scroll in a new value using the numeric entry procedure and press **F1** to accept the value

OR

3b. Press the **F1** key to accept the displayed choice…

   G-bAnd is displayed.

C-ZERO (Center of zero window)

This item is to set the window size for the center-of-zero annunciator. You can choose between ±¼ and ±½ division. When the weight falls within the window size, the center-of-zero annunciator lights.

1. From the ***G-bAnd*** display, press the **UNITS** key…

   C-ZEro is displayed.

2. Press the **PRINT** key…

   The current setting is displayed.

3. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the choice…

   C-ZEro is displayed.

SERIAL (Serial number entry)

Use this item to enter the serial number for your indicator. This value is used in some serial outputs and reports for record keeping purposes.

1. From the ***C-ZEro*** display, press the **UNITS** key…

   SEriAL is displayed.

2. Press the **PRINT** key…

   The current setting is displayed.

The serial number of your indicator can be found on the affixed tag on the outside of the indicator case.

3a. Scroll in the serial number of your indicator using the numeric entry procedure and press **F1** to accept the value

OR

3b. Press the **F1** key to accept the displayed choice…

   SEriAL is displayed.

4. This completes the SCALE portion of the Service menu. You can exit to normal weighing mode or continue on to the next menu item, APP. To exit, go to step 5. To continue, go to step 7.

5. Press the **ZERO** key.

   SAvE is displayed.

6a. Press **F1** to save the changes you've made

OR

6b. Press **ZERO** to abort the changes…

   Display returns to normal operation mode.

7. Press the **SELECT** key…

   SCALE is displayed.

8. Press the **UNITS** key…

   APP is displayed.

3.4.3 APP (Applications) submenu

The next section of the Service menu is the APP (Applications) submenu. See Figure 3.5. This menu lets you choose the default parameters for your location and also lets you enable or disable each application available in this indicator. Under each enabled application you can edit the default print format (#0) and choose which formats (#0-10) to print and through which port. You can configure the extra formats (#1-10) in the SERIAL submenu item in the Service menu.

See the Communications section of the User Manual for print format information.

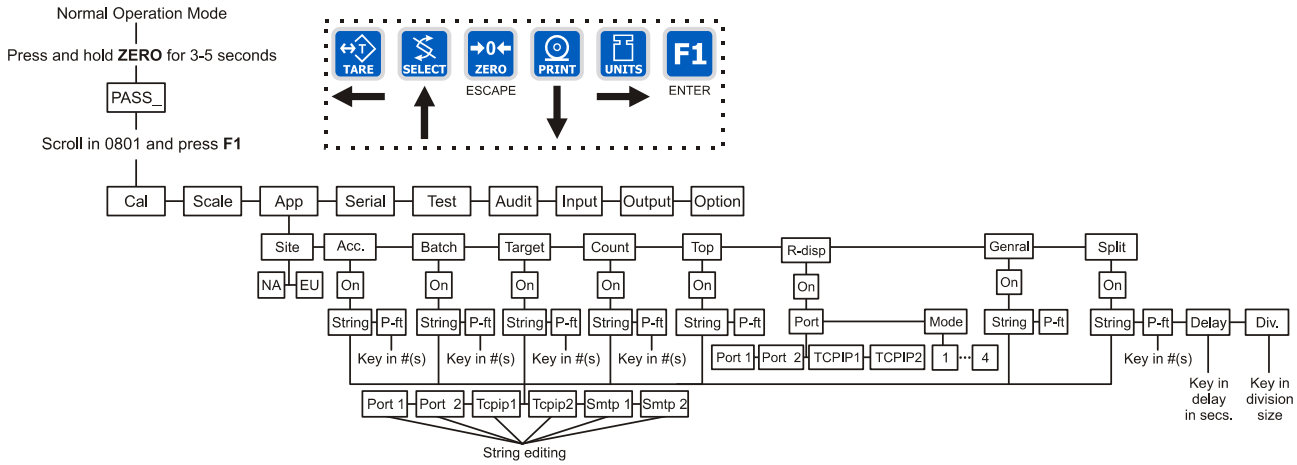


Figure 3.5 APP (applications) submenu

IMPORTANT: Only one application can be active or enabled at one time. If you enable one, any other enabled application becomes automatically disabled.

Applications are enabled in the Service menu but you do each application's setup in the Supervisor menu.

Follow these steps to access each item in the APP menu and to understand what they do and how to set them:

1. Access the Service menu…

   CAL is displayed.

2. Press the **UNITS** key twice…

   APP. is displayed.

SITE (Setting site defaults)

3. Press the **PRINT** key…

   SitE is displayed. Use this item to choose your instrument location; NA (North America), EU (Europe). Choosing the correct one will set defaults to your location's requirements.

4. Press the **PRINT** key…

   Current setting is displayed.

5. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   SitE is displayed. See the note below.

Master Reset *- If you change the site setting and save the change, then change it back to the original site and save, the defaults will be reset to factory defaults.*

This will not affect calibration, print formats or recipes.

ACC (Accumulator application)

1. From the ***SitE*** display, press the **UNITS** key…

   Acc. is displayed. This stands for the Accumulator application.

2. Press the **PRINT** key…

   on or ***oFF*** is displayed, depending on the current setting.

3a. Press the **SELECT** key to back out of this item without enabling it

OR

3b. Press the **F1** key to enable this application…

   StrinG is displayed. This is where you can choose a port to print through and view and/or edit the default print format.

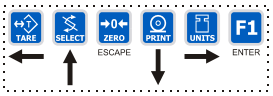
4. With ***StrinG*** displayed, press the **PRINT** key…

   The current port setting appears. Choices are Port 1, Port 2, TCPIP1, TCPIP2, SMTP 1 or SMTP 2. See the note below.

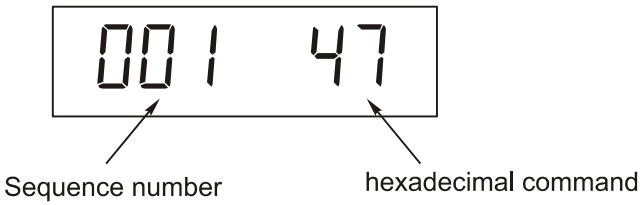
If you choose TCPIP1 or SMTP1, Net 1 under OPTION>NETS must be set to E-net-1 or E-net-4.

If you choose TCPIP2 or SMTP2, Net 2 under OPTION>NETS must be set to E-net-1 or E-net-4.

5. Toggle between the choices with the **TARE** or **UNITS** key and press **F1** to accept the displayed choice…



A string of numbers appears. See example and note below.



These numbers represent the default print format in numbered sequence of hexadecimal commands. Each hexadecimal command represents one printing character or print command. These numbers allow you to customize the print output of the indicator.

See *Extra Info: Print Format Editing on page 47* for full explanation and instruction on modifying a print format.

There are default print formats for each application. These are all given a format number = 0.

6. Modify the print format as needed and press the **F1** key when finished…

StrinG is displayed.

7. Press the **UNITS** key…

P-Ft is displayed. This stands for print format. You can send one or more print formats through a port each time the **PRINT** key is pressed. This is the item you use to define which formats get printed.

You can exit the Service menu at any time by pressing the **ZERO** *key. When* ***SAvE*** *appears on screen you can press* **ZERO** *to lose any changes or press* **F1** *to save the changes and return to normal operating mode.*

8. Press the **PRINT** key…

Numeric entry screen is displayed.

9. Scroll in the format numbers you want printed using the numeric entry procedure. See note below. For example, to print formats 0, 1, and 4, key in 014 and press the **F1** key. To print the 0, 1, 3, and 10 formats, key in 01310 and press the **F1** key…

P-Ft is displayed.

When you scroll in a 1 followed by a 0, the indicator is smart enough to know this is a 10 not separate 1 and 0 formats.

Always enter format numbers in ascending order.

10. Press the **SELECT** key…

    Acc. is displayed.

BATCH (Batch application)

1. From the ***Acc.*** display, press the **UNITS** key…

   bAtch is displayed.

2. Press the **PRINT** key…

   Repeat steps 2 through 9 from the section *ACC (Accumulator application) on page 42*, to set up the Batch application.

3. Press the **SELECT** key…

   bAtch is displayed.

TARGET (Checkweighing application)

Outputs 1, 2 and 3 must be turned on for the checkweighing annunciators (Over, Accept, Under) to work. This is done in the Service menu. See OUTPUT submenu on page 72

1. From the ***bAtch*** display, press the **UNITS** key…

   tArGEt is displayed.

2. Press the **PRINT** key…

   Repeat steps 2 through 9 from the section *ACC (Accumulator application) on page 42*, to set up the Target application.

3. Press the **SELECT** key…

   tArGEt is displayed.

COUNT (Counting application)

1. From the ***tArGEt*** display, press the **UNITS** key…

   Count is displayed.

2. Press the **PRINT** key…

   Repeat steps 2 through 9 from the section *ACC (Accumulator application) on page 42*, to set up the Count application.

3. Press the **SELECT** key…

   Count is displayed.

TOP (Peak hold application)

1. From the ***Count*** display, press the **UNITS** key…

   tOP is displayed.

2. Press the **PRINT** key…

   Repeat steps 2 through 9 from the section *ACC (Accumulator application) on page 42*, to set up the Top application.

3. Press the **SELECT** key…

   tOP is displayed.

R-DISP (Remote Display)

1. From the ***tOP*** display, press the **UNITS** key…

   r-diSP is displayed.

2. Press the **PRINT** key…

   on or oFF is displayed, depending on the current setting.

3. Press the **PRINT** key…

   Port is displayed. Use this item to select which port the master indicator will use to communicate with this remote display.

4. Press the **PRINT** key…

   The current port selection is displayed. Choices are Port 1, Port 2, TCPIP 1 or TCPIP 2.

5. Scroll through the choices by using the **TARE** or **UNITS** key. Press the **F1** key when your choice is displayed…

   Port is displayed.

6. Press the **UNITS** key…

   ModE is displayed. Use this item to configure how the remote will operate.

7. Press the **PRINT** key…

   Current mode value is displayed.

MODE 1	Indicator displays gross annunciator, weight and units annunciator. This is an emulation of the RD4100 remote display.
MODE 2	Indicator does the same thing as Mode 1 plus annunciators reflect the main display status.
MODE 3	Indicator acts as Mode 1 plus the following keys work; **TARE**, **SELECT**, **ZERO**, **PRINT** and **UNITS**.
MODE 4	Indicator acts the same as in Mode 3 plus all the annunciators reflect the main display status

8. Scroll through the choices using the **TARE** or **UNITS** key. When your choice is displayed, press the **F1** key…

   ModE is displayed.

GENRAL (General weighing application)

1. From the ***ModE*** display, press the **UNITS** key…

   GEnrAL is displayed. This is the general weighing function. This is the default application in a new indicator.

2. Press the **PRINT** key…

   Repeat steps 2 through 9 from the section *ACC (Accumulator application) on page 42*, to set up the General application.

3. Press the **SELECT** key…

   GEnrAL is displayed.

SPLIT (Axle weighing application)

1. From the ***GEnrAL*** display, press the **UNITS** key…

   SPLIt is displayed. This is the axle weighing application.

2. Press the **PRINT** key…

   Repeat steps 2 through 9 from the section *ACC (Accumulator application) on page 42*, to set up the Split application.

3. Press the **UNITS** key…

   dELAY is displayed. This is the maximum time, in seconds, the driver has once the first axle leaves the scale to the next axle coming on the scale.

4. Press the **PRINT** key…

   The numeric entry screen appears. Use the numeric entry procedure to enter a delay time, in seconds.

5. Press the **F1** key to accept…

   dELAY is displayed.

6. Press the **UNITS** key…

   div. is displayed. This is the minimum weight for an axle, in divisions. The weight must go above this and become stable before the scale captures the weight.

7. Press the **PRINT** key…

   The numeric entry screen appears. Use the numeric entry procedure to enter the number of divisions.

8. Press the **F1** key to accept…

   div. is displayed.

9. Press the **SELECT** key twice…

   APP. is displayed.

10. Press the **ZERO** key to exit the Service menu…

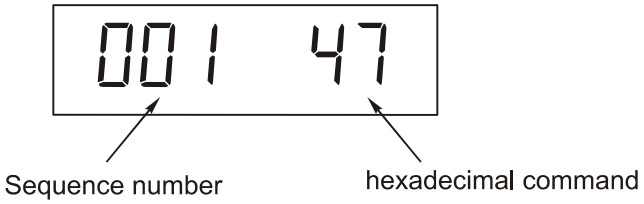
    SAvE is displayed.

11. Press **F1** to save your changes or press **ZERO** to abort any changes made in the Service menu…

    buSY flashes until the indicator returns to normal operation mode.

This completes the APP menu.

3.4.4 Extra Info: Print Format Editing



The first three numbers are the sequence of the print commands. The last two characters are the hexadecimal number for the print command.

Use the keys as described in Figure 3.6 to scroll through the sequence and change the hex. character value.

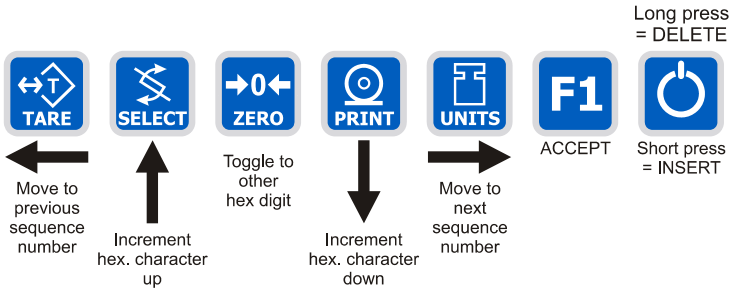


Figure 3.6 Key legend for hex editing

TARE	moves to the previous sequence number
SELECT	increments hex character up
ZERO	Toggles between first and second hex digit
PRINT	decrements hex character down
UNITS	moves right through the print string
F1	Accepts print string and exits edit mode
ON/OFF	A short key press inserts a new character in front of the displayed character. Press and hold to delete the currently displayed hex character.

Hex values of 7F (127 decimal) and below are printable characters and can be seen in Table 3.1. Hex values from 80 (128 decimal) to FF (255 decimal) is for print command tokens and can be seen in *Table 2: Printing Commands Chart on page 52*. See note below.

FF is the hex. value for End of String (EOS). When this value is entered in a print format, any values beyond this in the sequence are ignored and the display will wrap back to the 001 item.

You can overwrite the FF value and use up to the maximum string length if so desired. In the 1080 the maximum sequence length is 256. However, the last character in the print format must be FF. Be sure to add the FF character if it is removed.

The default print formats for each application are shown below.

Print Formats 1-8 are for the Zebra Thermal printer. See examples on the following pages.

Print Formats 9 & 10

```
G  123456 lb
{ACT}{DSP}{UN}<CR><LF>{EOS}
```

Accumulator Print Format 11, Batching Print Format 12, and Checkweigher Print Format 13, General Application Print Format 23 and Axle Weighing Application Print Format 24 all use the following:

```
G  123456 lb
{ACT}{DSP}{UN}<CR><LF>{EOS}
```

Counting, Print Format 14

```
Count:  48
Count:  {CNT}<CR><LF>{EOS}
```

Peak, Print Format 15

```
123456 lb
{PWT} {UN}<CR><LF>{EOS}
```

Remote Display, Print Format 16

```
G  123456 lb
{ACT} {DSP} {UN}<CR><LF>{EOS}
```

The following are the default print formats are for the corresponding “Mode” setting in the serial port configuration menu.

17 Port 1 Enquire (HEX05)

18 Port 1 Broadcast

19 Port 1 RD4100

20 Port 2 Enquire (HEX05)

21 Port 2 Broadcast

22 Port 2 Remote display

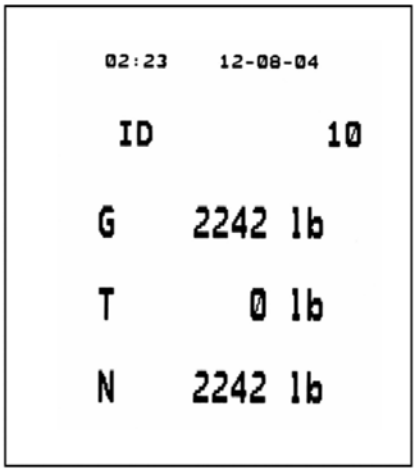
```
G  123456 lb
{ACT} {DSP} {UN}<CR><LF>{EOS}
```

3.4.5 Thermal Labels Print Formats

Print Formats 1, 2 & 3

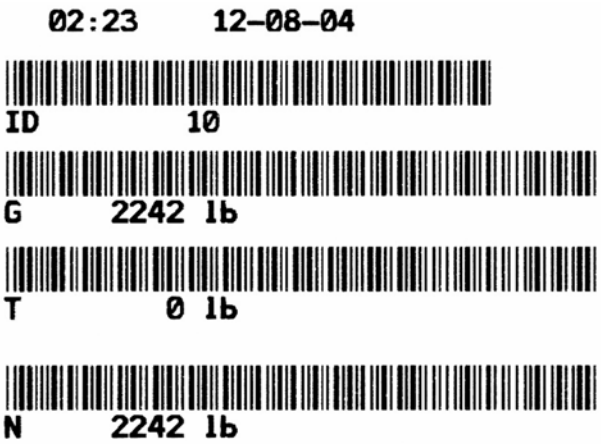
```
Time  Date
G     Gross Weight
T     Tare Value
N     Net Weight
```

Format 1 label 1.25” Wide x 1.00” Long
Format 2 label 2.50” Wide x 4.00” Long
Format 3 label 4.00” Wide x 6.00” Long



Print Format 4, same as above with barcode.

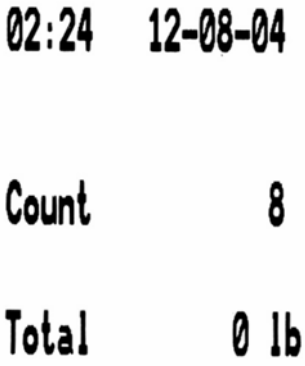
Label Size:
2.50” Wide
4.00” Long



Print Formats 5, 6 & 7

```
Time  Date
PLU Totals Information
Gross Total Accumulator
```

Format 5 label 1.25” Wide x 1.00” Long
Format 6 label 2.50” Wide x 4.00” Long
Format 7 label 4.00” Wide x 6.00” Long



Print Format 8, same as above with barcode.

Label Size
2.50” Wide
4.00” Long

Table 3.1 Printable Characters Chart

Code #	Cont. Char.	Print Char.	Hex	Code #	Cont. Char.	Print Char.	Hex	Code #	Cont. Char.	Print Char.	Hex
0	NUL		00	045	-	-	2D	090	Z	Z	5A
01	SOH	☺	01	046	.	.	2E	091	[	[	5B
02	STX	☻	02	047	/	/	2F	092	\	\	5C
03	ETX	♥	03	048	0	0	30	093	]	]	5D
04	EOT	♦	04	049	1	1	31	094	^	^	5E
05	ENG	♣	05	050	2	2	32	095	_	_	5F
06	ACK	♠	06	051	3	3	33	096	`	`	60
07	BEL		07	052	4	4	34	097	a	a	61
08	BS		08	053	5	5	35	098	b	b	62
09	HT		09	054	6	6	36	099	c	c	63
010	LF	LF	0A	055	7	7	37	0100	d	d	64
011	VT	♂	0B	056	8	8	38	0101	e	e	65
012	FF	FF	0C	057	9	9	39	0102	f	f	66
013	CR	CR	0D	058	:	:	3A	0103	g	g	67
014	S0	♫	0E	059	;	;	3B	0104	h	h	68
015	S1	☼	0F	060	<	<	3C	0105	i	i	69
016	DLE	4	10	061	=	=	3D	0106	j	j	6A
017	DC1	3	11	062	>	>	3E	0107	k	k	6B
018	DC2	ø	12	063	?	?	3F	0108	l	l	6C
019	DC3	Ø	13	064	@	@	40	0109	m	m	6D
020	DC4	ß	14	065	A	A	41	0110	n	n	6E
021	NAK	§	15	066	B	B	42	0111	o	o	6F
022	SYN		16	067	C	C	43	0112	p	p	70
023	ETB	—	17	068	D	D	44	0113	q	q	71
024	CAN	↑	18	069	E	E	45	0114	r	r	72
025	EM	↓	19	070	F	F	46	0115	s	s	73
026	SUB	→	1A	071	G	G	47	0116	t	t	74
027	ESC	←	1B	072	H	H	48	0117	u	u	75
028	FS	—	1C	073	I	I	49	0118	v	v	76
029	GS	—	1D	074	J	J	4A	0119	w	w	77
030	RS	5	1E	075	K	K	4B	0120	x	x	78
031	US	6	1F	076	L	L	4C	0121	y	y	79
032	SP		20	077	M	M	4D	0122	z	z	7A
033	!	!	21	078	N	N	4E	0123	{	{	7B
034	"	"	22	079	O	O	4F	0124	|	|	7C
035	#	#	23	080	P	P	50	0125	}	}	7D
036	$	$	24	081	Q	Q	51	0126	~	~	7E
037	%	%	25	082	R	R	52	0127	DEL	□	7F
038	&	&	26	083	S	S	53				
039	'	'	27	084	T	T	54				
040	(	(	28	085	U	U	55				
041	)	)	29	086	V	V	56				
042	*	*	2A	087	W	W	57				
043	+	+	2B	088	X	X	58				
044	,	,	2C	089	Y	Y	59				

Table 2: Printing Commands Chart					
Dec	HEX	Token	Application	Group	Parameter
128	80	GWT(,n)	Gross Weight [1]	Weight	OPTIONAL, (ASCII) Range: (‘2’-‘9’), Indicator Default: ‘6’
129	81	NWT(,n)	Net Weight [1]	Weight	OPTIONAL, (ASCII) Range: (‘2’-‘9’), Indicator Default: ‘6’
131	83	SAT(,n)	Semi-Auto Tare [1]	Weight	OPTIONAL, (ASCII) Range: (‘2’-‘9’), Indicator Default: ‘6’
132	84	UN	Units	Weight	
135	87	ID	Scale Serial Number	Misc	
136	88	TIM,x	Time	Time	MANDATORY (DECIMAL) Range: (0-2), Editor Default:1 0= Format as set/active in indicator 1= hh:mm 2= hh:mm AM/PM
137	89	DAT,x	Date	Date	MANDATORY, (DECIMAL) Range: (0-4), Editor Default:1 0= Format as set/active in indicator 1= MM/DD/YY 2= MM/DD/YYYY 3= DD/MM/YY 4= DD/MM/YYYY
138	8A	TTV,n	Target Value	Trip	MANDATORY, (HEX #s) Range: (‘31’-‘33’), Editor Default: ‘1’ For target weights
140	8C	AXL	Last axle weight	Vehicle	
142	8E	CLA(,n)	Checkweigher ‘Low Accept’ value [1]	Checkweight	OPTIONAL, (ASCII) Range: (‘2’-‘9’), Indicator Default: ‘6’
143	8F	CHA(,n)	Checkweigher ‘High Accept’ value [1]	Checkweight	OPTIONAL, (ASCII) Range: (‘2’-‘9’), Indicator Default: ‘6’
144	90	RAV,n	Active Recipe Ingredient x ‘Actual’ value	Recipe	MANDATORY, (HEX #s) Range: (‘31’-‘38’), Editor Default: ‘1’ For target weights in recipe
145	91	RTV,n	Active Recipe Ingredient x ‘Target’ value	Recipe	MANDATORY, (HEX #s) Range: (‘31’-‘38’), Editor Default: ‘1’ For preact values in recipe
146	92	RPV,n	Active Recipe Ingredient x ‘Preact’ value	Recipe	MANDATORY, (HEX #s) Range: (‘31’-‘38’), Editor Default: ‘1’ For target weights in recipe
147	93	RIU,n	Active Recipe Ingredient x units	Recipe	MANDATORY, (HEX #s) Range: (‘31’-‘38’), Editor Default: ‘1’ For ingredient units (lb or kg for weight based ingredients; sec for time based ingredients; cnts or gallons for pulse counter based ingredients). To be printed after the target or actual ingredient value.
148	94	PCE	Piece Weight	Count	
149	95	CNT	Current Count Value	Count	

Table 2: Printing Commands Chart					
Dec	HEX	Token	Application	Group	Parameter
151	97	GTO	Gross Accumulator	Weight	
152	98	GTU	Clears G, T or N Accum in print	Misc.	
153	99	STO	Net Accumulator	Weight	
155	9B	PLU	PLU NumberData	PLU	
156	9C	DES	PLU ID	PLU	
162	A2	DIS	Remote Display Status	Miscellaneous	
170	AA	VER	Software Version Number	Miscellaneous	
173	AD	WST	Weight Steady	Weight	
178	B2	PUP	Tare associated with the PLU	PLU	
184	B8	PUT	PLU Totals Information	PLU	
188	BC	PCT	PLU Count Total	PLU	
189	BD	LST	Net Accumulator	PLU	
190	BE	LGT	Gross Accumulator	PLU	
200	C8	DSP(,n)	Print the displayed weight	Weight	OPTIONAL, (ASCII) Range: (‘2’-‘9’), Indicator Default: ‘6’
215	D7	NULL	Null Token	Strings	
216	D8	ACT	Print the active value (‘G’ for gross, ‘N’ for net, ‘T’ for tare)	Weight	
230	E6	DRT	Remote display token-Axle mode	Vehicle	
231	E7	HST	Active Value-Axle mode	Vehicle	
233	E9	AXT	Axle total	Vehicle	
242	F2	PWT	Peak Hold Weight value	Weight	
246	F6	MWR	Axle index	Vehicle	
253	FD	HEX,xx	Following number will be transmitted by value. Also, use this selection to transmit a NUL as well.	Hex-Codes	MANDATORY, (ASCII-HEX) Range: (00 – FF), Editor Default: 00
254	FE	TEX	Reserved for future use as a ‘token extender’	-----	
255	FF	EOS	End of String	String	

Notes:

These tokens can be optionally followed by an ASCII 2 to 9 to specify the number of weight digits (including decimal point). If no specifier is given it defaults to 6 digits (+ decimal point) (equivalent to ASCII 6).

Further, parameter values may be ASCII digits (i.e. range ‘0’ thru ‘9’) or DECIMAL values (i.e. range 0 thru 255). In all cases, parameters consume one byte. In the term/token table parameters are indicated as follows:

Optional, (ASCII) - (,n)
Optional, (Decimal) - (,x)
Mandatory, (ASCII) - ,n
Mandatory, (Decimal) - ,x

3.4.6 SERIAL submenu

The next section of the Service menu is the SERIAL submenu. See Figure 3.7. This menu lets you configure the serial ports and create custom print formats #1-10.

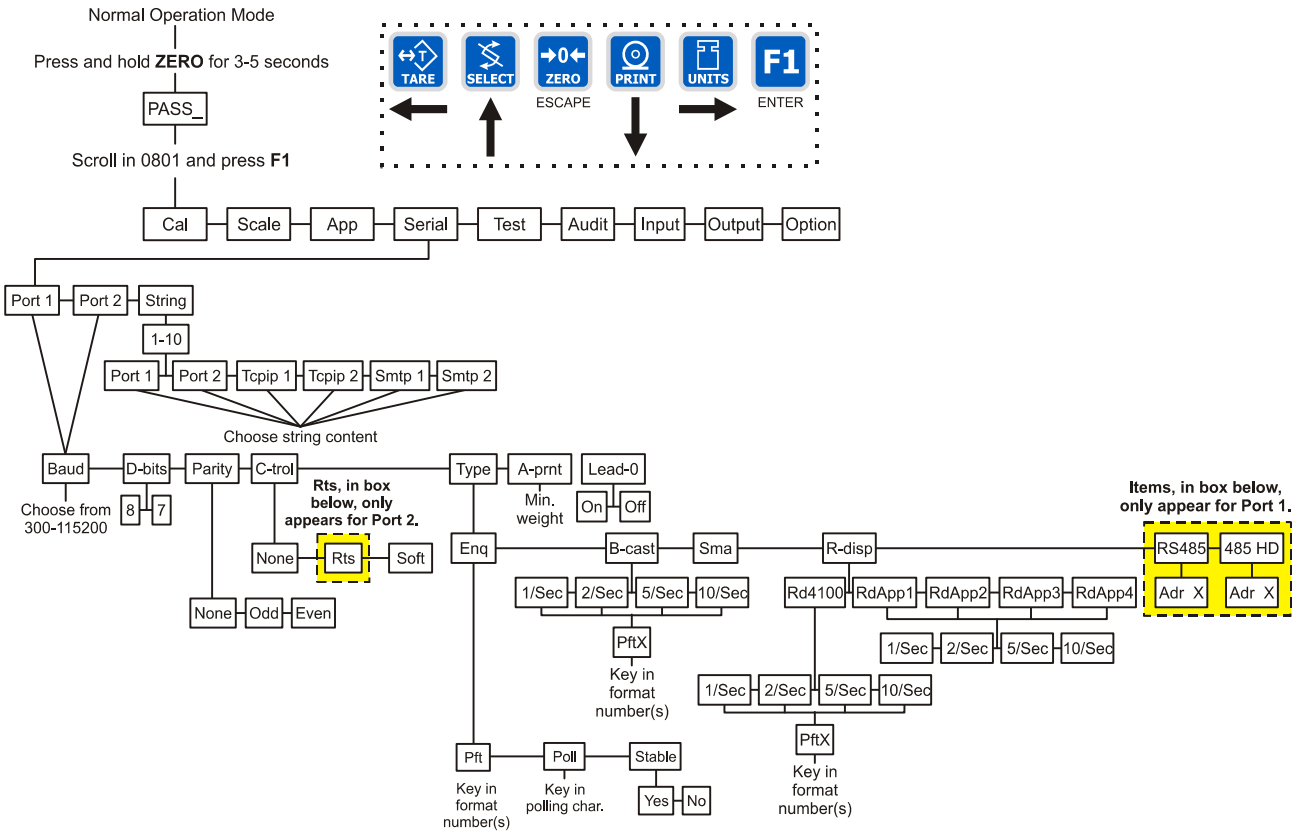


Figure 3.7 SERIAL (serial communication) submenu

The default serial port parameters are 9600 baud, 8 databits, no parity and 1 stop bit.

Stop bits for the serial communication are preset to 1 stop bit. This is not configurable.

Follow these steps to access each item in the SERIAL menu and to understand what they do and how to set them:

1. Access the Service menu…

   CAL is displayed.

2. Press the **UNITS** key repeatedly until…

   SEriAL is displayed.

3. Press the **PRINT** key…

   Port 1 is displayed.

Port 1 or Port 2

4. Scroll through the other choices, ***Port 2*** and ***StrinG***, by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice. If you choose ***Port 1*** or ***Port 2***, continue with the rest of this step. If you choose ***StrinG***, go to *STRING (Custom print formats) on page 63*.

All the port configuration items are identical for Port 1 and Port 2 except port 1 has two additional TYPE selections (RS-485 and 485HD). Use the following steps to configure each port.

bAud is displayed. Use this item to set the baud rate.

BAUD (Baud rate)

1. From the ***bAud*** display, press the **PRINT** key …

   Current baud rate is displayed. Choices are from 300 to 115,200. Default is 9600.

2. Scroll the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   bAud is displayed.

D-BITS (Data Bits)

3. From the ***bAud*** display, press the **UNITS** key…

   d-bitS is displayed. Use this item to set the data bits value.

4. Press the **PRINT** key…

   7 or ***8*** is displayed.

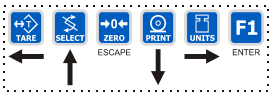
5. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   d-bitS is displayed.

PARITY (Parity setting)

1. From the ***d-bitS*** display, press the **UNITS** key…

   PAritY is displayed. Use this item to set parity.



2. Press the **PRINT** key…

   nonE, ***Odd*** or ***EvEn*** is displayed.

3. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   PAritY is displayed.

C-TROL (Handshake control)

1. From the ***PAritY*** display, press the **UNITS** key…

   C-trol is displayed. Use this item to set the handshake control.

2. Press the **PRINT** key…

   nonE, ***rtS*** or ***SoFt*** (Xon/Xoff) is displayed. See note below.

__rtS__ appears under Port 2 only, not under Port 1.

3. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   C-trol is displayed.

TYPE (Serial port mode)

1. From the ***C-trol*** display, press the **UNITS** key…

   tYPE is displayed. Use this item to set the port mode.

2. Press the **PRINT** key…

   Current setting is displayed. These are the choices you scroll through in step 3:

ENQ	This stands for enquire. When an appropriate enquire code is sent to the indicator, the configured print format is sent through the port.
B-CAST	This stands for broadcast. If this is enabled, the indicator will send out the configured print format at the configured rate whenever scale weight is stable.
SMA	Scale Manufacturer's Association protocol. See *Table 3: SMA protocol on page 58*.
R-DISP	This stands for remote display. If this is enabled, you can pick the type of remote display info to send and the rate the info is sent. This choice sends info continuously, regardless of the motion on the scale.

Choosing R-DISP in the Serial menu will configure the HOST indicator. The remote display indicator is configured by selecting the R-DISP application in the APP submenu.

RS-485	SMA protocol over an RS-485 multidrop connection (Port 1 only)
485 HD	SMA protocol over an RS-485 half-duplex multidrop connection (Port 1 only)

3. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   If you pick:

ENQ	go to *ENQ on page 57*
B-CAST	go to *B-CAST on page 57*
SMA	go to *SMA on page 58*
R-DISP	go to *R-DISP on page 60*
RS-485	(for port 1 only) go to *RS-485 on page 61*
485 HD	(for port 1 only) go to *485Hd on page 62*

ENQ

1. With ***Enq*** displayed, press the **PRINT** key. There are 3 items that can be changed when the Enquire mode is selected. Use the **TARE** and/or **UNITS** keys to scroll through the following items:

P-FT	Change the print format(s) that will be printed when the enquire character is received through the serial port. Press the **PRINT** key with ***P-ft*** displayed. ***PftX*** is displayed. The ***X*** stands for the current print format setting. Press **F1** to accept this format or key in a new format or formats and press the **F1** key to accept.
POLL	Change the ASCII character that the indicator will respond to. Press the **PRINT** key with ***POLL*** displayed. The current character represented as a decimal number will be displayed. (Example: for a carriage return (Hex: 0D) ***13*** will be displayed) Press the **F1** key to accept the character that is displayed or key in the decimal equivalent for the desired character and press the **F1** key.
STABLE	Change the stability setting for the Enquire mode. This can be set to ***YES*** which will require that there is no motion on the scale for a response to be sent or ***no***. Press the **PRINT** key with ***StAbLE*** displayed. Either ***YES*** or ***no*** will be displayed depending on the previous setting. Use the **TARE** or **UNITS** key to toggle between ***YES*** or ***no***. When the desired setting is displayed use the **F1** key to accept.

When all three items have been set correctly, press the **SELECT** key and ***Enq*** is displayed.

The EOM character should be entered as a decimal value from 0-255, not a hex value.

B-CAST

1. With ***b-CASt*** displayed, press the **PRINT** key…

   Current update rate is displayed. Choices are ***1/SEC***, ***2/SEC***, ***5/SEC***, and ***10/SEC***.

2. Scroll through the choices using the **TARE** or **UNITS** key. Press the **F1** key when your choice is displayed…

   PFtX is displayed. The ***X*** stands for the current print format setting.

3. Press the **F1** key to accept this format or key in a new format or formats and press the **F1** key to accept…

   b-CASt is displayed.

SMA

1. With ***SMA*** displayed, press the **PRINT** key…

   The SMA protocol is selected and ***tYPE*** is displayed.

Table 3: SMA protocol

Command Sent to Indicator	Result
<LF>W<CR>	Weight returned if no motion. Dashes displayed if motion on scale.
<LF>P<CR>	Weight returned if no motion. Dashes displayed if motion on scale.
<LF>Z<CR>	Scale zeros itself if no motion. Dashes displayed if motion on scale.
<LF>T<CR>	Scale tares itself and returns G or N weight if no motion. Dashes displayed if motion on scale.
<LF>T<xxxxxx.xxx><CR>	Scale attempts to take the <xxxxxx.xxx> data as the tare weight and returns G or N weight if no motion. Dashes displayed if motion on scale.
<LF>M<CR>	Returns the tare weight if no motion. Dashes displayed if motion on scale.
<LF>C<CR>	Clears the tare weight if no motion. Dashes displayed if motion on scale.
<LF>U<uuu><CR>	Sets the unit of measure label to uuu Example: lb_ (_ =space) Works for lb or kg only, not custom units
<LF>D<CR>	Runs scale diagnostics and sends diagnostic message
<LF>A<CR>	Sends the SMA compliance level. See note at left.
<LF>B<CR>	1st B sent returns manufacturer 2nd B sent returns model software # 3rd B sent returns the software revision level 4th B sends an END 5th or more sends a ?
<LF>U<CR>	Toggles the units of measure if no motion. Dashes displayed if motion on scale.
<LF>I<CR>	Sends the SMA compliance level as *SMA:compliance level / revision level*
<LF>XB<CR>	This command can be sent over a serial or sockets connection if it is configured for SMA mode. This returns a list of keys that have been pressed since the list was last cleared. Each key pressed is represented by a letter, shown below: TARE = T SELECT = S ZERO = Z PRINT = P UNITS = U F1 = F POWER = O Example: <LF>XBTSF<CR> This response shows that the Tare, Select and F1 keys have been pressed since the last time the list was cleared.

Table 3: SMA protocol	
Command Sent to Indicator	Result
<LF>XBC<CR>	This will clear the list of key presses from memory. Response: <LF>XBCDone<CR>
<LF>N<CR>	1st N sends the scale type; S or C. TYP:S = scale, TYP:C = Classifier 2nd N sends ***CAP:uuu:c..c:n:d*** where ***uuu*** = unit of measure ***c..c*** = full capacity of this range. If multi-interval is not enabled, this is the scale capacity. ***n*** = Least significant count-by digit ***d*** = decimal point position: 0 = none 1 = XXXX.X 2 = XXX.XX 3 = XX.XXX…etc. 3rd N sends a list of the SMA level 2 commands that are implemented: ***CMD:PTMCU*** Last valid N sends ***END*** Subsequent N commands will return a '?' response.
ESC	This reboots the indicator
<LF>XP<num><CR>	Request a print format to be printed, 0-10
<LF>XT<cutoff><xxxx.xx><CR> Set a cutoff/trip weight.	Attempts the take <xxxx.xx> as the weight for cutoff #<cutoff>. The indicator will respond with: <LF>XT<cutoff><xxxx.xx>Set<CR> if the cutoff weight was accepted or <LF>XTFail<CR> if the cutoff weight could not be set to the value specified. Cutoff =1-3. Weight limited to scale cap.
<LF>XT<cutoff><CR> Request a cutoff/trip weight.	The indicator will respond with: <LF>XT<cutoff><xxxx.xx><CR> where <xxxx.xx> is the weight for cutoff number <cutoff>. or <LF>XTError<CR> if the cutoff number specified is invalid. Cutoff =1-3. Weight limited to scale cap.
<LF>XC<channel><CR> Set the PLU channel.	Attempts to set the PLU channel to <channel>. The indicator responds with: <LF>XC<channel>Set<CR> if the channel number was valid. Or <LF>XCFail<CR> if the channel number was invalid. Valid channel numbers are 0-10.
<LF>XC<CR> Request the PLU current channel.	The indicator will respond with: <LF>XC<channel><CR>
<LF>XI<id><CR> Set the ID number of current PLU channel.	The indicator will respond with:<LF>XI<id>Set<CR>

Table 3: SMA protocol	
Command Sent to Indicator	Result
<LF>XI<CR> Request the id number of the current PLU channel.	The indicator will respond with: <LF>XI<id><CR>
<LF>XK<lower limit>,<upper limit><CR> Set the checkweigher lower and upper limit.	The indicator will respond with: <LF>XK<lower limit>,<upper limit>Set<CR> if the limits where set successfully. Or <LF>XKFail<CR> if the limit values were invalid.
<LF>XK<CR> Request the checkweigher lower and upper limit values.	The indicator will respond with: <LF>XK<lower limit>,<upper limit><CR>
<LF>XE<pcwt><CR>Set the piece weight for the Counting application.	The indicator will respond with: <LF>XE<pcwt>Set<CR>
<LF>XE<CR> Request the piece weight for the Counting application.	The indicator will respond with: <LF>XE<pcwt><CR>

The A and B commands are related. An A command MUST be sent before the first B command can be sent. Multiple B commands can be sent after the A command and each one will return a different piece of data. If a B command returns a "?" or END response, an A command is needed to reset the B command.

The I and N commands are related. An I command MUST be sent before the first N command can be sent. Multiple N commands can be sent after the I command and each one will return a different piece of data. If an N command returns a "?" or END response, an I command is needed to reset the N command.

R-DISP

1. With ***SMA*** displayed, press the **PRINT** key…

   Current setting is displayed. Use this item to choose what style of output you want for this indicator as a master indicator going to a remote display. Choices are RD4100, RDAPP1, RDAPP2, RDAPP3 and RDAPP4.

   RD4100 Select this to emulate output to an RD-4100. You can pick a print format to be sent to the remote display. If you pick format #0 a default G XXXXXX lb format will be sent.

   RDAPP1 Select this to send G XXXXXX lb

   RDAPP2 Select this to send the same as RDAPP1 + annunciators

   RDAPP3 Select this to send the same as RDAPP1 + will accept the keys presses from the remote (**TARE**, **SELECT**, **ZERO**, **PRINT**, **UNITS**)

   RDAPP4 Select this to send the same as RDAPP2 + accepts the keys presses from the remote (**TARE**, **SELECT**, **ZERO**, **PRINT**, **UNITS**)

2. Scroll through the choices using the **TARE** or **UNITS** key. Press the **F1** key when your choice is displayed…

   Current update rate is displayed. Choices are ***1/SEC***, ***2/SEC***, ***5/SEC***, and ***10/SEC***. This is the update rate

3. Scroll through the choices using the **TARE** or **UNITS** key. Press the **F1** key when your choice is displayed…

   If you chose:

   RD4100: ***PFTX*** is displayed. The ***X*** stands for the current print format setting. Press the **F1** key to accept this format or key in a new format or formats and press the **F1** key to accept.

   Otherwise: ***R-diSP*** is displayed.

RS-485

This section applies only if you are configuring Port 1:

1. With RS485 displayed, press the **PRINT** key.

   Adr XX is displayed. This is the slave address of the indicator.

2. Press the **F1** key to accept the displayed address or key in a new value then press **F1**.

   RS-485 mode is very similar to SMA mode, but the transmission is over an RS-485 multidrop connection instead of over RS-232 hardware. There is a slight difference in the protocol as well. The master must send the slave address as part of the request. For example, instead of sending:

   <LF>W<CR> to the indicator,

   <LF><sadd>W<CR> must be sent.

   <sadd> is the slave address of the indicator that the master wants a response from. If the slave address sent to an indicator matches the configured slave address, the indicator will respond with the slave address as part of the response. All SMA responses begin with a <LF>. The slave address will be the character immediately following the <LF>.

485Hd

This section applies only if you are configuring Port 1.

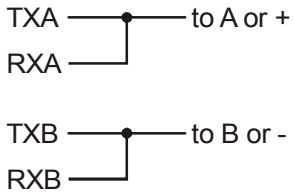
1. With ***485 Hd*** displayed, press the **PRINT** key.

   Adr XX is displayed. This is the slave address of the indicator

2. Press the **F1** key to accept the displayed address or key in a new value then press **F1**.

   485 Hd mode is essentially the same as RS-485 mode, but the transmission is over a Half-Duplex (2-wire connection) instead of the Full-Duplex connection that must be in place for RS-485 mode. The protocol is exactly the same a RS-485 mode (the slave address is sent with the commands and responses). See the RS-485 description (above) for complete details.

RS485Hd wiring:
4 wire RS485 to 2 wire RS485



Jumper TXA to RXA and TXB to RXB. The indicator will adjust for the serial loop back when RS485 Half duplex is selected.

When you are done with the TYPE menu item and ***tYPE*** is displayed, do one of the following:

Return to normal operation—

1. Press the **ZERO** key…

   SAvE is displayed.

2a. Press **ZERO** to abort the save and return to normal operation mode

OR

2b. Press the **F1** key to save the changes and return to normal operation mode

OR

Continue with the Serial submenu—

Press the **UNITS** key to move on to the next Serial menu item which is ***A-Prnt***.

A*-PRINT *(Autoprint minimum trigger weight)

1. From the ***tYPE*** display, press the **UNITS** key…

   A-Prnt is displayed. Use this item to set a minimum weight, as a percentage of capacity, under which the indicator will send out the configured print format when the weight is stable (no motion).

2. Press the **PRINT** key…

   Current setting is displayed.

3. Scroll in your weight choice using the numeric entry procedure and press the **F1** key to accept…

   A-Prnt is displayed.

LEAD-0 (Leading zero)

1. From the ***A-Prnt*** display, press the **UNITS** key…

   LEAd-0 is displayed. Use this item to turn a leading zero on or off for all system variables.

2. Press the **PRINT** key…

   on or oFF is displayed.

3. Toggle between the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   LEAd-0 is displayed.

4. Press the **SELECT** key…

   Port 1 or ***2*** is displayed.

5. Repeatedly press the **UNITS** key until…

   StrinG is displayed.

STRING (Custom print formats)

Use the ***StrinG*** item to create customized print formats. The default print format is always = 0 and it is edited under the ***APP*** menu item.

Use the ***StrinG*** menu to create formats #1-10. These formats are called from application specific settings or from Serial menu item settings.

1. From the ***StrinG*** display, press the **PRINT** key…

   1 is displayed. This is the print format number.

2. Scroll through the list of 1-10 using the **TARE** or **UNITS** key and press **F1** to select the displayed choice…

   The current destination is displayed. This may be:

   Port 1, serial port #1

   Port 2, serial port #2

   tcPIP1 if you want to send the format(s) through network connection #1 (net1 must be configured as Enet1 or Enet4)

   tcPIP2 if you want to send the format(s) through network connection #2 (net2 must be configured as Enet1 or Enet4)

   SmtP1 if you want to send the format(s) as an email through network connection #1 (net1 must be configured as Enet1 or Enet4)

   SmtP2 if you want to send the format(s) as an email through network connection #2 (net2 must be configured as Enet1 or Enet4)

3. Scroll through the choices shown above by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   A string is displayed. Refer to *Extra Info: Print Format Editing on page 47* to understand how to edit strings.

4. When you are done editing a string press the **F1** key…

   The print format number is displayed.

5. Do 6a or 6b:

6a. Repeat steps 2-6b.

6b. Press the **SELECT** key twice to return to the ***SEriAL*** display…

   SEriAL is displayed. This completes the SERIAL submenu.

7a. Press the **UNITS** key to go to the TEST submenu

OR

7b. Press **ZERO** to return to normal operation mode…

   If you press **ZERO**, ***SAvE*** is displayed.

8. Press **F1** to save the changes or the **ZERO** key to abort the save process and return to normal operating mode.

3.4.7 TEST submenu

The next section of the Service menu is the TEST submenu. See Figure 3.8. This menu lets you view indicator information and test the display, keypad, serial ports, inputs and outputs.

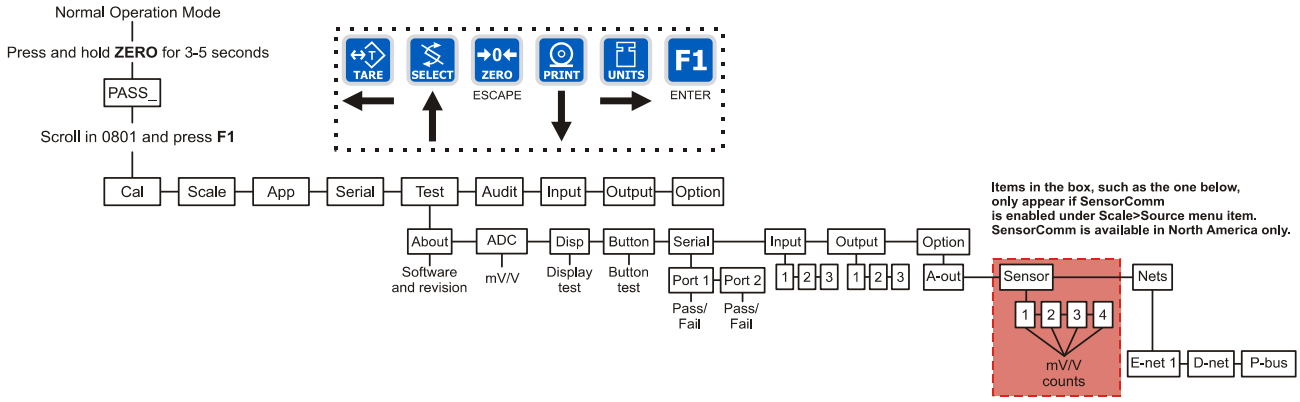


Figure 3.8 TEST (diagnostic) submenu

Follow these steps to access each item in the TEST submenu and to understand what they do and how to set them:

1. Access the Service menu…

   CAL is displayed.

2. Press the **UNITS** key repeatedly until…

   tESt is displayed.

ABOUT (Indicator information)

3. Press the **PRINT** key…

   About is displayed. Use this item to view the part number and revision level for the software found in your indicator.

4. Press the **PRINT** key…

   The first part of the software part number is displayed.

5. Press the **UNITS** key…

   The second part of the software part number is displayed.

6. Press the **UNITS** key…

   The software revision level is displayed.

7. Press **SELECT** key to return to ***About***.

ADC (Analog scale test)

8. From the ***About*** display, press the **UNITS** key…

   Adc is displayed. This stands for the analog to digital converter value in mV/Vs.

9. Press the **PRINT** key…

   The mV/V value coming into the indicator is displayed.

10. Press the **SELECT**…

    Adc is displayed.

DISP (Display test)

11. From the ***Adc*** display, press the **UNITS** key…

    diSP is displayed. This is the display test item.

12. Press the **PRINT** key to perform a dynamic test of the display.

13. Press the **ZERO** key once to stop the dynamic test…

    The display may flash one or two more times and then ***diSP*** will be displayed.

BUTTON (Key test)

14. From the ***diSP*** display, press the **UNITS** key…

    button is displayed. This is the button test item.

15. Press the **PRINT** key to perform a button test. Each key you press will be reflected on the display screen to confirm the button is functioning correctly.

16. Press the **ZERO** key to stop the button test.

    button is displayed.

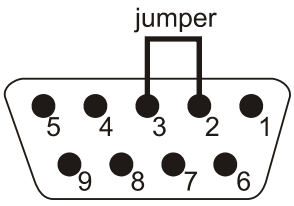
SERIAL (Serial port test)

17. From the ***button*** display, press the **UNITS** key…

    SEriAL is displayed. This is the serial test item.

18. Press the **PRINT** key to access the serial test.

    Port 1 is displayed. If you jumper the transmit and receive lines on the serial port and press the **PRINT** key, the display should show ***PASS***. If there is a problem the display will show ***FAIL***. See illustration below.



Serial Port Connector

    Repeat this for PORT 2.

19. Press **SELECT** key to return to the ***SEriAL*** item…

    SEriAL is displayed.

INPUT (Input test)

20. From the ***SEriAL*** display, press the **UNITS** key…

    InPut is displayed. This is the input test item.

21. Press the **PRINT** key to access the test.

    1 2 3 is displayed. ***1*** stands for input 1, etc.

22. If you jumper pins 1 and 2 of the I/O connector on the bottom of the indicator…

    1 becomes ***0*** until the jumper is removed.

    To test input 2, jumper pins 1 and 3. ***2*** becomes ***0*** until the jumper is removed.

    To test input 3, jumper pins 1 and 4. ***3*** becomes ***0*** until the jumper is removed.

23. Press the **SELECT** key…

    InPut is displayed.

OUTPUT (Output test)

24. From the ***InPut*** display, press the **UNITS** key…

    outPut is displayed. This is the output test item.

25. Press the **PRINT** key to access the test.

    1 is displayed. This stands for output 1.

26. Press the **PRINT** key…

    The display toggles between ***on*** and ***oFF***. This will toggle the output off and on. Monitor the output to see that it is turning off and on. Use a Trips Interface Unit (TIU3) or other output device.

27. Stop the test by pressing the **SELECT** key…

    1 is displayed.

28. Press the **UNITS** key…

    2 is displayed.

29. Repeat steps 26 and 27 for outputs 2 and 3…

30. Press the **SELECT** key…

    outPut is displayed.

OPTION (Option tests)

31. Press the **UNITS** key…

    oPtion is displayed. The option tests are explained below.

A-OUT test

32. From the ***oPtion*** display, press the **PRINT** key…

    A-Out is displayed. This stands for the analog output test.

33. Press the **PRINT** key…

    A numeric entry screen is displayed.

34. Scroll in a percentage between 0 and 100 using the numeric entry procedure and press the **F1** key…

    The analog output will put out that percentage of voltage. For example: If you have output set from 0 to 10V and you key in a percentage of 25, the analog output voltage should read 2.5 volts. You can continue to key in other percentages, press **F1** and check the analog output voltage.

35. When you are finished testing the analog output, press the **ZERO** key…

    A-Out is displayed.

SENSOR test (this appears only if SensorComm is enabled)

36. From the ***A-Out*** display, press the **UNITS** key…

    SEnSor is displayed. Use this to test the function of each weight sensor attached via SensorComm.

This test can be used to properly adjust the deadload of the scale. Each sensor should have similar mV/V outputs if the physical load on the scale is equally distributed.

37. Press the **PRINT** key…

    1 is displayed.

38. Scroll through the available weight sensor numbers by pressing the **TARE** or **UNITS** key. Press the **F1** key when the sensor you want to test is displayed…

    mV/V output of the selected sensor is displayed.

39. Apply weight to the scale to verify the mV/V level changes.

40. Press the **F1** key to exit the test…

    Sensor number is displayed.

41. Repeat steps 38 through 40 for each sensor you want to test.

42. Press the **SELECT** key…

    SEnSor is displayed.

NETS test

43. From the ***SEnSor*** display, press the **UNITS** key…

    nEtS is displayed.

44. Press the **PRINT** key…

    nEt 1 is displayed.

45. Toggle between ***nEt 1*** or ***nEt 2*** using the **TARE** or **UNITS** key and press **PRINT** when the network you want to view is displayed.

    The first screen of network configuration information is displayed.

46. Repeatedly press the **PRINT** key to view all the configuration information.

    The display will return to ***nEt 1*** or ***nEt 2*** when you've seen all the information.

This completes the TEST submenu. Press the **SELECT** key until ***tESt*** is displayed and then press the **UNITS** key to go to the AUDIT submenu

To return to normal weighing mode, press **ZERO**. If you press **ZERO** you will be prompted to save any changes made. Press **ZERO** to abort any changes or press **F1** to save changes.

3.4.8 AUDIT submenu

The next section of the Service menu is the AUDIT submenu. See Figure 3.9. This menu lets you view configuration and calibration audit counters. These counters cannot be changed, only viewed.

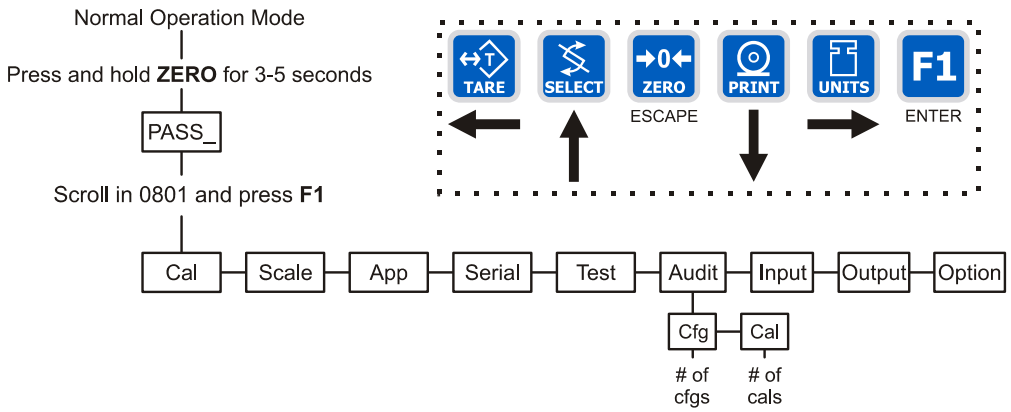


Figure 3.9 AUDIT submenu

Follow these steps to access each item in the AUDIT menu:

1. Access the Service menu…

   CAL is displayed.

2. Press the **UNITS** key repeatedly until…

   Audit is displayed.

CFG (Configuration audit counter)

3. Press the **PRINT** key…

   CFG is displayed. This stands for the Configuration audit counter. Use this item to see how many times this indicator has been configured.

4. Press the **PRINT** key…

   A number is displayed. This is the number of times this indicator has been configured.

5. Press **SELECT**…

   CFG is displayed.

CAL (Calibration audit counter)

6. Press the **UNITS** key…

   CAL is displayed. This stands for the Calibration audit counter. Use this item to see how many times this indicator has been calibrated.

7. Press the **PRINT** key…

   A number is displayed. This is the number of times this indicator has been calibrated.

8. Press the **SELECT** key twice…

   Audit is displayed.

This completes the AUDIT submenu. Press the **UNITS** key to go to the ***InPut*** submenu or press **ZERO** to return to normal weighing mode.

3.4.9 INPUT submenu

The next section of the Service menu is the INPUT submenu. See Figure 3.10. This menu lets you configure the inputs of the indicator.

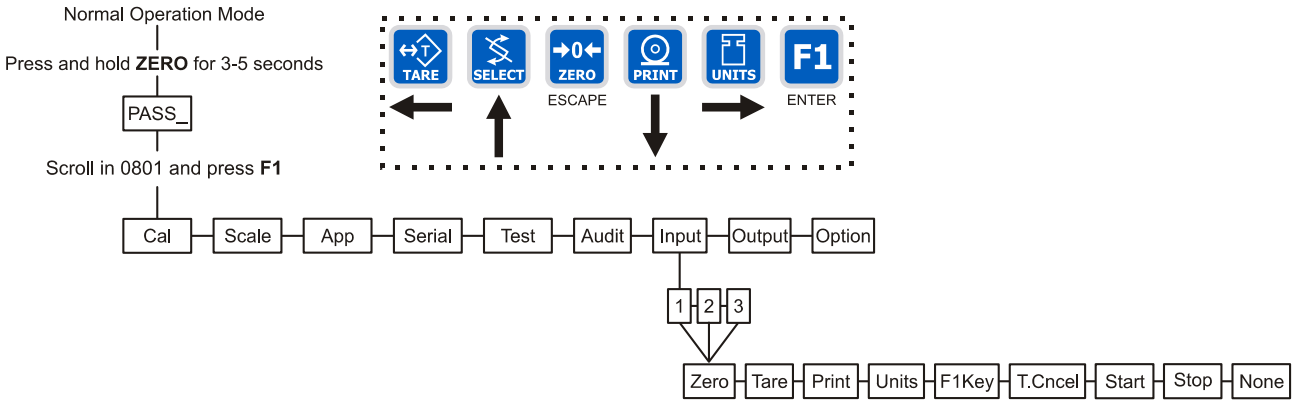


Figure 3.10 INPUT submenu

Follow these steps to access and configure the inputs:

1. Access the Service menu…

   CAL is displayed.

2. Press the **UNITS** key repeatedly until…

   InPut is displayed.

3. Press the **PRINT** key…

   1 is displayed. This stands for input #1. You can scroll to each input by using the **TARE** or **UNITS** key. When you access each input, by pressing the **PRINT** key, you get to choose from this list of input types:

NONE	Input does nothing
ZERO	Input zeroes the scale
TARE	Input tares the scale

PRINT	Input causes the print function to occur
UNITS	Input toggles the unit of measure
F1KEY	Input performs current **F1** function
T.CNCEL	Input clears the tare
START	Starts a batch/fill if the batching application is active
STOP	Stops a batch/fill if the batching application is active
None	

4. Scroll through the choices by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   The input #is displayed.

5. Repeat steps 3 and 4 for each input.

6. Press the **SELECT** key to return to the ***InPut*** menu item…

   InPut is displayed.

This completes the INPUT submenu. Press the **UNITS** key to go to the OUTPUT submenu or press **ZERO** to return to normal weighing mode.

3.4.10 OUTPUT submenu

The next section of the Service menu is the OUTPUT submenu. See Figure 3.11. This menu lets you configure the outputs of the indicator. Outputs must be enabled to use the cutoff (trips) operation in each of the applications. Outputs must also be enabled to use the annunciators for the Target (checkweighing) application. If the batch application is enabled, outputs are automatically enabled.

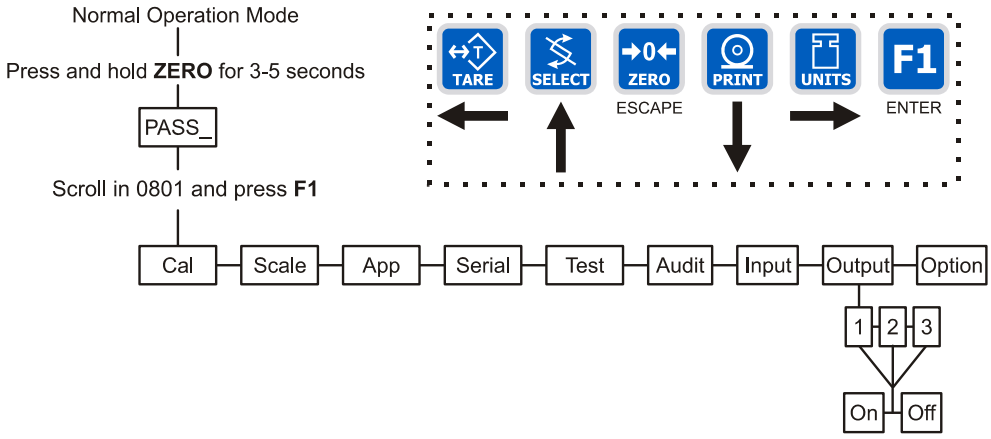


Figure 3.11 OUTPUT submenu

Follow these steps to access and configure the outputs:

1. Access the Service menu…

   CAL is displayed.

2. Press the **UNITS** key repeatedly until…

   outPut is displayed.

3. Press the **PRINT** key…

   1 is displayed. This stands for output #1. You can scroll to each output by using the **TARE** or **UNITS** key. Access each output, by pressing the **PRINT** key, and enable or disable the output by selecting ***on or oFF***.

4. Toggle between ***on*** and ***oFF*** by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   The output # is displayed. Repeat for the other outputs.

5. Press the **SELECT** key to return to the OUTPUT menu item…

   outPut is displayed.

3.4.11 OPTION submenu

The next section of the Service menu is the OPTION submenu. See Figure 3.12. This menu lets you configure analog output, a pulse counter, SensorComm and networks.

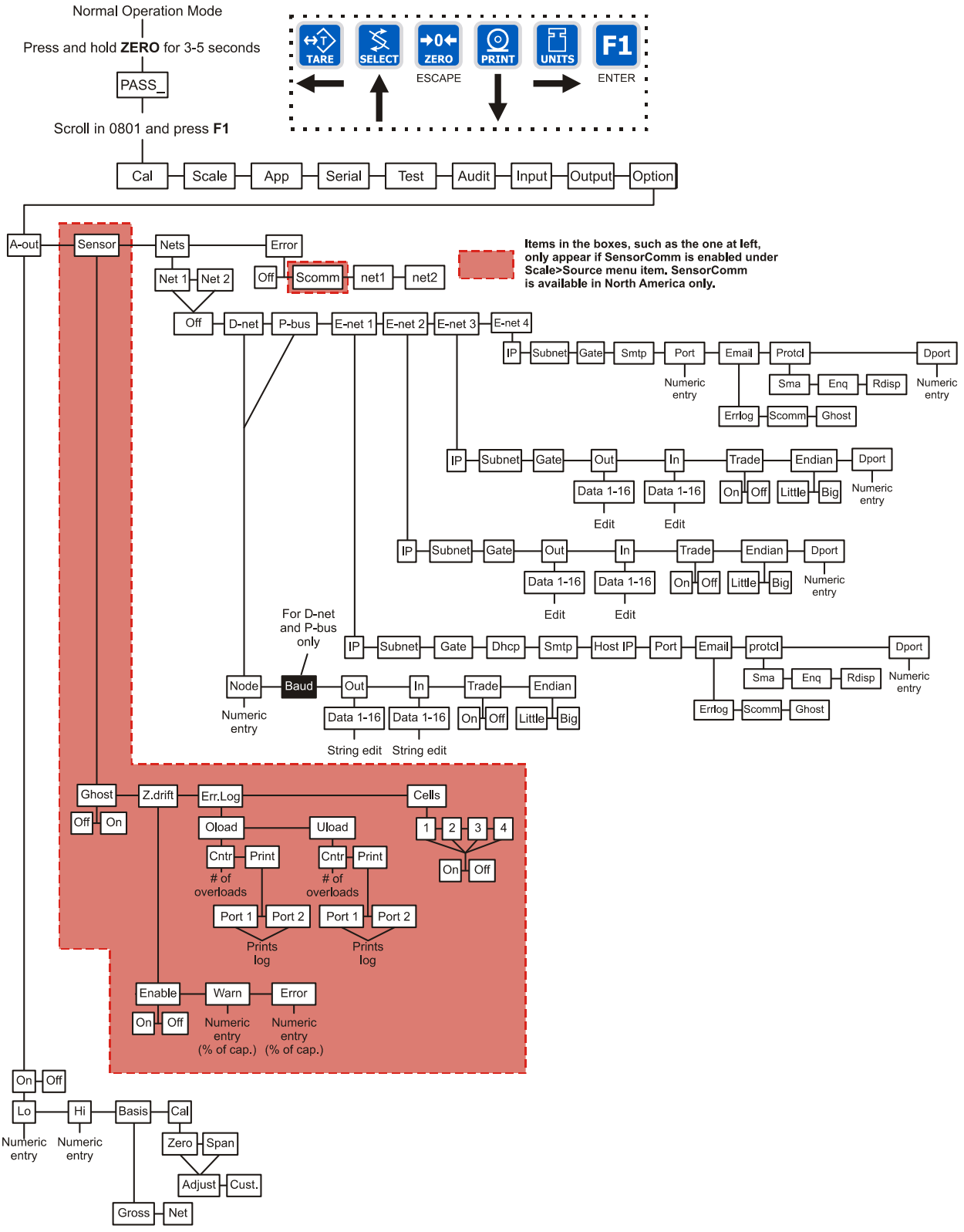


Figure 3.12 OPTION submenu

Follow these steps to access and configure the options:

1. Access the Service menu…

   CAL is displayed.

2. Press the **UNITS** key repeatedly until…

   oPtion is displayed.

A-OUT (Analog Output)

3. From the ***oPtion*** display, press the **PRINT** key…

   A-out is displayed. This is the analog output menu item.

4. Press the **PRINT** key…

   on or oFF is displayed. ***on*** enables analog output. ***oFF*** disables it.

5. Toggle between ***on*** and ***oFF*** by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   If you pick ***oFF***, ***A-out*** is displayed and you can continue to the next menu item.

   If you pick ***on***, continue to step 6.

6. Press the **PRINT** key…

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

7. Press the **PRINT** key…

   Current value is displayed.

8. Scroll in a value using the numeric entry procedure and press **F1**…

   Lo is displayed.

9. Press the **UNITS** key…

   Hi is displayed. This is the weight at which the analog output will be at maximum.

10. Press the **PRINT** key…

    Current value is displayed.

11. Scroll in a value using the numeric entry procedure and press **F1**…

    Hi is displayed.

12. Press the **UNITS** key…

    bASiS is displayed. Use this to choose if output is based on gross or net weight.

13. Press the **PRINT** key…

    GroSS or ***nEt*** is displayed.

14. Toggle between the choices by using the **TARE** or **UNITS** key. Press **F1** when your choice is displayed…

    bASiS is displayed.

15. Press the **UNITS** key…

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

16. Press the **F1** key…

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

17. Press the **PRINT** key…

    AdJuSt is displayed. Use this to adjust the zero output up or down by pressing the **SELECT** (up) or **PRINT** (down) key. Each key press changes the output by 0.25% of available range for the output.

    When you are done, press the **F1** key and go to step 21.

    If you need to change the zero output by a custom amount, press the **F1** key and go to step 18.

18. To change the zero output by a custom amount, from the ***AdJuSt*** display, press the **UNITS** key…

    CUSt. is displayed.

19. Press the **PRINT** key…

    A numeric entry screen appears.

20. Enter a custom amount, in percentage of available range for the output, and press the **F1** key…

    CUSt. is displayed.

21. Press the **SELECT** key…

    ZEro is displayed.

22. Press the **UNITS** key…

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

23. Repeat steps 17-20 to adjust span.

24. Repeatedly press the **SELECT** key until…

    A-out is displayed.

SENSOR (SensorComm setup) *This section appears only if SensorComm is chosen as the scale source*

1. From the ***A-out*** display, press the **UNITS** key…

   SEnSor is displayed. Use this item to configure the SensorComm.

2. Press the **PRINT** key…

   GhoSt is displayed. Use this to enable or disable Ghost function.

3. Press the **PRINT** key…

   on or oFF is displayed.

4. Toggle between the choices by pressing the **TARE** or **UNITS** key. When your choice is displayed, press the **F1** key…

   GhoSt is displayed.

5. Press the **UNITS** key…

   Z.dRIFT is displayed. Use this to set levels of zero drift that will trip warnings and errors.

6. Press the **PRINT** key…

   EnAbLE is displayed.

7. Press the **PRINT** key…

   on or oFF is displayed.

8. Toggle between the choices by pressing the **TARE** or **UNITS** key. When your choice is displayed, press the **F1** key…

   EnAbLE is displayed.

9. Press the **UNITS** key…

   WArn is displayed. Use this to set the zero drift as a percentage of total capacity which will cause a warning to be logged.

10. Press the **PRINT** key…

    Numeric entry screen appears.

11. Enter a number, in percentage of total capacity, and press **F1** to accept it…

    WArn is displayed.

12. Press the **UNITS** key…

    Error is displayed. Use this to set the zero drift as a percentage of total capacity which will cause an error to be logged.

13. Press the **PRINT** key…

    Numeric entry screen appears.

14. Scroll in a number, in percentage of total capacity, using the numeric entry procedure and press **F1** to accept it…

    Error is displayed.

15. Press the **SELECT** key…

    Z.dRIFT is displayed.

16. Press the **UNITS** key…

    ErrR.LoG is displayed. Use this to view error logs for the SensorComm system.

17. Press the **PRINT** key…

    oLoAd is displayed. This is the overload counter.

18. Toggle between ***oLoAd*** (overload) and ***uLoAd*** (underload) by using the **TARE** or **UNITS** key and press **F1** when your choice is displayed…

    Under both ***oLoAd*** and ***uLoAd*** are choices to view the counter (***Cntr***) or print (***Print***) the report.

19. Toggle between ***Cntr*** and ***Print*** by using the **TARE** or **UNITS** key and press **F1** when your choice is displayed…

    If you chose ***Cntr***, the overload or underload count will be displayed.

    If you chose ***Print***, you can choose the port to print through and press **F1**. The counter value for overload or underload will be printed.

20. When you are done with the error log section, press the **SELECT** key repeatedly until…

    ErrR.LoG is displayed.

21. Press the **UNITS** key…

    CELLS is displayed. Use this to check the mV/V level of each cell.

22. Press the **PRINT** key…

    1 is displayed. This stands for cell 1.

23. Press the **PRINT** key…

    on or oFF is shown for the chose cell.

24. Toggle between the choices by using the **TARE** or **UNITS** key and press **F1** to select the displayed choice…

    1 is displayed.

Cells must be enabled in order (1-4). Only one scale can be connected to the SensorComm box.

25. Press the **UNITS** key to scroll to the next cell.

26. Repeat steps 22 through 25 for each cell you need to enable.

27. Repeatedly press the **SELECT** key until…

    SEnSor is displayed.

NETS (Network setup)

1. From the ***A-out*** display or the ***SEnSor*** display (if SensorComm installed and enabled), press the **UNITS** key…

    nEtS is displayed. Use this to set up the networks that are used with the indicator.

2. Press the **PRINT** key…

    nEt1 is displayed.

3. Press the **PRINT** key again to setup network connection number 1, or press the **TARE** or **UNITS** key to change to net2.

IMPORTANT: *Only one Ethernet type connection can be used at a time. i.e. E-net 1 or E-net 2 or E-net 3 or E-net 4. Also, Enet 3 cannot be used with DeviceNet™.*

4. With either ***nEt 1*** or ***nEt 2*** on the display, press the **PRINT** key…

   The network type is displayed. The selections for network type are;

off	no network configured
d-nEt	DeviceNet™
P-buS	PROFIBUS®
E-nEt1	Ethernet TCP/IP Client
E-nEt2	Ethernet Modbus/TCP
E-nEt3	Ethernet IP
E-nEt4	Ethernet TCP/IP Server

   The default selection is off.

5. Use the **TARE** and **UNITS** keys to scroll through the network types until the desired selection is displayed. Press the **PRINT** key…

   If you pick ***d-nEt*** go to *(NETS) DEVICENET™ on page 79*.

   If you pick ***P-buS*** go to*(NETS) PROFIBUS® on page 81*.

   If you pick ***E-nEt1*** go to *(NETS) ETHERNET 1 / TCP/IP Client on page 84*.

   If you pick ***E-nEt2*** go to *(NETS) ETHERNET 2 / Modbus TCP on page 88*.

   If you pick ***E-nEt3*** go to *(NETS) ETHERNET 3 / Ethernet IP (Raw sockets) on page 91*.

   If you pick ***E-nEt4*** go to *(NETS) ETHERNET 4 / TCP/ IP Server on page 94*.

(NETS) DEVICENET™

1. If ***d-nEt*** (DeviceNet™) was selected at step 5…

   nodE will appear on the display.

2. Press the **PRINT** key.

   The node address that is currently set is displayed.

3. Scroll in the desired node address for the DeviceNet™ connection, or press **F1** to accept the node address that is currently configured.

   nodE will reappear on the display.

4. Press the **UNITS** key

   bAud is displayed.

5. Press the **PRINT** key to configure the baud rate…

   The current baud rate is displayed. This may be “125”(125k), “250”(250k), or “500”(500k).

6. Scroll through the choices by pressing the **TARE** or **UNITS** key. Press the **PRINT** key when the value you want is displayed…

   bAud is displayed.

7. Press the **UNITS** key…

   Out is displayed.

8. Press the **PRINT** key…

   dAtA 1 is displayed.

9. Press the **PRINT** key…

   The display will show something change to ***000 FF***, or something similar. The ***000*** is the type of output and the ***FF*** is the output token. A list of output tokens and types is shown in *Table 4 Tokens on page 97*.

10. Use the **TARE** or **UNITS** key to change the output type. Use the **SELECT** or **PRINT** key to change the output token. When the desired type and token appear on the display, press the **F1** key.

    dAtA 1 is displayed.

11. You can configure up to 16 items of information to output from the indicator. Press the **UNITS** key…

    Display changes to ***dAtA 2***.

12. Repeat steps 9 and 10 above to configure up to 16 data items.

13. Press the **SELECT** key…

    Out is displayed.

14. Press the **UNITS** key…

    in is displayed.

15. Press the **PRINT** key.

    dAtA 1 is displayed.

16. Press the **PRINT** key…

    The display will show something change to ***000 FF***, or something similar. The ***000*** is the type of input and the ***FF*** is the input token. A list of input tokens and types is shown in *Table 4 Tokens on page 97*.

17. Use the **TARE** or **UNITS** key to change the input type. Use the **SELECT** or **PRINT** key to change the input token. When the desired type and token appear on the display, press the **F1** key…

    dAtA 1 is displayed.

18. You can configure up to 16 items of information to input into the indicator. Press the **UNITS** key…

    dAtA 2 is displayed.

19. Repeat steps 16 and 17 above to configure up to 16 data items.
20. Press the **SELECT** key.

    in is displayed.
21. Press the **UNITS** key.

    trAdE is displayed.
22. Press the **PRINT** key to configure word swapping.

    Word swapping only affects the output and/or input data if a long, unsigned long, or floating point data type is used. These three data types are each made up of 4 bytes or 2 16-bit words. Word swapping will change the order that the 16-bit words are output/input. The display will show either ***on or oFF***.
23. Use the **TARE** or **UNITS** key to toggle between the choices. When the desired selection appears on the display, press either the **F1** or **PRINT** key…

    trAdE is displayed.
24. Press the **UNITS** key.

    EndiAn is displayed.
25. Press the **PRINT** key.

    The current setting is displayed. Choices are ***LITTLE*** or ***BIG***.
26. Use the **TARE** or **UNITS** key to toggle between the choices. When the desired selection appears on the display, press either the **F1** or **PRINT** key…

    EndiAn is displayed.
27. This completes the DeviceNet™ configuration. Press the **ZERO** key to exit the service menu.

(NETS) PROFIBUS®

1. If you selected ***P-buS*** (PROFIBUS®) at step 5 of *NETS (Network setup) on page 78*…

    nodE will appear on the display.
2. Press the **PRINT** key.

    The node address that is currently set is displayed.
3. Scroll in the desired node address for the PROFIBUS® connection, or press **F1** to accept the node address that is currently configured.

    nodE will reappear on the display.
4. Press the **UNITS** key…

    bAud is displayed.
5. Press the **PRINT** key to configure the baud rate…

    The current baud rate is displayed. This may be:

Auto	the correct baud rate is selected automatically (default)

9.6	9.6K
19.2	19.2K
187.5	187.5K
500	500K
1.5	1.5M
6	6M
12	12M

6. Scroll through the choices by using the **TARE** or **UNITS** key. Press the **PRINT** key when the value you want is displayed…

   bAud is displayed.

7. Press the **UNITS** key

   Out is displayed.

8. Press the **PRINT** key…

   dAtA 1 is displayed.

9. Press the **PRINT** key…

   The display will show something change to ***000 FF***, or something similar. The ***000*** is the type of output and the ***FF*** is the output token. A list of output tokens and types is shown in *Table 4 Tokens on page 97*.

10. Use the **TARE** or **UNITS** key to change the output type. Use the **SELECT** or **PRINT** key to change the output token. When the desired type and token appear on the display, press the **F1** key.

    dAtA 1 is displayed.

11. You can configure up to 16 items of information to output from the indicator. Press the **UNITS** key…

    Display changes to ***dAtA 2***.

12. Repeat steps 6 and 7 above to configure up to 16 data items.

13. Press the **SELECT** key…

    Out is displayed.

14. Press the **UNITS** key…

    in is displayed.

15. Press the **PRINT** key.

    dAtA 1 is displayed.

16. Press the **PRINT** key…

    The display will show something change to ***000 FF***, or something similar. The ***000*** is the type of input and the ***FF*** is the input token. A list of input tokens and types is shown in *Table 4 Tokens on page 97*.

17. Use the **TARE** or **UNITS** key to change the input type. Use the **SELECT** or **PRINT** key to change the input token. When the desired type and token appear on the display, press the **F1** key…

    dAtA 1 is displayed.

18. You can configure up to 16 items of information to input into the indicator. Press the **UNITS** key…

    dAtA 2 is displayed.

19. Repeat steps 13 and 14 above to configure up to 16 data items.

20. Press the **SELECT** key.

    in is displayed.

21. Press the **UNITS** key.

    trAdE is displayed.

22. Press the **PRINT** key to configure word swapping.

    Word swapping only affects the output and/or input data if a long, unsigned long, or floating point data type is used. These three data types are each made up of 4 bytes or 2 16-bit words. Word swapping will change the order that the 16-bit words are output/input. The display will show either ***on or oFF***.

23. Use the **TARE** or **UNITS** key to toggle between the choices. When the desired selection appears on the display, press either the **F1** or **PRINT** key…

    trAdE is displayed.

24. Press the **UNITS** key.

    EndiAn is displayed.

25. Press the **PRINT** key.

    The current setting is displayed. Choices are ***LITTLE*** or ***BIG***.

26. Use the **TARE** or **UNITS** key to toggle between the choices. When the desired selection appears on the display, press either the **F1** or **PRINT** key…

    EndiAn is displayed.

27. This completes the PROFIBUS® configuration. Press the **ZERO** key to exit the service menu.

(NETS) ETHERNET 1 / TCP/IP Client

1. If you selected ***E-nEt1*** (ETHERNET 1 TCP/IP Client) at step 5 of *NETS (Network setup) on page 78*…

   iP is displayed.

2. Press the **PRINT** key to configure the IP address of the indicator…

   The first octet of the IP address is shown.

3. Scroll in the desired number for the first octet of the IP address using the numeric entry procedure. (###. xxx. xxx. xxx)…

   The second octet of the IP address is shown.

4. Repeat step 3 above for all 4-octet numbers of the IP address. (###. ###. ###. ###). After all four parts of the IP address have been entered.

   iP is displayed.

5. Press the **UNITS** key…

   SubnEt is displayed.

6. Press the **PRINT** key to enter the Subnet mask. This will be a numeric entry in four parts just like the ip address. (###. ###. ###. ###)

7. After all four parts of the subnet mask have been entered…

   SubnEt is displayed.

8. Press the **UNITS** key…

   GAtE is displayed.

9. Press the **PRINT** key to enter the gateway address. This will be a numeric entry in four parts just like the ip address. (###. ###. ###. ###)

10. After all four parts of the gateway have been entered…

    GAtE is displayed.

11. Press the **UNITS** key…

    dHcP is displayed.

12. Press the **PRINT** key…

    on or oFF is displayed.

13. Press the **UNITS** or **TARE** key to toggle between the choices. When the desired selection is on the display, press the **PRINT** key…

    dHcP is displayed.

If you are connecting to a DHCP server and want the server to automatically assign an IP address to the indicator, you should select ON. The IP address, Subnet mask, and Gateway do not need to be entered. Otherwise choose OFF to use the (static) IP address, Subnet mask, and Gateway that have been entered.

14. Press the **UNITS** key…

    SmtP is displayed.

15. If you are connecting to a mail server and you plan to send e-mails from the indicator, press the **PRINT** key to enter the IP address of the (host) mail server. This will be a numeric entry in four parts (###. ###. ###. ###) just like the IP address. The E-tools PC application must be used to enter the indicators user name, domain name, recipient address, and sender address.

16. After all four parts of the SMTP Address have been entered…

    SmtP is displayed.

17. Press the **UNITS** key…

    hoSt iP is displayed.

18. Press the **PRINT** key to enter the IP Address of the server (host) that you will be connecting to. This will be a numeric entry in 4 parts (###. ###. ###. ###) just like the indicator's IP address.

19. After all four parts of the Host IP Address have been entered…

    hoSt iP is displayed.

20. Press the **UNITS** key…

    Port is displayed.

21. Press the **PRINT** key to enter the port number of the indicator. This is a numeric entry (####). After the Port number has been entered…

    Port is displayed.

22. Press the **UNITS** key…

    Email is displayed.

23. If you want the indicator to automatically send an email when an error occurs, press the **PRINT** key to configure this…

    Err.LoG is displayed.

24. Press the **PRINT** key…

    on or oFF is displayed.

25. Use the **UNITS** or **TARE** key to toggle between ***on*** and ***oFF***. To send an email when an overload or underload occurs on the scale, select ***ON***. Otherwise select ***oFF***. Press either the **PRINT** or **F1** key to accept your selection…

    Err.LoG is displayed.

26. Press the **UNITS** key…

    S-Com is displayed.

27. Press the **PRINT** key…

    on or oFF is displayed.

28. Press **UNITS** or **TARE** to toggle between ***on*** and ***oFF***. If the indicator is being connected to a SensorComm junction box and you want to send an email when a SensorComm error occurs, select ***ON***. Otherwise select ***oFF***. Press either the **PRINT** or **F1** key to accept your selection…

    S-Com is displayed.

29. Press the **UNITS** key…

    GhoSt is displayed.

30. Press the **PRINT** key…

    on or oFF is displayed.

31. If the indicator is being connected to a SensorComm junction box and Ghosting is enabled and you want to send and email when a cell is ghosted, select ***ON***. Otherwise select ***oFF***. Toggle to your choice and press either the **PRINT** or **F1** key to accept your selection…

    GhoSt is displayed.

32. Press the **SELECT** key, then the **UNITS** key….

    ProtcL is displayed.

33. Press the **PRINT** key…

    SMA, ***Enq*** or ***rdiSP*** is displayed.

34. Scroll through the choices using the **TARE** and **UNITS** keys. When the desired choice is shown, press the **PRINT** key to select it.

SMA	The SMA protocol over the Ethernet connection. This is the exact same protocol used on the serial ports. See the Service-Serial section of this manual for details.
Enq	If ***Enq*** is chosen you will be prompted to key in a polling character. This can be any value from 0 to 255. Example: if the desired polling character is a carriage return, enter 13 for the polling character. After the polling character is keyed in, press the **F1** key and the display will return to protcL. When the polling character is received on the Ethernet connection, the indicator will act as if the **PRINT** key has been pressed (all of the formats-to-print will be sent out of the configured port). If you want the print format(s) to be sent back on the Ethernet connection, the print formats must be configured for tcpip1 (net1) or tcpip2 (net2). See the Service-App and Service-Serial sections of this manual for details on setting up the print formats.

rdiSP	Choose this to set the indicator to broadcast the weight through this ethernet socket. The slave indicator must be set to the Rdisp application. The slave indicator's port must be set to TCP1 if Option>Net 1 is chosen in the master. The slave indicator's port must be set to TCP2 if Option>Net 2 is chosen in the master. The master indicator must have the Rdisp mode chosen in either Ethernet 1 or Ethernet 4.

35. Press the **UNITS** key…

    dPort is displayed.

36. Press the **PRINT** key…

    Numeric entry screen is displayed.

37. Key in the ethernet port which will be used to download applications from etools and press **F1**…

    dPort is displayed.

38. This completes the Ethernet TCP/IP configuration. Press the **ZERO** key to exit the service menu.

(NETS) ETHERNET 2 / Modbus TCP

1. If ***E-nEt2*** (Ethernet ModbusTCP) at step 5 of *NETS (Network setup) on page 78*…

   iP is displayed.

2. Press the **PRINT** key to configure the IP address of the indicator…

   The first octet of the IP address is shown.

3. Use the numeric enter method to enter the desired number for the first octet of the IP address. (###. xxx. xxx. xxx)…

   The second octet of the IP address is shown.

4. Repeat step 4 for all 4 octet numbers of the IP address. (###. ###. ###. ###). After all four parts of the IP address have been entered…

   iP is displayed.

5. Press the **UNITS** key…

   SubnEt is displayed.

6. Press the **PRINT** key to enter the Subnet mask. This will be a numeric entry in four parts just like the ip address. (###. ###. ###. ###). After all four parts of the subnet mask have been entered…

   SubnEt is displayed.

7. Press the **UNITS** key…

   GAtE is displayed.

8. Press the **PRINT** key to enter the gateway address. This will be a numeric entry in four parts just like the ip address. (###. ###. ###. ###) After all four parts of the gateway have been entered…

   GAtE is displayed.

9. Press the **UNITS** key…

   Out is displayed.

10. Press the **PRINT** key…

    dAtA 1 is displayed.

11. Press the **PRINT** key…

    The display will show something change to ***000 FF***, or something similar. The ***000*** is the type of output and the ***FF*** is the output token. A list of output tokens and types is shown in *Table 4 Tokens on page 97*.

12. Press the **TARE** or **UNITS** key to scroll through the output types. Press the **SELECT** or **PRINT** key to change the output token. When the desired type and token appear on the display, press the **F1** key…

    dAtA 1 is displayed.

13. You can configure up to 16 items of information to output from the indicator. Press the **UNITS** key to make the display change to ***dAtA*** 2. Repeat steps 11 through 13 above to configure up to 16 data items.

14. Press the **SELECT** key…

    Out is displayed.

15. Press the **UNITS** key…

    in is displayed.

16. Press the **PRINT** key…

    dAtA 1 is displayed.

17. Press the **PRINT** key…

    The display will show something change to ***000 FF***, or something similar. The ***000*** is the type of input and the ***FF*** is the input token. A list of input tokens and types is shown in *Table 4 Tokens on page 97*.

18. Use the **TARE** or **UNITS** key to change the input type. Use the **SELECT** or **PRINT** key to change the input token.

19. When the desired type and token appear on the display, press the **F1** key…

    dAtA 1 is displayed.

20. You can configure up to 16 items of information to input into the indicator. Press the **UNITS** key to make the display change to ***dAtA 2***. Repeat steps 16 through 19 above to configure up to 16 data items.

21. Press the **SELECT** key…

    in is displayed.

22. Press the **UNITS** key…

    trAdE is displayed.

23. Press the **PRINT** key to configure word swapping.

    Word swapping only affects the output and/or input data if long, unsigned long, or floating point data types are used. These three data types are each made up of 4 bytes or 2 16-bit words. Word swapping will change the order that the 16-bit words are output/input. The display will show either ***on or oFF***.

24. Press the **TARE** or **UNITS** key to toggle between ***on*** and ***oFF***. When the desired selection appears on the display, press either the **F1** or **PRINT** key…

    trAdE is displayed.

25. Press the **UNITS** key…

    EndiAn is displayed.

26. Press the **PRINT** key…

    LittLE or ***biG*** is displayed.

27. Press the **TARE** or **UNITS** key to toggle between ***LITTLE*** and ***BIG***. When the desired selection appears on the display, press the **F1** or **PRINT** key…

    EndiAn is displayed.

28. Press the **UNITS** key…

    dPort is displayed.

29. Press the **PRINT** key…

    Numeric entry screen is displayed.

30. Key in the ethernet port which will be used to download applications from etools and press **F1**…

    dPort is displayed.

31. This completes the Modbus/TCP configuration. Press the **ZERO** key to exit the service menu.

(NETS) ETHERNET 3 / Ethernet IP (Raw sockets)

1. If ***E-nEt3*** (Ethernet IP) was chosen at step 5 of *NETS (Network setup) on page 78*…

   iP is displayed.

2. Press the **PRINT** key to configure the IP address of the indicator…

   The first octet of the IP address is shown.

3. Use the numeric enter method to enter the desired number for the first octet of the IP address. (###. xxx. xxx. xxx)…

   The second octet of the IP address is shown.

4. Repeat step 4 for all 4 octet numbers of the IP address. (###. ###. ###. ###). After all four parts of the IP address have been entered…

   iP is displayed.

5. Press the **UNITS** key…

   SubnEt is displayed.

6. Press the **PRINT** key to enter the Subnet mask. This will be a numeric entry in four parts just like the ip address. (###. ###. ###. ###). After all four parts of the subnet mask have been entered…

   SubnEt is displayed.

7. Press the **UNITS** key…

   GAtE is displayed.

8. Press the **PRINT** key to enter the gateway address. This will be a numeric entry in four parts just like the ip address. (###. ###. ###. ###) After all four parts of the gateway have been entered…

   GAtE is displayed.

9. Press the **UNITS** key…

   Out is displayed.

10. Press the **PRINT** key…

    dAtA 1 is displayed.

11. Press the **PRINT** key…

    The display will show something change to ***000 FF***, or something similar. The ***000*** is the type of output and the ***FF*** is the output token. A list of output tokens and types is shown in *Table 4 Tokens on page 97*.

12. Press the **TARE** or **UNITS** key to scroll through the output types. Press the **SELECT** or **PRINT** key to change the output token. When the desired type and token appear on the display, press the **F1** key…

    dAtA 1 is displayed.

13. You can configure up to 16 items of information to output from the indicator. Press the **UNITS** key to make the display change to ***dAtA 2***. Repeat steps 11 through 13 above to configure up to 16 data items.

14. Press the **SELECT** key…

    Out is displayed.

15. Press the **UNITS** key…

    in is displayed.

16. Press the **PRINT** key…

    dAtA 1 is displayed.

17. Press the **PRINT** key…

    The display will show something change to ***000 FF***, or something similar. The ***000*** is the type of input and the ***FF*** is the input token. A list of input tokens and types is shown in *Table 4 Tokens on page 97*.

18. Use the **TARE** or **UNITS** key to change the input type. Use the **SELECT** or **PRINT** key to change the input token.

19. When the desired type and token appear on the display, press the **F1** key…

    dAtA 1 is displayed.

20. You can configure up to 16 items of information to input into the indicator. Press the **UNITS** key to make the display change to ***dAtA 2***. Repeat steps 17 through 20 above to configure up to 16 data items.

21. Press the **SELECT** key…

    in is displayed.

22. Press the **UNITS** key…

    trAdE is displayed.

23. Press the **PRINT** key to configure word swapping.

    Word swapping only affects the output and/or input data if long, unsigned long, or floating point data types are used. These three data types are each made up of 4 bytes or 2 16-bit words. Word swapping will change the order that the 16-bit words are output/input. The display will show either ***on or oFF***.

24. Press the **TARE** or **UNITS** key to toggle between ***on*** and ***oFF***. When the desired selection appears on the display, press either the **F1** or **PRINT** key…

    trAdE is displayed.

25. Press the **UNITS** key…

    EndiAn is displayed.

26. Press the **PRINT** key…

    LittLE or ***biG*** is displayed.

27. Press the **TARE** or **UNITS** key to toggle between ***LITTLE*** and ***BIG***. When the desired selection appears on the display, press the **F1** or **PRINT** key…

    EndiAn is displayed.

28. Press the **UNITS** key…

    dPort is displayed.

29. Press the **PRINT** key…

    Numeric entry screen is displayed.

30. Key in the ethernet port which will be used to download applications from etools and press **F1**…

    dPort is displayed.

31. This completes the Ethernet IP configuration. Press the **ZERO** key to exit the service menu.

(NETS) ETHERNET 4 / TCP/ IP Server

1. If you selected ***E-nEt4*** (ETHERNET 4 TCP/IP Server) at step 5 of *NETS (Network setup) on page 78*…

   iP is displayed.

2. Press the **PRINT** key to configure the IP address of the indicator…

   The first octet of the IP address is shown.

3. Scroll in the desired number for the first octet of the IP address using the numeric entry procedure. (###. xxx.xxx. xxx)…

   The second octet of the IP address is shown.

4. Repeat step 3 above for all 4-octet numbers of the IP address. (###. ###. ###. ###). After all four parts of the IP address have been entered.

   iP is displayed.

5. Press the **UNITS** key…

   SubnEt is displayed.

6. Press the **PRINT** key to enter the Subnet mask. This will be a numeric entry in four parts just like the IP address. (###. ###. ###. ###)

7. After all four parts of the subnet mask have been entered…

   SubnEt is displayed.

8. Press the **UNITS** key…

   GAtE is displayed.

9. Press the **PRINT** key to enter the gateway address. This will be a numeric entry in four parts just like the IP address. (###. ###. ###. ###)

10. After all four parts of the gateway have been entered…

    GAtE is displayed.

11. Press the **UNITS** key…

    SmtP is displayed.

12. If you are connecting to a mail server and you plan to send e-mails from the indicator, press the **PRINT** key to enter the IP address of the (host) mail server. This will be a numeric entry in four parts (###. ###. ###. ###) just like the IP address. The E-tools PC application must be used to enter the indicator's user name, domain name, recipient address, and sender address.

13. After all four parts of the SMTP Address have been entered…

    SmtP is displayed.

14. Press the **UNITS** key…

    Port is displayed.

15. Press the **PRINT** key to enter the port number of the indicator. This is a numeric entry (####). After the Port number has been entered…

    Port is displayed.

16. Press the **UNITS** key…

    Email is displayed.

17. If you want the indicator to automatically send an email when an error occurs, press the **PRINT** key to configure this…

    Err.LoG is displayed.

18. Press the **PRINT** key…

    on or oFF is displayed.

19. Use the **UNITS** or **TARE** key to toggle between ***on*** and ***oFF***. To send an email when an overload or underload occurs on the scale, select ***ON***. Otherwise select ***oFF***. Press either the **PRINT** or **F1** key to accept your selection…

    Err.LoG is displayed.

20. Press the **UNITS** key…

    S-Com is displayed.

21. Press the **PRINT** key…

    on or oFF is displayed.

22. Press **UNITS** or **TARE** to toggle between ***on*** and ***oFF***. If the indicator is being connected to a SensorComm junction box and you want to send an email when a SensorComm error occurs, select ***ON***. Otherwise select ***oFF***. Press either the **PRINT** or **F1** key to accept your selection…

    S-Com is displayed.

23. Press the **UNITS** key…

    GhoSt is displayed.

24. Press the **PRINT** key…

    on or oFF is displayed.

25. If the indicator is being connected to a SensorComm junction box and Ghosting is enabled and you want to send and email when a cell is ghosted, select ***ON***. Otherwise select ***oFF***. Toggle to your choice and press either the **PRINT** or **F1** key to accept your selection…

    GhoSt is displayed.

26. Press the **SELECT** key, then the **UNITS** key….

    ProtcL is displayed.

27. Press the **PRINT** key…

    SMA or ***Enq*** is displayed.

28. Toggle between the two choices using the **TARE** and **UNITS** keys. When the desired choice is shown, press the **PRINT** key to select it.

    SMA This is the SMA protocol over the Ethernet connection. This is the exact same protocol used on the serial ports. See the Service-Serial section of this manual for details.

Enq If ***Enq*** is chosen you will be prompted to key in a polling character. This can be any value from 0 to 255. Example: if the desired polling character is a carriage return, enter 13 for the polling character. After the polling character is keyed in, press the **F1** key and the display will return to protcL. When the polling character is received on the Ethernet connection, the indicator will act as if the **PRINT** key has been pressed (all of the formats-to-print will be sent out of the configured port). If you want the print format(s) to be sent back on the Ethernet connection, the print formats must be configured for tcpip1 (net1) or tcpip2 (net2). See the Service-App and Service-Serial sections of this manual for details on setting up the print formats.

29. Press the **UNITS** key…

    dPort is displayed.

30. Press the **PRINT** key…

    Numeric entry screen is displayed.

31. Key in the ethernet port which will be used to download applications from etools and press **F1**…

    dPort is displayed.

32. This completes the Ethernet TCP/IP Server configuration. Press the **ZERO** key to exit the service menu.

Table 4 Tokens							
Token	Inbound to net1	Outbound from net 1	Inbound to net 2	Outbound from net 2	Token (dec.)	Token (hex)	Description
Gross		X		X	0	00	Output GROSS weight to the network.
Net		X		X	1	01	Output NET weight to the network.
Tare	X	X	X	X	2	02	Input TARE weight value from the network or output TARE weight to the network.
Peak		X		X	3	03	Output PEAK weight to the network. Only used with the TOP application
Count		X		X	4	04	Output the piece COUNT to the network. Only used with the COUNT application.
PLU Piece weight	X	X	X	X	5	05	Input PLU PIECE WEIGHT from network or output PLU PIECE WEIGHT to network. Allows selection of PLU for a COUNT application or returns the PLU PIECE WEIGHT to the network.
PLU number	X	X	X	X	6	06	Input PLU NUMBER from network or output PLU NUMBER to network
PLU Gross Accumulator		X		X	7	07	Output PLU GROSS ACCUMULATED WEIGHT to network. Used with ACCUM application.
PLU Net Accumulator		X		X	8	08	Output PLU NET ACCUMULATED WEIGHT to network. Used with ACCUM application
PLU Total counter		X		X	9	09	Output PLU TOTAL COUNTER to network
PLU Count Accumulator		X		X	10	0A	Output PLU ACCUMULATED PIECE COUNT to network. Used with COUNT application.
PLU Tare value	X	X	X	X	11	0B	Input PLU TARE WEIGHT from network or output PLU TARE WEIGHT to network.
PLU ID	X	X	X	X	12	0C	Input PLU ID from network or output PLU ID to network. Select preconfigured PLU's from the network or will return the active PLU ID.
PLU Lower Target weight	X	X	X	X	13	0D	Input PLU LOWER TARGET WEIGHT from network or output PLU LOWER TARGET WEIGHT to network. Used with CHECKWEIGHER application
PLU Upper Target weight	X	X	X	X	14	0E	Input PLU UPPER TARGET WEIGHT from network or output PLU UPPER TARGET WEIGHT to network. Used with CHECKWEIGHER application
Recipe Ingredient number		X		X	15	0F	Output ingredient number for the selected recipe to the network. Used with BATCH application.
Recipe Ingredient target weight		X		X	16	10	Output the configured ingredient target weight value for the selected recipe. Used with BATCH application.

Table 4 Tokens							
Token	Inbound to net1	Outbound from net 1	Inbound to net 2	Outbound from net 2	Token (dec.)	Token (hex)	Description
Recipe Ingredient actual weight		X		X	17	11	Output the actual weight the of the ingredient. Used with the BATCH application.
Motion/Weigher Steady		X		X	18	12	Output to the network to determine the stability of the scale. 0 = MOTION -1 = STABLE
Center of Zero/ zero balance		X		X	19	13	Output to the network to determine if the scale is at Center of Zero. 0 = NOT CoZ -1 = CoZ
Overload		X		X	20	14	Output to network to determine if the scale has an OVERLOAD condition. 0 = Not O.L. 1 = O.L.
Underload		X		X	21	15	Output to the network to determine if the scale has an UNDERLOAD condition. 0 = Not U.L. 1 = U.L.
Input1-3	X	X	X	X	22	16	Trigger an indicator INPUT from the network or output the status of an indicator INPUT to the network. Bit0 set – input1 active Bit1 set – input2 active Bit2 set – input 3 active
Output 1-3	X	X	X	X	23	17	Set the OUTPUT value from the network or output the OUTPUT status to the network. Bit0 set – output1 active Bit1 set – output2 active Bit3 set – ouput3 active
Serial number		X		X	24	18	Output the indicator serial number, unique ID, to the network.
Watchdog counter		X		X	25	19	Output the value of the WATCHDOG counter to the network. Enables the operator to verify scale is functioning.
Remote zero	X		X		26	1A	Allows the network to perform a ZERO operation. ZERO operation dependant upon indicator configuration.
Remote tare	X		X		27	1B	Allows the network to perform a TARE operation. TARE operation dependant upon indicator configuration.
Remote print	X		X		28	1C	Allows the network to perform a PRINT operation. PRINT operation dependant upon indicator configuration.
Remote accumulate	X		X		29	1D	Allows the network to perform a ACCUM operation. ACCUM operation dependant upon indicator configuration.

Table 4 Tokens							
Token	Inbound to net1	Outbound from net 1	Inbound to net 2	Outbound from net 2	Token (dec.)	Token (hex)	Description
Bridge1	X**	X*	X*	X**	30	1E	Network BRIDGE tokens. These allow data to be mapped from NETWORK#1 to NETWORK#2 or from NETWORK#2 to NETWORK#1. * Bridge tokens which are INBOUND on Net 2 can be OUTBOUND on Net 1. ** Bridge tokens which are INBOUND on Net 1 can be OUTBOUND on Net 2.
Bridge2	X**	X*	X*	X**	31	1F	
Bridge3	X**	X*	X*	X**	32	20	
Bridge4	X**	X*	X*	X**	33	21	
Bridge5	X**	X*	X*	X**	34	22	
Bridge6	X**	X*	X*	X**	35	23	
Bridge7	X**	X*	X*	X**	36	24	
Bridge8	X**	X*	X*	X**	37	25	
Bridge9	X**	X*	X*	X**	38	26	
Bridge10	X**	X*	X*	X**	39	27	
Bridge11	X**	X*	X*	X**	40	28	
Bridge12	X**	X*	X*	X**	41	29	
Bridge13	X**	X*	X*	X**	42	2A	
Bridge14	X**	X*	X*	X**	43	2B	
Bridge15	X**	X*	X*	X**	44	2C	
Bridge16	X**	X*	X*	X**	45	2D	
Indicator Healthy		X		X	46	2E	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 = SRAM ErroR Bit#3 = EEPROM Error 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.
Inmotion Specials		X		X	47	2F	
Inmotion Special		X		X	48	30	
Weight for Setpoint #1	X	X	X	X	49	31	Input from network to change the weight of OUTPUT#1 or an output to the network to view the weight value of OUTPUT#1
Weight for Setpoint #2	X	X	X	X	50	32	Input from network to change the weight of OUTPUT#2 or an output to the network to view the weight value of OUTPUT#2
Weight for Setpoint #3	X	X	X	X	51	33	Input from network to change the weight of OUTPUT#3 or an output to the network to view the weight value of OUTPUT#3

* Bridge tokens that are inbound to net2 can be outputs for net1

** Bridge tokens that are inbound to net1 can be outputs for net2

TYPE #	Data Type	# of Bytes	Range of Value
0	Signed Character	1	-127 to 127
1	Unsigned Character	1	0 to 255
2	Signed Integer	2	-32767 to 32767
3	Unsigned Integer	2	0 to 65535
4	Signed Long	4	-2,147,483,647 to 2,147,483,647
5	Unsigned Long	4	0 to 4,294,967,295
6	Float	4	1.0E-37 to 1.0E37

Network Scaling

When mapping signed characters, unsigned characters, signed integers, unsigned integers, signed longs, and unsigned longs, an outbound value may be scaled up/down depending on the division size of the scale.

Outbound Values

The following tokens may be affected by division size:

- Gross (token 0)
- Net (token 1)
- Tare (token 2)
- Peak (token 3)
- PLU Piece Weight (token 5)
- PLU Gross Accumulator (token 7)
- PLU Net Accumulator (token 8)
- PLU Tare Value (token 11)
- PLU Lower Target Weight (token 13)
- PLU Upper Target Weight (token 14)
- Recipe Ingredient Target Weight (token 16)
- Recipe Ingredient Actual Weight (token 17)

If the division size of the scale is less than 1, the value that is mapped will be scaled up by 10X. Where X equals the number of digits to the right of the decimal point. Any floating-point values will not be scaled up.

Example:

Token = 0 (Gross)
Type = 4 (Signed Long)
Division Size = 0.01

There are two digits to the right of the decimal point so the gross weight being set out of the network connection will be multiplied by 102 (100). If the gross weight on the display is 110.54, you should see a value of 11054 on the network connection.

Inbound Values

The following tokens may be affected by division size:

- Tare (token 2)
- PLU Piece Weight (token 5)
- PLU Tare Value (token 11)
- PLU Lower Target Weight (token 13)
- PLU Upper Target Weight (token 14)

If the division size of the scale is less than 1, the value that is mapped will be scaled down by 10X. Where X equals the number of digits to the right of the decimal point. Any floating-point values will not be scaled down.

Example:

Token = 2 (Tare)
Type = 4 (Signed Long)
Division Size = 0.01

There are two digits to the right of the decimal point so the tare weight coming into the indicator will be divided by 102 (100). If the desired tare weight is 99.56, a value of 9956 must be sent.

Error (Error Annunciator)

Follow these steps to configure the Network/Sensorcomm status annunciator.

1. With ***Error*** displayed, press the **PRINT** key…

   The current setting will be displayed. This may be Off, S-comm, net1, or net2.

2. Use the **UNITS** and **TARE** keys to change the setting, and press the **F1** key to accept the desired setting once it is displayed.

   Off The annunciator will always remain off.

   S-comm The annunciator will show the status of the Sensorcomm scale.

   Red – a cell has been ghosted. Check the ghost log.

   Green – a sensorcomm error has occurred. Check the error log.

   Off – Scale is functioning normally.

   Net1 The annunciator will show the status of network #1.

   Net2 The annunciator will show the status of network #2.

   Red – A network error has occurred. Check the network settings on the indicator and PLC, and reboot the indicator.

   Green – The network connection has been established.

   Amber – The network is ready for a connection, but no connection has been established.

This completes the Service menu. Press the **ZERO** key to return to normal weighing mode. You will be prompted to save the changes you've made. Press the **ZERO** key to abort any changes made and return to normal operating mode or press **F1** to accept them and return to normal operating mode. ***buSY*** flashes on the display while the unit saves data.

3.5 Supervisor Menu

The 1080 has a Supervisor menu, shown in Figure 3.13, you use to do the following:

- Set time and date
- Setup the various applications
- View, print and clear logs and cal reports
- Perform diagnostic tests
- View audit counters

WARNING: Entering this menu and changing settings may affect operation of the indicator and may require a service call to correct. Be sure you want to change settings before doing so.

1. Access the Supervisor menu by pressing and holding the **ZERO** key for 3-5 seconds…

   PASS_ is displayed.

2. Scroll in the password, 1793 (see *Numeric Entry Procedure on page 13*) and press the **F1** key…

   dAtE is displayed. Use this to set the current date.

3.5.1 DATE (Set date)

3. From the ***dAtE*** display, press the **PRINT** key…

   tYPE0 is displayed. Dates styles are listed below along with number you enter to create that style:

   0=MM/DD/YY

   1=MM/DD/YYYY

   2=DD/MM/YY

   3=DD/MM/YYYY

See Figure 3.13 to reference the Supervisor's menu.

While in a menu, the annunciator lights at the top of the display flash as a reminder.

4. Scroll through the choices using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   M XX is displayed. This stands for month.

5. Scroll in the month number (01 for Jan., 02 for Feb., …12 for Dec) and press the **F1** key…

DD XX is displayed. ***DD*** stands for date and ***XX*** represents the current value.

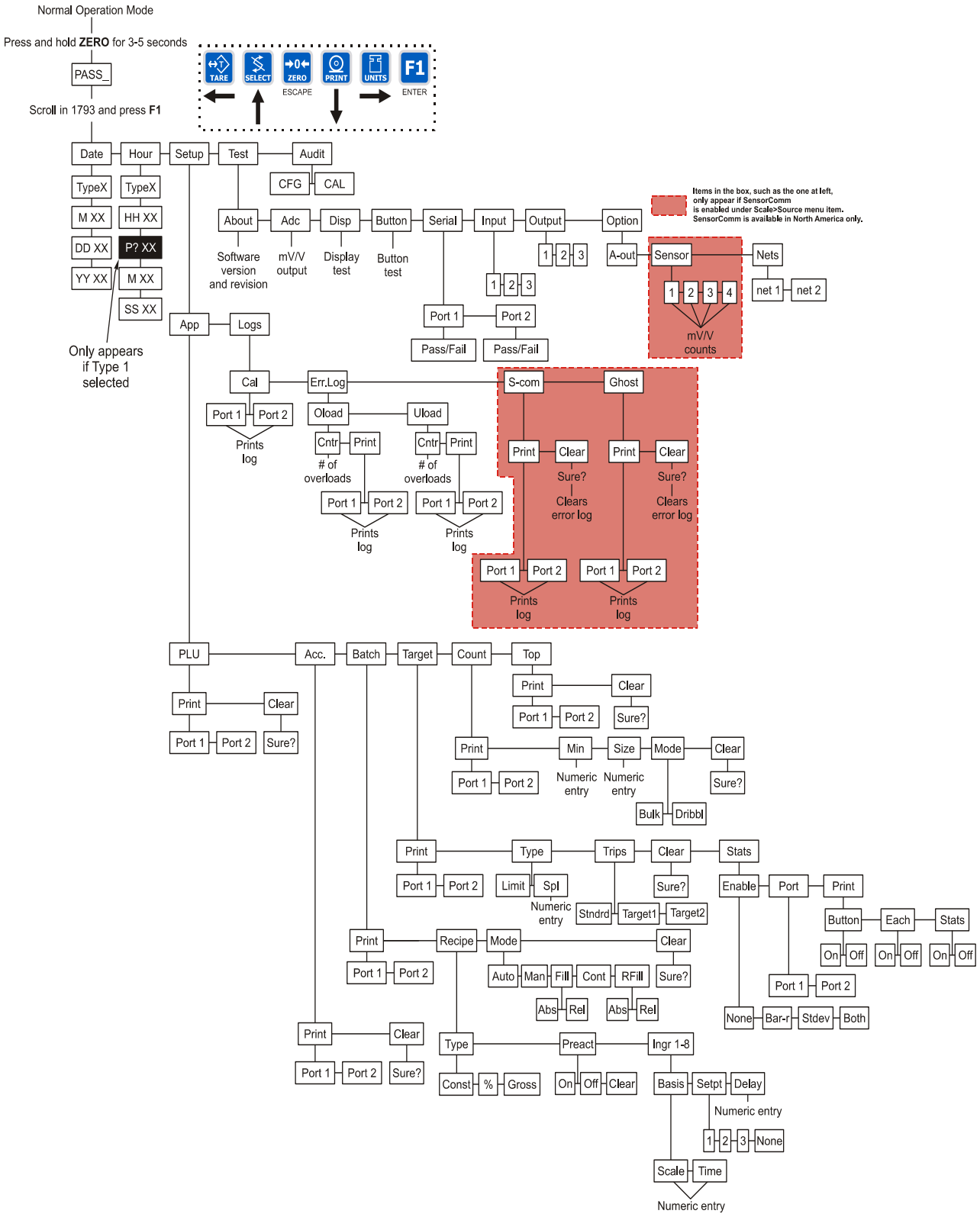


Figure 3.13 Supervisor menu flowchart

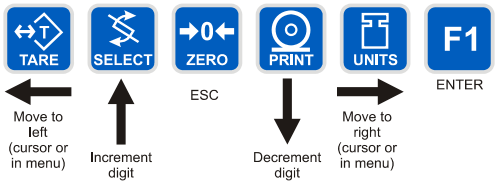
6. Scroll in the date and press the **F1** key…

   YY XX is displayed. ***YY*** stands for year and ***XX*** represents the current value.

7. Scroll in the year (04=2004, etc.) and press the **F1** key…

   dAtE is displayed.

Key legend reminder.



3.5.2 HOUR (Set time)

1. From the ***dAtE*** screen, press the **UNITS** key…

   Hour is displayed. Set the time in this item.

2. Press the **PRINT** key…

   tYPE0 is displayed. Time can be in 24 hour or 12 hour styles. Time styles are listed below along with number you enter to create that style:

   0=HH:MM

   1=HH:MM AM/PM

3. Scroll through the choices using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   HH XX is displayed. This stands for hour and its current value.

4. Scroll in the hour based on the type of time you selected in step 2 and press the **F1** key. If you picked 0 (military time) in step 2, skip to step 5. If you picked 1 (AM/PM time) continue below…

   P? yes or ***P? no*** is displayed. ***P? yes*** is for PM. ***P? no*** is for AM.

5. Toggle between the choices using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

   M XX is displayed. ***M*** stands for minute and ***XX*** represents the current value.

6. Scroll in the minute (see *Numeric Entry Procedure on page 13*) and press the **F1** key …

   Hour is displayed.

3.5.3 SETUP (Setup menu)

1. From the ***Hour*** display, press the **UNITS** key…

   SEtuP is displayed. Use this submenu to print and/or clear application reports, choose operation modes or values for applications which have choices and view various function logs. Each is explained in the following steps.

APP (Application submenu)

2. From the ***SEtuP*** display, press the **PRINT** key…

   APP is displayed. Each application is listed below this menu item. Applications are enabled or turned on in a password protected menu the user does not have access to but each application's setup is done in this area of the Supervisor menu.

PLU (Product Look Up)

3. Press the **PRINT** key…

   PLU is displayed. This stands for Product Look Up. This memory channel contains all the parameter values and accumulator totals associated with all the different applications. This menu item lets you print out all the information in all the applications and/or clear it out.

The PLU report contains the following information for each of the 11 channels:
Channel #
ID #
Gross Accum.
Net Accum.
Count Accum.
Total
Tare Value
Lower Limit
Upper Limit
Piece Weight
Output Wt1
Output Wt2
Output Wt3

4. Press the **PRINT** key…

   Print is displayed. Use this item to print out a complete report of all application parameters and totals.

5. Press the **PRINT** key …

   Port 1 or ***Port 2*** is displayed. Use this item to select which port to use for printing the report.

A USB device port is slaved to serial port #2. If port #2 is selected, data will be sent via serial port 2 and USB.

6. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. press the **F1** key to accept the displayed choice…

   The report is printed and the display shows ***bUSY*** briefly then returns to ***Print***.

7. Press the **UNITS** key…

   CLEAr is displayed. Use this item to clear all the information stored for each application.

CAUTION! Only do this if you are sure you want the information permanently removed!

   You may want to print out the reports before clearing all the information. See step 4 above.

8. Press the **PRINT** key to clear all the information OR skip to step 9…

   SuRE ? is displayed. This is asking if you are sure you want to clear the information. If you are, press the **PRINT** key. If you do not want to clear the data, press the **SELECT** key…

   CLEAr is displayed.

9. Press the **SELECT** key…

   PLU is displayed.

ACC Application

1. From the ***PLU*** display, press the **UNITS** key…

   Acc. is displayed. This stands for the accumulator application.

See Figure 3.13 to reference the Supervisor's menu.

2. Press the **PRINT** key…

   Print is displayed. Use this item to print out a complete report of accumulator totals.

3. Press the **PRINT** key …

   Port 1 or ***Port 2*** is displayed. Use this item to select which port to use for printing the report.

A USB device port is slaved to serial port #2. If port #2 is selected, data will be sent via serial port 2 and USB.

4. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. press the **F1** key to accept the displayed choice…

   Display shows ***bUSY*** briefly then returns to ***Print***.

5. Press the **UNITS** key…

   CLEAr is displayed. Use this item to clear all the information stored for this application.

CAUTION! Only do this if you are sure you want the information permanently removed!

   You may want to print out the report before clearing all the information. See step 2 above.

6. Press the **PRINT** key to clear all the information OR skip to step 7…

   SuRE ? is displayed. This is asking if you are sure you want to clear the information. If you are, press the **F1** key. If you do not want to clear the data, press the **SELECT** key…

   CLEAr is displayed.

7. Press the **SELECT** key…

   Acc. is displayed.

BATCH Application

1. From the ***Acc.*** display, press the **UNITS** key…

   bAtch is displayed.

2. Press the **PRINT** key…

   Print is displayed. Use this item to print out a complete report of recipe information.

3. Press the **PRINT** key …

   Port 1 or ***Port 2*** is displayed. Use this item to select which port to use for printing the report.

A USB device port is slaved to serial port #2. If port #2 is selected, data will be sent via serial port 2 and USB.

4. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

   Display shows ***bUSY*** briefly then returns to ***Print***.

5. Press the **UNITS** key…

   rEciPE is displayed. Use this item to create a recipe.

6. Press the **PRINT** key…

   tYPE is displayed. Set the type of recipe; Constant, Gross, or Percentage:

ConSt	You set the weights for each ingredient and the batch size is always the total of these ingredient weights.
GroSS	You set the gross weight at which each ingredient will stop. The ingredient is complete when the gross weight on the scale reads the value that was set, regardless of the weight on the scale when the batch was started.
%	You set the percentage of a total batch for each ingredient and you can pick a batch size and each ingredient amount will be calculated automatically.

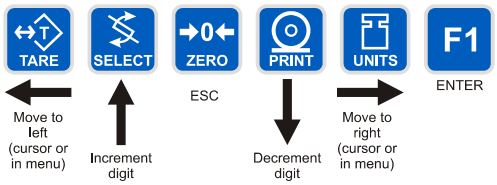
7. Press the **PRINT** key…

   Current setting is displayed.

8. Toggle between the choices by pressing the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

   Your choice is selected and ***tYPE*** is displayed.

Key legend reminder.



9. Press the **UNITS** key…

   PrEAct is displayed. A preact is the time it takes an ingredient (which is falling from an auger or other feeding device) to reach the scale after the auger or feeder is shut off. There will always be material in “free-fall” after an ingredient is shut off and the indicator will automatically calculate this and update this value.

   The first time a batch is run, overage for any ingredient weight is calculated and the next time the ingredient is being weighed the output will be shut down so approximately 70% of the overage is reduced. This occurs each time a batch is run so that the system quickly learns and produces accurate batches.

   Under this item you can turn the preact on or off, or clear a current preact.

10. Press the **PRINT** key to set the preact…

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

11. Scroll through the choices (***on***, ***oFF***, ***CLEAr***) with the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    PrEAct is displayed.

12. Press the **UNITS** key…

    Ingr X is displayed. ***X*** is the ingredient number. You have up to 8 ingredients for which you can set the following:

    bASIS Set whether the ingredient is based on weight (Scale) or time (Time).

    SEtPt Set the output you want associated with the ingredient. Choices are 1, 2, 3 or None. Outputs must be enabled in a password protected menu. *Contact your local supplier or Avery Weigh-Tronix distributor for assistance with the password protected menu.*

    dELAY Set a time delay between when a basis is met and the next ingredient action is started.

13. Press the **PRINT** key…

    bASIS is displayed.

14. Press the **PRINT** key…

    The current setting is displayed; ***SCALE*** or ***TimE***.

See Figure 3.13 to reference the Supervisor's menu.

15. Scroll through the choices with the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    If you choose ***SCALE*** you are prompted to enter an ingredient weight. If you choose ***TIME***, your are prompted to enter a time value.

If SCALE is chosen for the basis, you can enter a negative weight to do an "unload." The selected output will activate until the entered amount of weight is removed from the scale.

16. Scroll in values using the numeric entry procedure and press the **F1** key.

    bASIS is displayed.

17. Press the **UNITS** key…

    SEtPt is displayed.

18. Press the **PRINT** key…

    1 is displayed. This stands for Setpoint 1.

19. Scroll through the choices with the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    SEtPt is displayed.

    If you chose ***1*** this ingredient will use output #1. The same is true for the 2 and 3 choices. If you choose ***NONE***, no output will be activated when the ingredient is called by the recipe.

20. Press the **UNITS** key…

    dELAY is displayed.

21. Press the **F1** key…

    The current delay value in seconds is displayed.

22. Accept this value by pressing **F1** or scroll in a new value using the numeric entry procedure and press the **F1** key…

    dELAY is displayed. Repeat steps 12 through 22 for all the ingredients in your recipe.

23. Press the **SELECT** key twice…

    rEciPE is displayed.

24. Press the **UNITS** key…

    ModE is displayed. Use this item to set the mode of the batching application. Your choices are shown below.

    Auto In auto mode, after the user begins the batching process the indicator will activate the OP2 output when the weight for OP1 has been reached. When the weight for OP2 is reached, OP3 will activate. This happens with no intervention from the operator.

    MAn. In manual mode, after the user begins the batching process, the user must press the **F1** key to activate each subsequent output after each output weight is reached.

    Fill In fill mode, any recipe that has been setup is ignored. The filling process is run based on the values set for the outputs. In order to complete the filling process, at least one output must be enabled. Under this item you can choose one of the following:

    abS Setpoints activate when the **F1** key is pressed. When the net weight on the scale reaches the configured setpoint value, the setpoint will deactivate.

    rel When the **F1** key is pressed, the starting weight is captured and the setpoints activate. The setpoint will not deactivate until, the net weight on the scale reaches the starting weight plus the configured setpoint value.

    Cont Continuous batching mode. This mode is very close to the Auto mode, but in continuous mode, another batch is started immediately after the previous batch has finished. In Auto mode, the user must press the **F1** key to start each batch.

    rFill Reverse Filling mode of operation. This mode is very similar to the filling mode. However, the weight on the scale should be above the configured setpoint weight when the **F1** key is press in order for the setpoint to be activated. When the weight on the scale decreases enough to fall below the configured setpoint value, the setpoint will deactivate. Under this item you can choose one of the following:

    abS Setpoints activate when the **F1** key is pressed. When the net weight on the scale reaches the configured setpoint value, the setpoint will deactivate.

rel When the **F1** key is pressed, the starting weight is captured and the setpoints activate. The setpoint will not deactivate until, the net weight on the scale reaches the starting weight plus the configured setpoint value.

25. From the ***ModE*** display, press the **PRINT** key…

    The current mode setting is displayed.

26a. Toggle between the choices by pressing the **TARE** or **UNITS** key. If you choose ***Auto***, ***MAn.*** or ***Cont***, press the **F1** key to accept the displayed choice.

    ModE is displayed.

OR

26b. If you choose ***Fill*** or ***rFill*** you will see ***abS*** or ***rel***. Toggle between the choices by pressing the **TARE** or **UNITS** key. Press **F1** to accept the displayed choice and press the **SELECT** key…

    ModE is displayed.

27. Press the **UNITS** key…

    CLEAr is displayed. Use this item to clear all the information stored for this application.

CAUTION! Only do this if you are sure you want the information permanently removed!

You may want to print out the report before clearing all the information. See step 2 in this section.

28. Press the **PRINT** key to clear all the information OR skip to step 29…

    SuRE ? is displayed. This is asking if you are sure you want to clear the information. If you are, press the **F1** key. If you do not want to clear the data, press the **SELECT** key…

29. Press the **UNITS** key…

    Print is displayed.

30. Press the **PRINT** key…

    Port 1 is displayed.

31. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    The recipes and batch report will be printed.

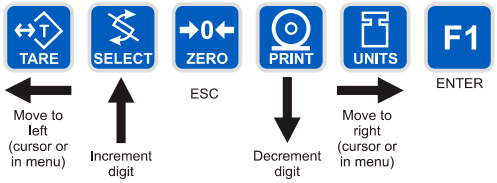
A USB device port is slaved to serial port #2. If port #2 is selected, data will be sent via serial port 2 and USB.

32. Press the **SELECT** key…

    bAtch is displayed.

TARGET application (Checkweighing)

Key legend reminder.



1. From the ***bAtch*** display, press the **UNITS** key…

   tArGEt is displayed. Use this item to print and clear reports for the checkweigher application and to set the type of sampling to be used, Limit or Sample.

2. Press the **PRINT** key…

   Print is displayed. Use this item to print out a complete report of checkweigher information.

3. Press the **PRINT** key …

   Port 1 and ***Port 2*** is displayed. Use this item to select which port to use for printing the report.

A USB device port is slaved to serial port #2. If port #2 is selected, data will be sent via serial port 2 and USB.

4. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

   Display shows ***bUSY*** briefly then returns to ***Print***.

5. Press the **UNITS** key…

   tYPE is displayed. Use this to choose the mode of setting the target weight for the checkweighing application: ***limit*** or ***SPL*** (sample)

6. Press the **PRINT** key…

   limit or ***SPL*** (sample) is displayed. See note below.

*You do not set the limits in this menu. Limits are set in normal operation mode. This menu item, **tYPE**, allows you to set the mode of choosing the target weight and limits.*

Target outputs can only be reset when the scale returns to within the configured Gross Zero Band. Gross Zero Band is configured in a password protected menu. Contact your local supplier or Avery Weigh-Tronix distributor for assistance with the password protected menu.

limit In this mode you enter the upper and lower limits for your item and the indicator will use those values to run the display.

SPL In this mode you use a correct weight "product" on the scale to set the target weight. The indicator will use this weight to run the display. After SPL is chosen, a number is displayed. This is the sample tolerance. When a sample is done, the upper and lower limits will automatically be ± (sample tolerance) divisions from the target weight.

7. Toggle between the choices by pressing the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

   tYPE is displayed.

8. Press the **UNITS** key…

   triPS is displayed. Use this to set outputs to follow over/under/accept or to function as standard outputs.

9. Press the **PRINT** key…

   StndRd, ***tArGt 1*** or ***tArGt 2*** is displayed. Each is explained below:

   StndRd Trips are configurable outputs. An output value can be entered in weigh mode of operation.

   tArGt 1 Latched outputs. When weight is added to the scale, the appropriate trip; OP1, OP2 or OP3, activates. The trip is now activated, and will remain active, until the scale returns to gross zero.

   tArGt 2 Unlatched outputs. When weight is added to the scale, the appropriate trip; OP1, OP2 or OP3, activates. The trip will de-activate when weight decreases below the configured trip.

10. Scroll through the choices by pressing the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    triPS is displayed.

11. Press the **UNITS** key…

    CLEAr is displayed. Use this item to clear all the information stored for this application.

CAUTION! Only do this if you are sure you want the information permanently removed!

You may want to print out the report before clearing all the information. See step 2 in this section.

12. Press the **PRINT** key to clear all the information OR skip to step 25…

    SuRE ? is displayed. This is asking if you are sure you want to clear the information.

13. If you want to clear the information, press the **F1** key. If you do not want to clear the data, press the **SELECT** key…

    CLEAr is displayed.

14. Press the **UNITS** key…

    StAtS is displayed. This item lets you enable and set up the gathering of statistical information.

15. Press the **PRINT** key…

    EnAbLE is displayed…

16. Press the **PRINT** key to configure statistics…

    One of the following is displayed:

    nonE No statistical features are enabled.

    bar-r The XBar-R feature is enabled.

    Stdev The standard deviation feature is enabled.

    both Both the Standard Deviation and XBar-R features are enabled.

17. Scroll through the choices by pressing the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    EnAbLE is displayed.

18. Press the **UNITS** key…

    Port is displayed.

The information printed depends on the statistical features that are enabled and the type of printing that is enabled.

19. Press the **PRINT** key…

    Port 1 or ***Port 2*** is displayed.

    Port 1 Choose this and statistical information will be sent out port #1.

    Port 2 Choose this and statistical information will be sent out port #2 or the USB port.

20. Toggle between the choices by pressing the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    Port is displayed.

21. Press the **UNITS** key…

    Print is displayed…

22. Press the **PRINT** key…

    Each of the three settings listed below can be enabled or disabled individually.

    button Enable this item and a report of the data captured is printed when you press the **PRINT** key. The information printed depends on the features that are enabled. If this type of printing is enabled, the user will be prompted to clear the statistical information after the **PRINT** key is pressed to print the report. Press the **F1** key to clear statistical data.

each Enable this item and each sample weight is printed as it is captured. The range (under, over, accept) that the sample falls into is also printed.

StAtS Enable this item and a report of the data captured is automatically printed when the sample size is reached. If this type of printing is enabled, the statistical information will automatically be cleared after the report is printed.

23. Scroll through the three items in step 22 by pressing the **TARE** or **UNITS** key.

24. Press the **PRINT** key to see the ***on***/***oFF*** choice for each. Toggle between the choices by pressing the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    Repeat for all three items in 22.

25. Press the **SELECT** key three times to return to the…

    tArGEt menu item.

COUNT Application

1. From the ***tArGEt*** display, press the **UNITS** key…

   Count is displayed. Use this item to clear and print reports for the count application.

2. Press the **PRINT** key…

   Print is displayed. Use this item to print out a complete report of count application information.

3. Press the **PRINT** key …

   Port 1 or ***Port 2*** is displayed. Use this item to select which port to use for printing the report.

4. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

   Display shows ***bUSY*** briefly then returns to ***Print***.

5. Press the **UNITS** key…

   Min is displayed. Use this item to set the minimum sample weight as a percent of capacity.

6. Press the **PRINT** key…

   Current value is displayed.

7. Scroll in a percentage from 0-100% using the numeric entry procedure and press the **F1** key…

   Min is displayed.

8. Press the **UNITS** key…

   SiZE is displayed. This is the sample size parameter. Use this to set the sample size for the counting application.

9. Press the **PRINT** key…

   Current sample size is displayed.

10. Use the numeric entry procedure to scroll in a new sample size. Press the **F1** key to accept the displayed choice…

    SiZE is displayed.

11. Press the **UNITS** key…

    ModE is displayed. Use this to select the sampling mode from these two choices; or.

    buLK This is bulk sampling. In this method you place the specified number of items on the scale all at once (in bulk) and the scale automatically starts to calculate piece weight when the weight stabilizes. The count is then displayed.

    dribbL This is dribble sampling. In this method you count out the specified number of items onto the scale and when you are ready, press the **F1** key and the scale starts to calculate piece weight and then shows the count.

12. Toggle between the choices by using the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    ModE is displayed.

13. Press the **UNITS** key…

    CLEAr is displayed. Use this item to clear all the information stored for this application.

CAUTION! Only do this if you are sure you want the information permanently removed!

You may want to print out the report before clearing all the information. See step 2 in this section.

14. Press the **PRINT** key to clear all the information OR skip to step 15…

    SuRE ? is displayed. This is asking if you are sure you want to clear the information. If you are, press the **F1** key. If you do not want to clear the data, press the **SELECT** key…

    CLEAr is displayed.

15. Press **SELECT**…

    Count is displayed.

TOP (Peak) Application

1. From the ***Count*** display, press the **UNITS** key…

   tOP is displayed. Use this item to clear and print reports for the peak application.

2. Press the **PRINT** key…

   Print is displayed. Use this item to print out a complete report of peak application information.

3. Press the **PRINT** key…

   Port 1 or ***Port 2*** is displayed. Use this item to select which port to use for printing the report.

4. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

   Display shows ***bUSY*** briefly then returns to ***Print***.

5. Press the **UNITS** key…

   CLEAr is displayed. Use this item to clear all the information stored for this application.

CAUTION! Only do this if you are sure you want the information permanently removed!

   You may want to print out the report before clearing all the information. See step 2 above.

6. Press the **PRINT** key to clear all the information OR skip to step 7…

   SuRE ? is displayed. This is asking if you are sure you want to clear the information. If you are, press the **F1** key. If you do not want to clear the data, press the **SELECT** key…

   CLEAr is displayed.

7. Press the **SELECT** key…

   Top is displayed.

8. Press the **SELECT** key…

   APP is displayed.

LOGS (Log submenu)

9. From the ***APP*** display, press the **UNITS** key…

   LOGS is displayed. The Logs menu item allows you to view, print or clear logs for the following:

   Calibration

   Overload and Underload Errors

   SensorComm Errors

   Ghost Errors

10. Press the **PRINT** key…

    CAL is displayed. You must print out this log to view it. Below is a sample of a calibration log printout:

    Calibration Log:

    ```
    Time: 23:58

    Date: 12/17/2003


    Scale Serial#: 123456

    Calibration Zero:

    0.3456 mV/V


    Calibration Span:

    2.3455 mV/V @ 3000 lb
    ```

11. Press the **F1** key to print the report…

    Port 1 or ***Port 2*** is displayed. Use this to choose which port to print through.

12. Toggle between the port choices using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

    Report is printed and display returns to ***CAL***.

13. Press the **UNITS** key…

    Err.LoG is displayed.

14. Press the **PRINT** key…

    oLoAd is displayed. This is the overload counter.

15. Toggle between ***oLoAd*** and ***uLOAD*** (overload) by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

    Under both ***oLoAd*** and ***uLOAD*** are choices to view the counter (***Cntr***) or print (***PRINT***) the report.

16. Toggle between ***Cntr*** and ***Print*** by using the **TARE** or **UNITS** key and press the **F1** key to accept the displayed choice…

    If you chose ***Cntr***, the overload or underload count will be displayed.

    If you chose ***Print***, you can choose the port to print through and press the **F1** key. The counter value for overload or underload will be printed.

    Example:

    ```
    Overloads:

       0 overloads

       00:00 on 00-00-00
    ```

```
Underloads:
   0 underloads
   00:00 on 00-00-00
```

17. When you are done with the error log section, press the **SELECT** key repeatedly until…

    Err.LoG is displayed.

See the section SensorComm Errors to see the list of error codes.

The S-COM log only appears if the scale is configured as a SensorComm scale. The Ghost log will only appear if ghosting is enabled.

18. Press the **UNITS** key…

    S-COM is displayed. This is the SensorComm error log. See a sample below:

```
SensorComm Log:
   Error #1: 15:00 on 12-17-03

   Misc:
   Overloads:
   12 overloads

   Last overload:
   12:00 on 12-17-03
```

19. Press the **PRINT** key…

    Print is displayed.

20. Press the **PRINT** key to print the report.

    Port 1 or ***Port 2*** is displayed. Use this item to select which port to use for printing the report.

21. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    Display shows ***bUSY*** briefly then returns to ***Print***.

22. Press the **UNITS** key…

    CLEAr is displayed. Use this to clear the log from memory.

23. Press **PRINT** to clear the log…

    SuRE ? is displayed.

24. Press the **F1** key to clear the log…

    CLEAr is displayed.

25. Press the **SELECT** key…

    S-COM is displayed.

26. Press the **UNITS** key…

    GHoST is displayed. This is the Ghost error log. See a sample below.

    ```
    Ghost Log:

    Ghost is not engaged.Time: 12:16

    Date: 04-12-06
    ```

27. Press the **PRINT** key…

    Print is displayed.

28. Press the **PRINT** key to print the report.

    Port 1 or ***Port 2*** is displayed. Use this item to select which port to use for printing the report.

29. Toggle between ***Port 1*** and ***Port 2*** using the **TARE** or **UNITS** key. Press the **F1** key to accept the displayed choice…

    Display shows ***bUSY*** briefly then returns to ***Print***.

30. Press the **UNITS** key…

    CLEAr is displayed. Use this to clear the log from memory.

31. Press **PRINT** to clear the log…

    SuRE ? is displayed.

32. Press the **F1** key to clear the log…

    CLEAr is displayed.

33. Press the **SELECT** key…

    GHoST is displayed.

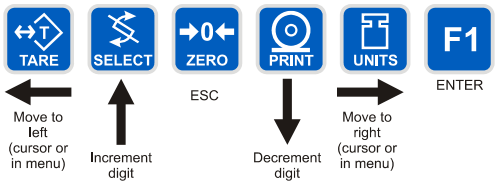
34. Repeatedly press the **SELECT** key until…

    SEtuP is displayed.

    This completes the Setup submenu of the Supervisor menu. You can return to normal operation (step 35) or go to the next submenu item, ***tESt***, by pressing the **UNITS** key.

35. Press the **ZERO** key to return to normal weighing mode. You will be prompted to save the changes you've made. Press the **ZERO** key to abort any changes made or press **F1** to accept them and return to normal operating mode.

Key legend reminder.



3.5.4 TEST (Test menu)

1. From the ***SEtuP*** display, press the **UNITS** key…

   tESt is displayed. This menu lets you view indicator information and test the display, keypad, serial ports, inputs and outputs.

ABOUT (Indicator information)

2. Press the **PRINT** key…

   About is displayed. Press the **PRINT** key then repeatedly press the **UNITS** key to view the part number and revision level for the software found in your indicator.

   Press **SELECT** key to return to ***About***.

ADC (Analog scale test)

3. From the ***About*** display, press the **UNITS** key…

   Adc is displayed. This is the mV/V output of the connected analog scale.

4. Press the **PRINT** key…

   The mV/V value is displayed. This value should increase as weight is applied to the scale

5. Press the **SELECT** key…

   Adc is displayed.

DISP (Display test)

6. From the ***Adc*** display, press the **UNITS** key…

   diSP is displayed. This is the display test item.

7. Press the **PRINT** key to perform a dynamic test of the display.

8. Press the **ZERO** key to stop the dynamic test…

   The display flashes a few more times then ***diSP*** is displayed.

BUTTON (Key test)

9. From the ***diSP*** display, press the **UNITS** key…

   button is displayed. This is the button test item.

10. Press the **PRINT** key to perform a button test. Each key you press will be reflected on the display screen to confirm the button is functioning correctly.

11. Press the **ZERO** key to stop the button test.

    button is displayed.

SERIAL (Serial port test)

12. From the ***button*** display, press the **UNITS** key…

    SEriAL is displayed. This is the serial test item.

13. Press the **PRINT** key to access the serial test.

    Port 1 is displayed.

14. Jumper the transmit and receive lines on the serial port and press the **PRINT** key…

    The display should show ***PASS***. If there is a problem the display will show ***FAIL***.

15. Press the **SELECT** key…

    Port 1 is displayed.

16. Press the **UNITS** key…

    Port 2 is displayed. Repeat steps 14 and 15 to test port 2.

17. Press **SELECT** key…

    SEriAL is displayed.

INPUT (Input test)

18. From the ***SEriAL*** display, press the **UNITS** key…

    InPut is displayed. This is the input test item.

19. Press the **PRINT** key to access the test.

    1 2 3 is displayed. ***1*** stands for input 1, etc.

20. If you jumper pins 1 and 2 of the I/O connector on the bottom of the indicator…

    1 becomes ***0*** until the jumper is removed.

    To test input 2, jumper pins 1 and 3. ***2*** becomes ***0*** until the jumper is removed.

    To test input 3, jumper pins 1 and 4. ***3*** becomes ***0*** until the jumper is removed.

21. Press the **SELECT** key…

    InPut is displayed.

OUTPUT (Output test)

22. From the ***InPut*** display, press the **UNITS** key…

    outPut is displayed. This is the output test item.

23. Press the **PRINT** key to access the test.

    1 is displayed. This stands for output 1.

24. Press the **PRINT** key…

    The display toggles between ***on*** and ***oFF***. This will toggle the output off and on. Monitor the output to see that it is turning off and on. Use a Trips Interface Unit (TIU3) or other output device.

25. Stop the test by pressing the **SELECT** key…

    1 is displayed.

26. Press the **UNITS** key…

    2 is displayed.

27. Repeat steps 23 - 25 for outputs 2 and 3…

28. Press the **SELECT** key…

    outPut is displayed.

OPTION

29. From the ***outPut*** display, press the **UNITS** key…

    oPtion is displayed. Under this item are these options you can test; ***A-out***, ***SEnSor*** (if Sensorcomm is installed) and ***nEtS*** (networks). See the instructions below.

A-OUT test

30. From the ***oPtion*** display, press the **PRINT** key…

    A-Out is displayed. This stands for the analog output test.

31. Press the **PRINT** key…

    A numeric entry screen is displayed.

32. Scroll in a percentage between 0 and 100 and press the **F1** key…

    The analog output will put out that percentage of voltage. For example: If you have output set from 0 to 10V and you scroll in a percentage of 25, the analog output voltage should read 2.5 volts. You can continue to scroll in other percentages, press the **F1** key and check the analog output voltage.

33. When you are finished testing the analog output, press the **F1** key…

    A-Out is displayed.

SENSOR test

This test can be used to properly adjust the deadload of the scale. Each sensor should have similar mV/V outputs if the physical load on the scale is equally distributed.

34. From the ***A-Out*** display, press the **UNITS** key…

    SEnSor is displayed. Use this to test the function of each weight sensor attached via SensorComm.

35. Press the **PRINT** key…

    1 is displayed.

36. Scroll through the available weight sensor numbers by pressing the **TARE** or **UNITS** key. Press the **F1** key when the sensor you want to test is displayed…

    mV/V output of the selected sensor is displayed.

37. Apply weight to the scale to verify the mV/V level changes.

38. Press the **F1** key to exit the test…

    Sensor number is displayed.

39. Repeat steps 35 - 37 for each sensor you want to test.

40. Press the **SELECT** key…

    SEnSor is displayed.

NETS test

41. From the ***SEnSor*** display, press the **UNITS** key…

    nEtS is displayed.

42. Press the **PRINT** key…

    nEt 1 is displayed.

43. Toggle between ***nEt 1*** or ***nEt 2*** using the **TARE** or **UNITS** key and press **PRINT** when the network you want to view is displayed.

    The first screen of network configuration information is displayed.

44. Repeatedly press the **PRINT** key to view all the configuration information. The display will return to ***nEt 1*** or ***nEt 2*** when you've seen all the information.

This completes the ***tESt*** submenu. Press the **SELECT** key until ***tESt*** is displayed and then press the **UNITS** key to go to the ***Audit*** submenu

To return to normal weighing mode, press **ZERO**. If you press **ZERO** you will be prompted to save any changes made. Press **ZERO** to abort any changes or press the **F1** key to save changes.

3.5.5 AUDIT (Audit counters) menu

The next section of the Supervisor menu is the AUDIT submenu. This menu lets you view configuration and calibration audit counters. These counters cannot be changed, only viewed.

Follow these steps to access each item in the AUDIT submenu:

CFG (Configuration audit counter)

1. From the ***tESt*** display, press the **UNITS** key…

   Audit is displayed.

2. Press the **PRINT** key…

   CFG is displayed. This stands for the Configuration audit counter. Use this item to see how many times this indicator has been configured.

3. Press the **PRINT** key…

   A number is briefly displayed, then ***CFG*** is displayed. This is the number of times this indicator has been configured.

CAL (Calibration audit counter)

4. From the ***CFG*** display, press the **UNITS** key…

   CAL is displayed. This stands for the Calibration audit counter. Use this item to see how many times this indicator has been calibrated.

5. Press the **PRINT** key…

   A number is briefly displayed, then ***CAL*** is displayed. This is the number of times this indicator has been calibrated.

6. Press the **SELECT** key…

   Audit is displayed.

This completes the Audit submenu and the Supervisor menu. Press the **ZERO** key to return to normal weighing mode.

4 SensorComm Configuration and Calibration

4.1 Introduction

SensorComm will only connect to communications port #1. An external power source is required to power the SensorComm option. See the note below.

Below are the specifications for the external SensorComm power source:
SensorComm: External +15VDC @ 0.25 Amps required
1080 Input Voltage 9 to 36VDC @ 5.0 Amps
Serial port power provided by 1080: 5VDC @ 0.3 Amps
Excitation +/- 5VDC up to 8 x 350 ohm transducers

Com Port #1 RS232, RS485 or SensorComm			
TB2-1	Sig GND	BLK	485 signal ground
TB2-2	TXB	GRN	RS485 Transmit B
TB2-3	TXA	RED	RS485 Transmit A
TB2-4	RCVB	YEL	RS485 Receive B
TB2-5	RCVA	BLU	RS485 Receive A
TB2-6	NC	-	+15 VDC provided separately

Wiring connections, at the indicator, are shown in the table above.

Refer to SensorComm installation manual for SensorComm box wiring.

4.2 Enable SensorComm

Only one SensorComm box can be connected to the indicator. The indicator can be 1000 feet from the SensorComm box.

1. Access the Service (0801) menu…

   CAL is displayed.

2. Press the **UNITS** key…

   SCALE is displayed.

3. Press the **PRINT** key…

   SourCE is displayed.

4. Press the **PRINT** key…

   AnALoG or ***S-Com*** is displayed.

5. Press the **UNITS** key to display ***S-COM***.

6. Press the ***F1*** key…

   SensorComm is now enabled.

7. Press the **ZERO** key to exit and **F1** to save the configuration at the prompt.

4.3 Enable/Configure Weigh-Bars

1. Access the Service (0801) menu…

   CAL is displayed.

2. Press the **TARE** key…

   oPtion is displayed.

3. Press the **PRINT** key…

   A-out is displayed.

4. Repeatedly press the **UNITS** key until ***SEnSor*** is displayed.

5. Press the **PRINT** key…

   GhoSt is displayed.

6. Press the **TARE** key

   CELLS is displayed.

7. Press **PRINT**…

   1 is displayed.

8. Press **PRINT** …

   on or oFF is displayed.

9. Toggle between the choices by pressing the **UNITS** or **TARE** key. Press **F1** to accept when ***on*** is displayed.

10. Press **UNITS** to advance to the next cell.

11. Repeat steps 7-10 for the correct number of cells being connected.

4.4 CAL submenu for SensorComm scales (North America only)

If your system is set up for a SensorComm j-box, the shaded portion of the calibration menu is the first item. See Figure 4.1. Follow these steps to corner the system and then continue on with the calibration procedures outlined in CAL submenu for analog scales.

SensorComm is available in North America only.

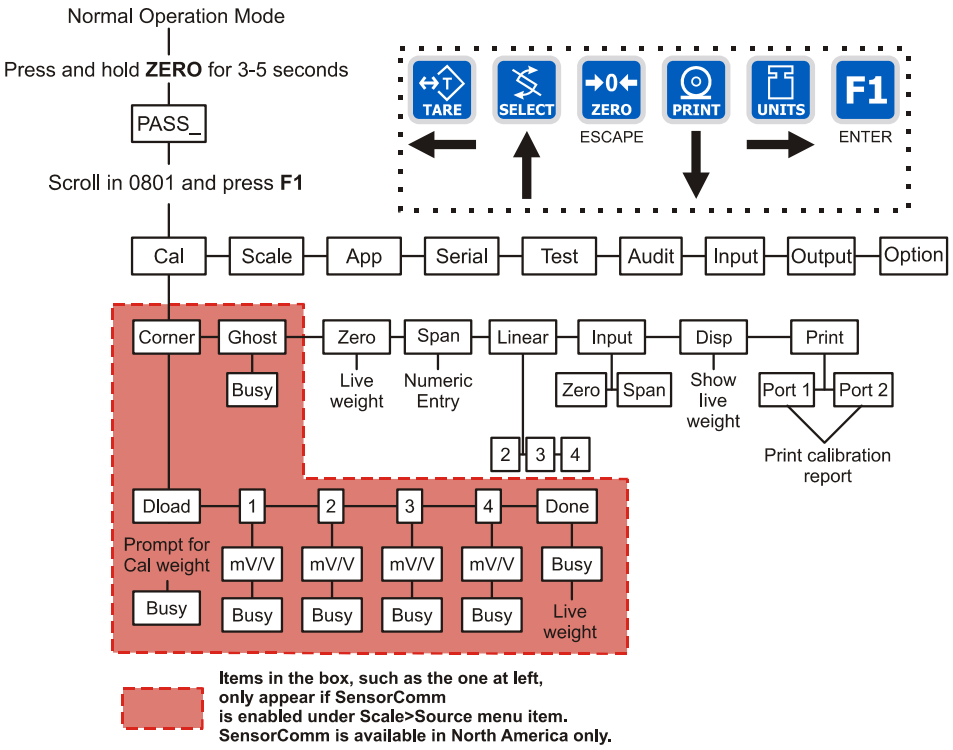


Figure 4.1 SensorComm cornering menu

4.4.1 CORNER (SensorComm Cornering)

1. Access the Service menu…

   CAL is displayed.

2. Press the **PRINT** key…

   CornEr is displayed. Use this item to corner the SensorComm system.

3. Press the **PRINT** key…

   d-LoAd is displayed. This stands for deadload.

4. Press the **PRINT** key…

   Numeric entry screen is displayed.

5. Scroll in the size of your cornering (test) weight using the numeric entry procedure. Press the **F1** key to enter this value and to record the deadload weight…

   buSY is briefly displayed and then ***d-LoAd*** is displayed.

6. Press the **UNITS** key…

   1 is displayed. This stands for sensor #1.

7. Press the **PRINT** key…

   mV/V is displayed for sensor#1.

8. Place the cornering weight over sensor #1. Wait for the scale to stabilize then press the **F1** key…

   buSY is briefly displayed and then ***1*** is displayed.

All sensors (1-4) will be displayed in Calibration. If the sensor is not enabled when you press the PRINT key, the display will show CANT.

9. Repeat steps 6 through 8 for each sensor…

   The last sensor number will be displayed.

10. Press the **UNITS** key…

    donE is displayed.

11. Press the **F1**…

    buSY is briefly displayed and then the live weight.

12. Press the **F1** key to finish the cornering process.

    donE is displayed.

4.4.2 GHOST (Ghost Calibration Factors)

13. Press **SELECT** key…

    CornEr is displayed.

Downloading a configuration file to the 1080 may corrupt the Ghost function or cause of the loss of Ghost calibration.

14. Place a weight in the center of your scale and press the **UNITS** key…

    GhoSt is displayed. Use this to calculate the ghost calibration factors the ghost function will use in case a weight sensor fails.

15. Press the **F1** key to calculate the calibration factors…

    Display shows ***buSY*** then returns to ***GHOST***. The display will show ***Abort*** if the process fails. The display will show ***CAnt*** if Ghost is not enabled under OPTION>SENSOR>GHOST in this service menu.

16. Press the **UNITS** key to move to the ***ZERO*** item in the Cal menu. See the steps for this in the earlier section, CAL submenu for analog scales.

When you are done with the SensorComm cornering and Ghost items, you need to continue with the rest of the calibration menu. See the section *Zero (Setting Zero Reference Point) on page 23*.

5 SensorComm Error Messages

All messages, in the table below, which mention components are referring to components within the SensorComm product.

Table 5: SensorComm errors

Error #	Error	Description of Error	Possible Cause
1	Communications error	SensorComm not responding	-Cable -SensorComm hardware failure -Indicator hardware failure
2	Power fault	+Vin, +EXC, or -EXC has fallen out of tolerance. Voltage ±5%.	-Power supply failure -Cable
3	A to D overrange	More than +5mV/V has been applied to the A to D converter	-Cable - weight sensor -Weight sensor failure -SensorComm PC board
4	A to D underrange	Less than -5mV/V has been applied to the A to D converter	-Cable - weight sensor -Weight sensor failure -SensorComm PC board
5	A to D Initialization failure	A to D converter not responding	- SensorComm PC board
6	Weight sensor overrange	The weight sensor output has exceeded the configured amount.	-Abuse of scale -Weight sensor failure
7	Weight sensor deadload shift warning	The weight sensor output has exceeded the configured amount of capacity since calibration.	-Gauging problem on the weight sensor -Mechanical issue with the scale
8	Weight sensor deadload shift error	The output of the weight sensor has increased more than a configurable percent of capacity since calibration	-Gauging problem on the weight sensor -Mechanical issue with the scale
9	Weight sensor stability	The output of 1 or more weight sensor is not in the same range as the rest of the scale.	-Mechanical issue with the scale -Weight sensor problem

6 Remote Display Functionality

6.1 Remote Display Modes: (App. Settings – Remote Indicator)

This will configure the indicator to function as a remote display to another Evolution Series indicator. Functionality of the remote display can be configured through the Service menu.

The remote display is capable of displaying weight information; Gross, Tare, or Net weight, sent from the host indicator. In addition to displaying weight, the remote display can be configured to display the scale annunciators; Motion, Center of Zero, outputs, or other application specific data. The remote display can also transmit key presses, for basic weight functions, back to the host indicator. Functions include; Print, Zero and Tare. The remote display can be configured for these individual functions or a combination of these functions.

6.1.1 Mode 1: Remote weight display only

The indicator will be configured for Remote Display mode without annunciators or key functions. This will disable the keypad and annunciators of the remote indicator and display whatever valid message is received from the serial port. Mode 1 contains the string:

G<SP>00000<SP>UN<CR><LF>.

The first character can be a G or N for Gross or Net weight active value. This is followed by a space <SP> and a six digit numeric weight followed by another space <SP>. The serial string will end with the current unit of scale measure <UN> and the end of message character <CR>, carriage return, followed by a line feed <LF>. Refer to Table 1 for host output protocol.

6.1.2 Mode 2: Remote weight display with annunciators

The host sends the same serial string as mode 1, but the addition of annunciator information will be present in the serial string from the host. Mode 2 contains the string

G<SP>00000<SP>lb<CR><AN1><AN2>…<ANn><CR><LF>

Refer to figure #1 for host output protocol. The first character can be a G or N for Gross or Net weight active value. This is followed by a space <SP> and a six digit numeric weight followed by another space <SP>. The serial string will end with the current unit of scale measure <UN> and the end of message character <CR>, carriage return. Annunciators are mapped according to the bit table, Table 2, and transmitted from the host indicator to the remote display after the end of message character.

6.1.3 Mode 3: Remote weight display with keypad

The indicator will be configured for Remote Display mode without annunciators. This will enable the remote display keypad and display whatever valid message is received from the serial port. Mode 3 contains the string:

G<SP>00000<SP>UN<CR><LF>

The first character can be a G or N for Gross or Net weight active value. This is followed by a space <SP> and a six digit numeric weight followed by another space <SP>. The serial string will end with the current unit of scale measure <UN> and the end of message character <CR>, carriage return, followed by a line feed <LF>. Refer to figure #1 for host output protocol.

The remote display can also transmit key presses, for basic weight functions, back to the host indicator. Functions include; Print, Zero and Tare. Refer to Table 3 for remote key press protocol.

6.1.4 Mode 4: Remote weight display with keypad and annunciators

The host sends the same serial string as mode 3, but the addition of annunciator information will be present in the serial string from the host. Mode 4 contains the string

G<SP>00000<SP>lb<CR><AN1><AN2>…<ANn><CR><LF>

Refer to figure #1 for host output protocol. The first character can be a G or N for Gross or Net weight active value. This is followed by a space <SP> and a six digit numeric weight followed by another space <SP>. The serial string will end with the current unit of scale measure <UN> and the end of message character <CR>, carriage return. Annunciators are mapped according to the bit table, figure #2, and transmitted from the host indicator to the remote display after the end of message character.

The remote display can also transmit key presses, for basic weight functions, back to the host indicator. Functions include; Print, Zero and Tare. Refer to Table 3 for remote key press protocol.

6.2 Remote Display Modes: (Serial Port Settings – Host Indicator)

There should be five modes of operation for the remote display Serial Port/setting. (This only describes Remote display modes. There may be more serial modes such as RS-485, ENQ…)

6.2.1 Mode 4100: Remote weight display only

This is a serial port mode which will send a configured print format, at the display update rate, to an Avery Weigh-Tronix RD 4100 remote display. The print format can be edited to allow communications to any remote display.

6.2.2 Mode 1: Remote weight display only

Mode one sends G<SP>00000<SP>lb<CR><LF> at the display update rate. The remote indictor will display Gross or Net weight values only.

6.2.3 Mode 2: Remote weight display with annunciators

Mode two sends G<SP>00000<SP>lb<CR> <LF><AN1><AN2>…<ANn> <CR><LF> at the display update rate. The remote indicator will display weight and annunciators such as; motion, center of zero, outputs or annunciators specific to a configured application.

6.2.4 Mode 3: Remote weight display with keypad

Mode three sends G<SP>00000<SP>lb<CR><LF> at the display update rate. The remote indictor will display Gross or Net weight values only. The host indicator will accept key press commands when a key is pressed on the remote indicator configured to operate in mode three.

6.2.5 Mode 4: Remote display with keypad and annunciators

Mode four sends G<SP>00000<SP>lb<CR> <LF><AN1><AN2>…<ANn> <CR><LF> at the display update rate. The remote indicator will display weight and annunciators such as; motion, center of zero, outputs or annunciators specific to a configured application. The host indicator will accept key press commands when a key is pressed on the remote indicator configured to operate in mode three.

Table 1: Host indicator output protocol	
G<SP>00000<SP>lb<CR><LF>	Mode 1 and 3 Remote display input string
G<SP>00000<SP>lb<CR><AN1><AN2>...<ANn><CR><LF>	Mode 2 and 4 Remote display input string w/ Annunciators <ANn> represents the annunciator bytes that are available for the remote, from the host.

Table 2: Annunciator map bit table

Annunciator Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
AN1	TG0	N/A	N/A	N/A	N/A	N/A	N/A	CM1
AN2	ET	N	ROSS	G	~	->0<-	TG1	CM2
AN3	OP3	OP2	OP1	RINT	P	ARE	T	CM3
AN4	N/A	PT	N/A	N/A	N/A	N/A	N/A	CM4
AN5	Peak/Count	N/A	N/A	Cust	N/A	KG	LB	CM5
AN6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CM6
AN7	N/A	UB1	UB2	UB3	UB4	UB5	UB6	N/A
AN8	N/A	OB1	OB2	OB3	OB4	OB5	OB6	N/A

UBx = Under Target Bars
TGx = The word target has multiple LED's under it. The x represents which LED to turn on.
Opx = Represents the outputs
N,et = Net LED's
T,are = Tare LED's
Obx = Over Target Bars
CMx = Comma's
Peak/Count = Count mode if no units, Peak mode if any unit of measure is turned on.

As you can see the annunciator "NET" is broken into two different bits. One for "N", the other for "ET". The host indicator will transmit a "1" or true in both bit positions to activate the annunciator "NET".

Example:

Transmit 20000 lb of Gross weight with Gross, Motion, and all Under bar(UB1-6) segments turned on. A typical serial string is as follows:

Mode 3&4 Serial String:

G<SP>20000<SP>lb<CR><AN1><AN2><AN3><AN4><AN5><AN6><AN7><AN8><CR>

<LF><AN1> = 0x00 <AN2> = 0x38 <AN3> = 0x00 <AN4> = 0x00

<AN5> = 0x01 <AN6> = 0x00 <AN7> = 0x3E <AN8> = 0x00

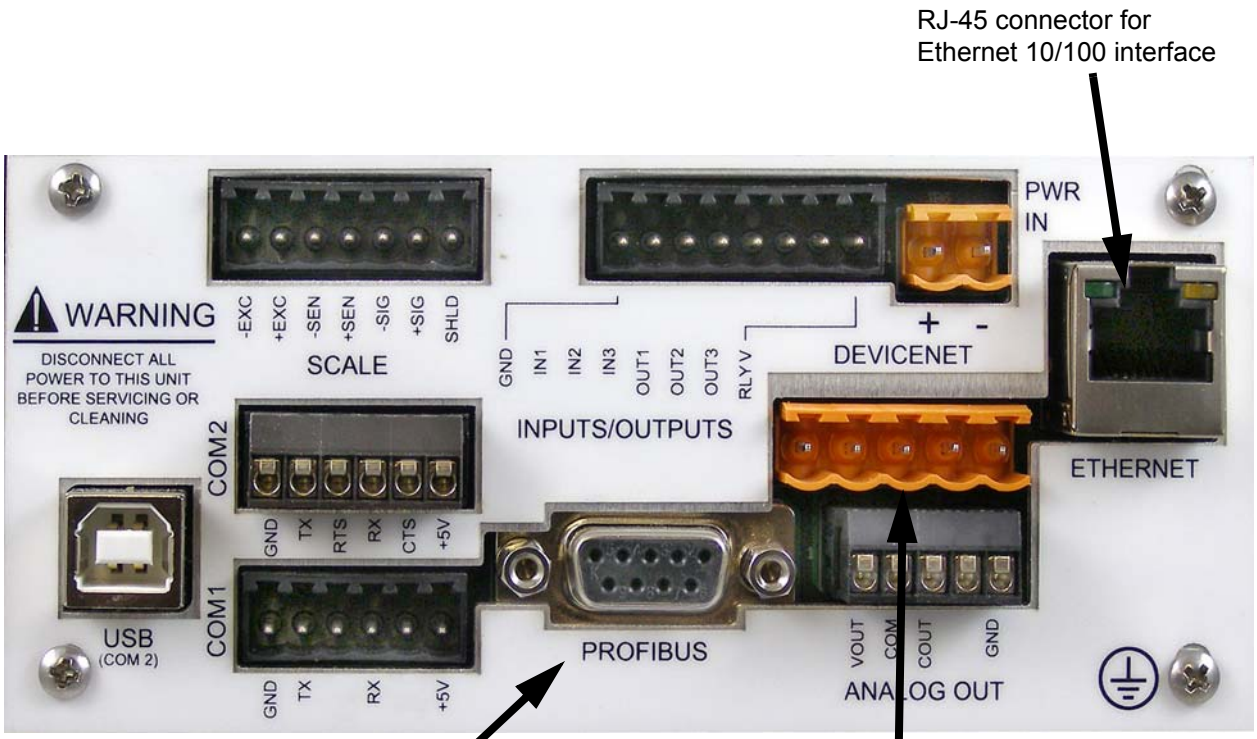
Table 3: Remote keypad press protocol

Command	Description of command
Z<LF>	Emulates a Zero key press
S<LF>	Emulates a Select key press
T<LF>	Emulates a Tare key press
P<LF>	Emulates a Print key press
U<LF>	Emulates a Units key press
F<LF>	Emulates an F1 key press

6.3 Communications Timeout:

If communications is lost between the host and the remote, the remote will display “-“, middle dashes until a signal is acquired again. The timeout for this error to occur should be 5-10 seconds in duration.

7 Network Connections



PROFIBUS-DP			
DB9 - Female		Rear Panel	
Pin No.	Signal	Pin No.	Signal
6	+5.0@100mA	1	+5.0 Vdc
5	Ground	2	Ground
8	-Tx/Rx	3	-Signal
3	+Tx/Rx	4	+Signal
Housing	Shield	5	Shield

DeviceNet			
Network Bus		Rear Panel	
Pin No.	Signal	Pin No.	Signal
1	V-Bus Power	1	V -
2	CAN LOW	2	CAN -
3	Shield	3	Shield
4	CAN HI	4	CAN +
5	V + (24Vdc)*	5	V +

*An external power supply will be used to supply V+ power. Typically this supply will be previously installed.

7.1 Default network settings feature

7.1.1 General Description:

The fieldbus network settings can now be set to their default values by holding the SELECT key while powering the indicator on. The user must hold the SELECT key while the indicator is powered on. While the SELECT key is being held, the user must press the PRINT key. The display will show “Fbus-d” indicating that the network settings have been set to their default values. The network settings will return to the configured values the next time the indicator is powered on.

7.1.2 Fieldbus #1 default values:

Type: Ethernet 4 (server)

IP Address: 192.168.1.1

Subnet: 255.255.255.0

Gateway: 0.0.0.0

SMTP: 192.168.1.100

Port: 10001

Download Port: 10002

Socket Mode: SMA

7.1.3 Fieldbus #2 default values:

Type: Disabled

7.2 UPD indicator Discovery

7.2.1 General Description

When the indicator is configured for Ethernet (one of the fieldbus interfaces is set to Ehternet1,2,3, or 4), a remote client application can send out a UPD broadcast message and get all indicators on the subnet to respond with their Model, IP address, port, download port and serial number.

7.2.2 Protocol:

The indicator will listen for UPD messages on the download port.

Remote Client: The remote Client should send a 1 character UPD broadcast message with <ENQ> (0x05) as the data.

Indicator Response: When the indicator sees an ENQ packet, it will send back a message in the following format:

MODEL:SERIAL:FBUS1:FBUS2
MODEL: the indicators model (E1070, E1065, or 1080)
SERIAL: the indicators serial number
FBUS1: fieldbus configuration for FBUS1
FBUS2: fieldbus configuration for FBUS2

8 Ethernet Industrial Protocols

8.1 Ethernet IP Explicit Messaging

8.1.1 AWTX Input Point Object (Data Out)

Class Code: 64 hex

Table 8.1

Class Attributes	Supported services for this attribute (hex)	Data Type
NA		

Table 8.2

Instance Attributes	Supported services for this attribute (hex)	Data Type	Instances
03 (Value)	0E (Get_Attribute_Single)	SINT, INT, DINT, USINT, UINT, UDINT, REAL (based on network config in indicator	17 - all enabled data items in one message. 1-16 (”out” data item x in indicator is bound to instance x)

8.1.2 AWTX Output Point Object (Data In)

Class Code: 65 hex

Table 8.3

Class Attributes	Supported services for this attribute (hex)	Data Type
NA		

Table 8.4

Instance Attributes	Supported services for this attribute (hex)	Data Type	Instances
03 (Value)	10 (Set_Attribute_Single)	SINT, INT, DINT, USINT, UINT, UDINT, REAL (based on network config in indicator	17 - all enabled data items in one message. 1-16 (”out” data item x in indicator is bound to instance x)

8.2 Ethernet IP Implicit Messaging

8.2.1 AWTX Assembly Instance for PLC Configuration

Input:	100
Output:	112
Configuration:	128

8.3 ModBus/TCP

8.3.1 Starting Register Locations for PLC Configuration

Input Read Only	30001
Input Read/Write	40001
Output Read/Write	40101

Read only values are mirrored at the Read/Write location.

9 Optional Analog Output Board Installation

These instructions will guide you through the installation of the optional analog output PC board.

1. Remove the screws (six total) from top and sides of the indicator case. There are two screws on each of three sides. See Figure 9.1.

Figure 9.1 Remove case screws (6)

2. Carefully slide the two sections apart and remove the four screws that hold the top pc board in place. The screws are located in each corner of the pc board. See Figure 9.2.

Figure 9.2 Remove top pc board screws (four)

3. Carefully pull up the edge of the pc board pointed out in Figure 9.3 to disconnect the top pc board from the bottom pc board.

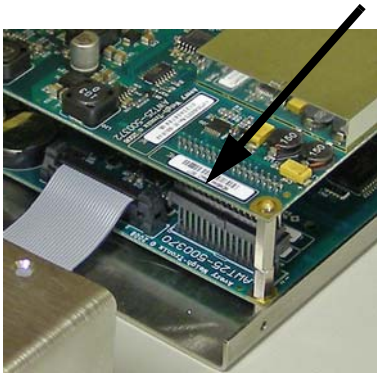


Figure 9.3 Separate here first.

4. Pull the top pc board free from the connections on the rear panel pc board and set it aside.

5. Take the plastic standoffs, Figure 9.4, which come with the analog output board, Figure 9.5, and place press them into the four holes in the bottom of the analog board as shown in Figure 9.6.

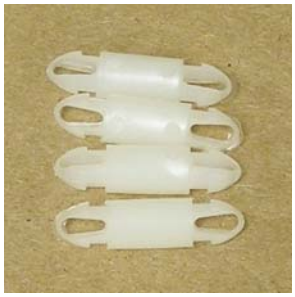
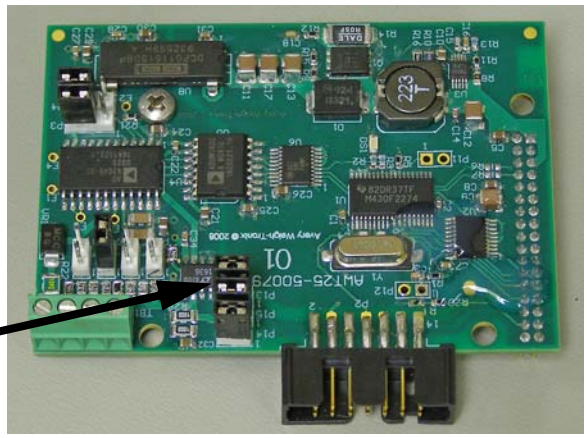


Figure 9.4 Standoffs



These jumpers must be in place to send analog signal to the connector on the back panel of the indicator.

Figure 9.5 Analog output board

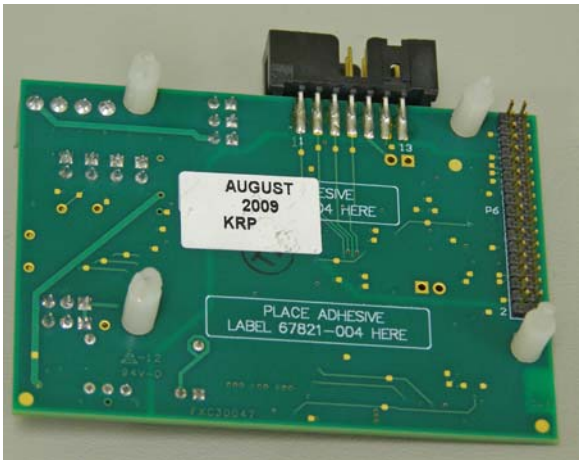


Figure 9.6 Standoffs in place on bottom of analog output board

6. You will connect the analog board to the bottom pc board in the next step. Figure shows the four holes for the standoffs and the connection point.

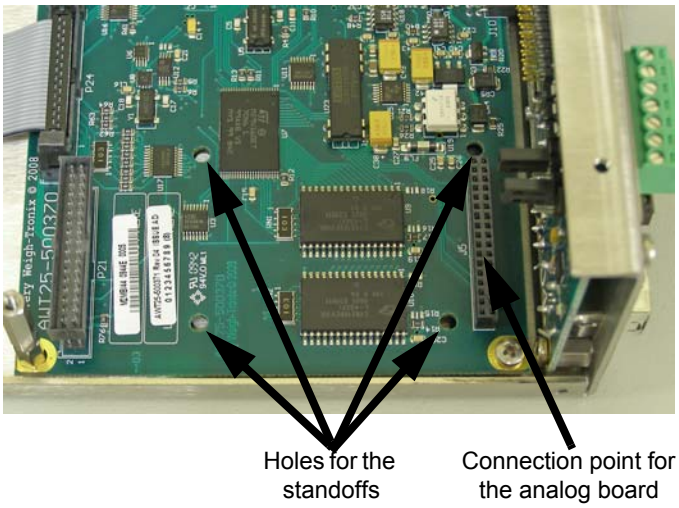


Figure 9.7 Holes and connector for the analog board

7. Place the analog board into place on the bottom pc board as shown in Figure 9.8. Be sure the connector aligns, as shown by the arrow below, and press the standoffs and connector firmly in place.

Figure 9.8 Connecting the analog board

8. Replace the top pc board by reversing the disassembly steps. Be sure all connections are made correctly.

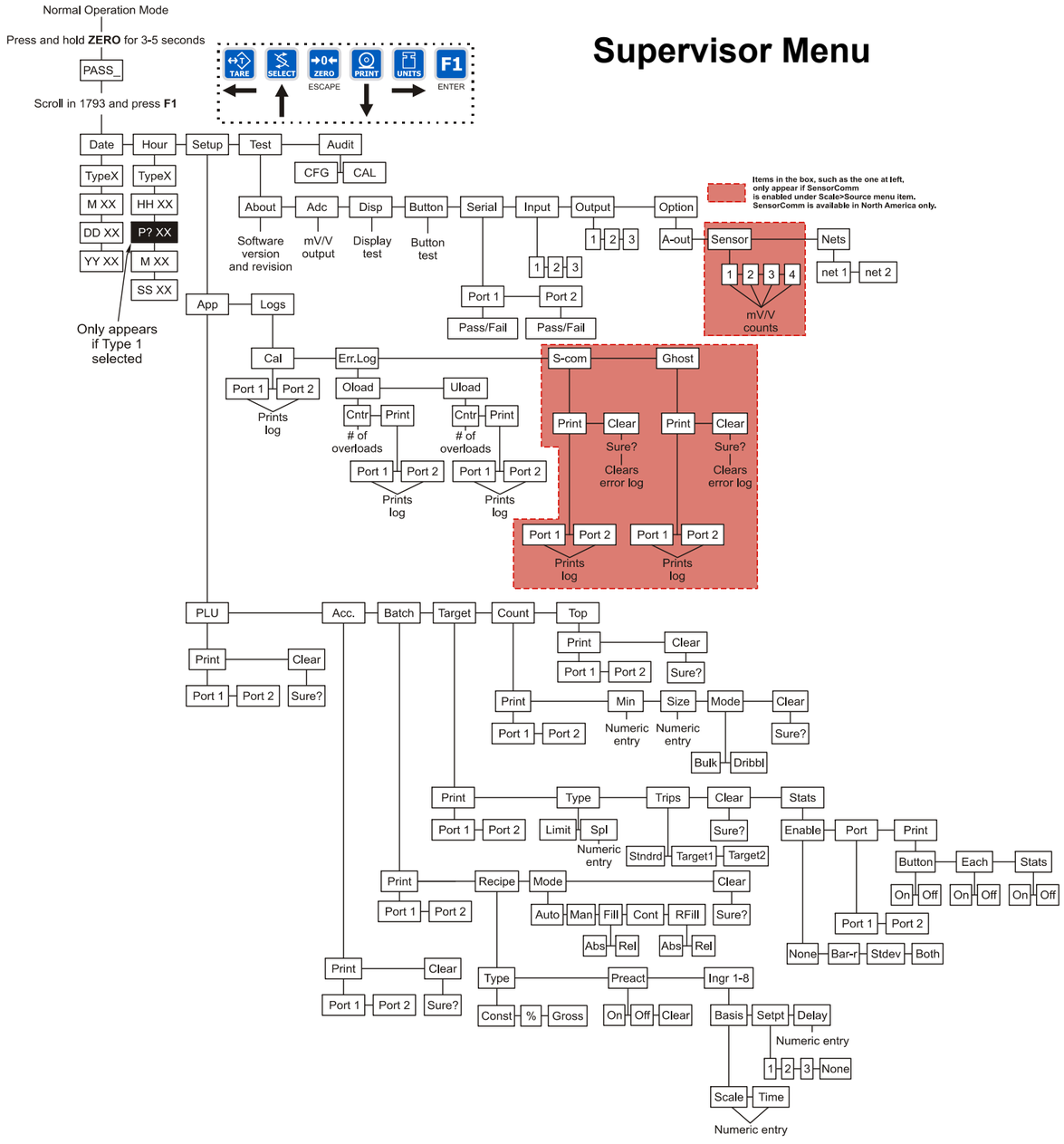
9. Figure 9.9 shows the completed assembly of the boards before the indicators halves are reassembled.

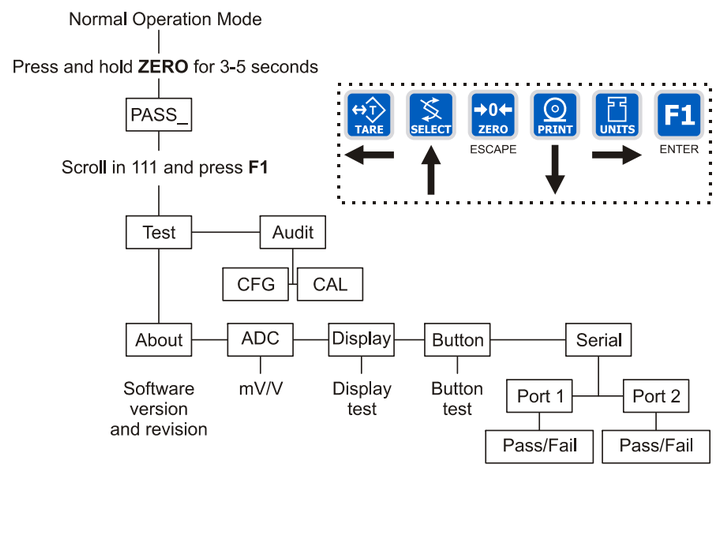
Figure 9.9 PC boards with the analog board in place

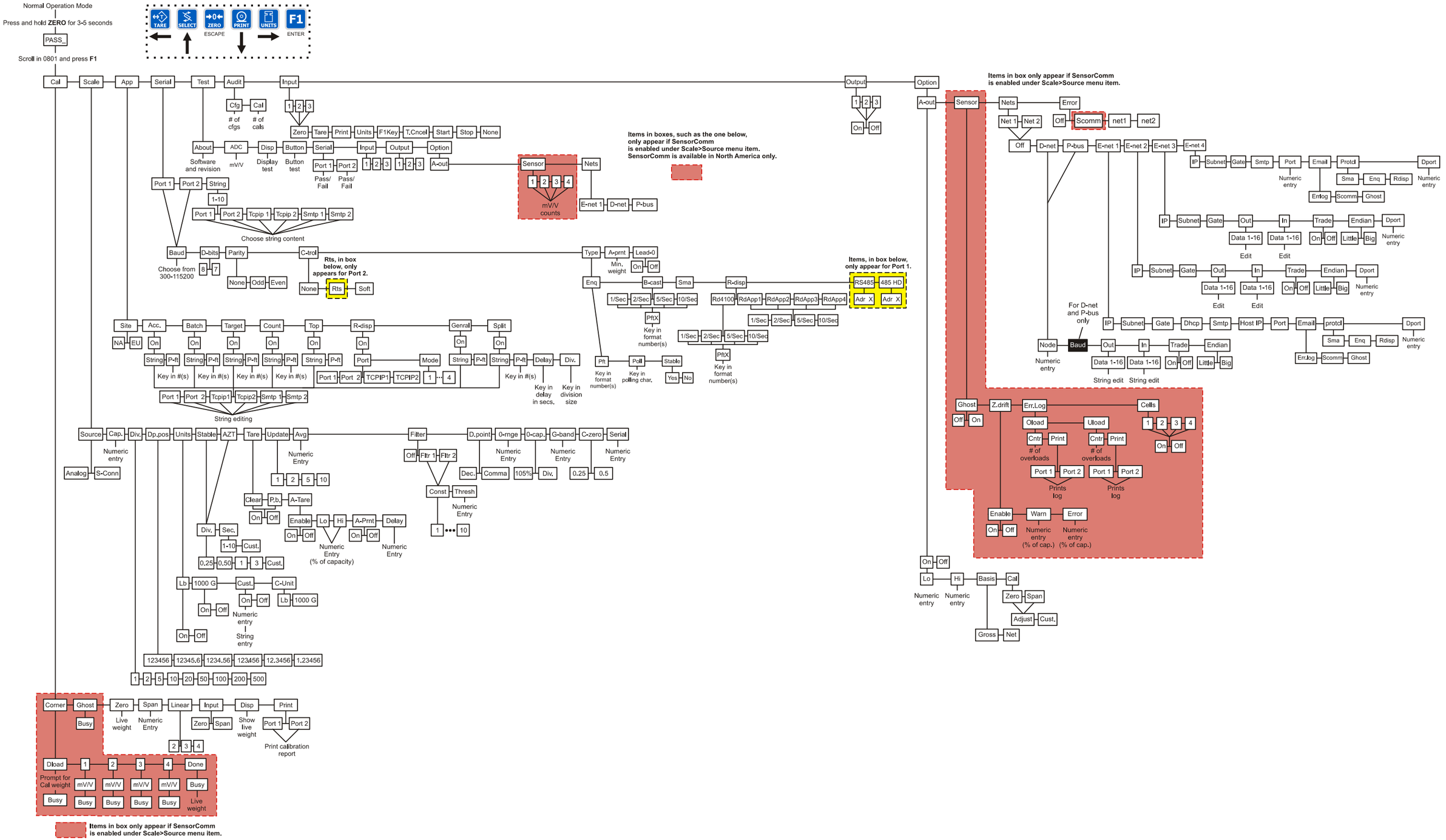
10. Place the two halves of the indicator housing together and insert the six screws and tighten.

10 Complete Menu Structures

10.1 Supervisor and User Menus

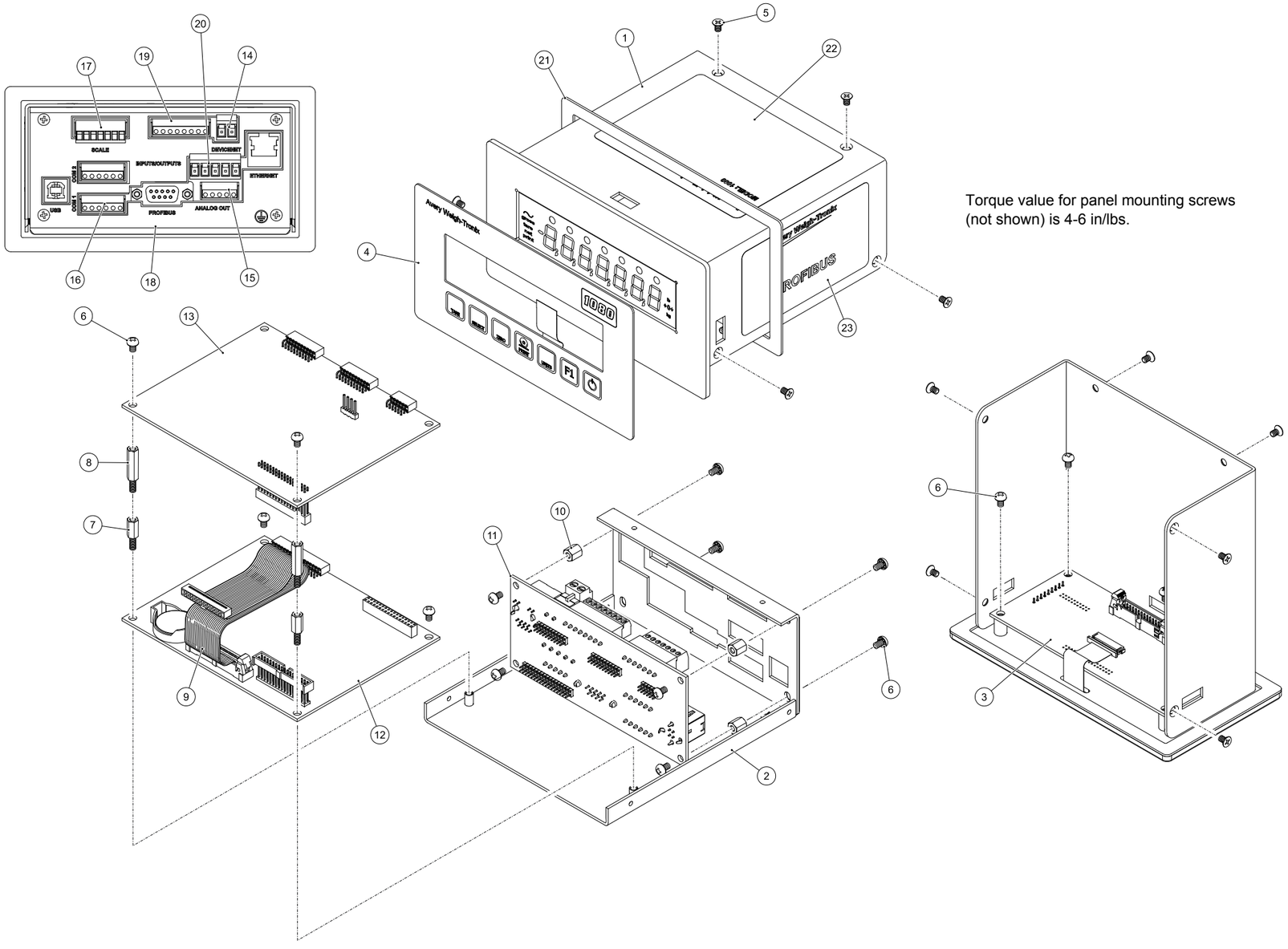





Normal Operation Mode
Press and hold ZERO for 3-5 seconds
PASS_
Scroll in 0801 and press F1
TARE
SELECT
ZERO
ESCAPE
PRINT
UNITS
F1
ENTER
Cal
Scale
App
Serial
Test
Audit
Input
Output
Option
Items in boxes, such as the one below, only appear if SensorComm is enabled under Scale>Source menu item. SensorComm is available in North America only.
Items in box only appear if SensorComm is enabled under Scale>Source menu item.
Items, in box below, only appear for Port 1.
Rts, in box below, only appears for Port 2.
For D-net and P-bus only
Choose string content
String editing
Prompt for Cal weight
Live weight
Numeric Entry
Key in #(s)
Key in format number(s)
Key in polling char.
Key in delay in secs.
Key in division size
Numeric entry
String entry
String edit
Print calibration report
Items in box only appear if SensorComm is enabled under Scale>Source menu item.

11 Technical Illustrations

11.1 Enclosure parts and assembly

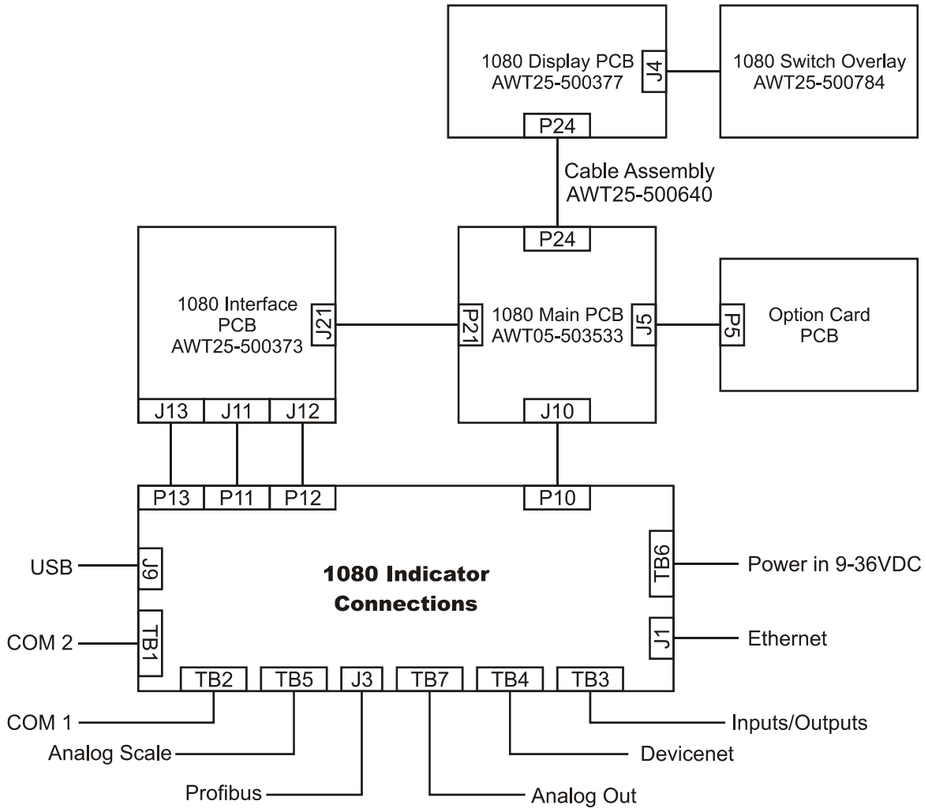


Torque value for panel mounting screws (not shown) is 4-6 in/lbs.

Item	Part Number	Description	Qty.
1	AWT20-503176	ENCLOSURE COVER, WELDMENT - 1080	1
2	AWT20-503185	ENCLOSURE ASSEMBLY, BASE 1080	1
3	AWT25-500377	PCB ASSY, DISPLAY 1080	1
4	AWT25-500784	SWITCH OVERLAY 1080	1
5	54006-1017	SCREW, FHD MACH M3x.5x5mm LONG	6
6	60084-0623	SCREW, MACH PH M3x0.5x5mm SST	16
7	AWT20-503171	STANDOFF, HEX M3 x 0.5mm x 10mm M/F SST	2
8	AWT20-503172	STANDOFF, HEX M3 x 0.5mm x 18mm M/F SST	2
9	AWT25-500640	CABLE ASSY DSPL-MAIN BD 1080	1
10	AWT20-503186	STANDOFF, HEX M3 x 7MM LONG	4
11	AWT25-500375	PCB ASSY, CONNECTOR 1080	1
12	AWT05-503533	PCB ASSY, COMPUTER 1080, PROGRAMMED	1
13	AWT25-500373	PCB ASSY, INTERFACE 1080	1
14	18009-0011	TERMINAL BLOCK, PLUG 2 PIN	1
15	AWT25-500442	TERMINAL BLOCK, 5 POS PLUG	1
16	AWT25-500443	TERMINAL BLOCK, 6 POS PLUG	2
17	AWT25-500782	TERM BLK 7 POS PLUG PHOENIX	1
18	AWT20-503822	DECAL, 1080 REAR PANEL	1
19	AWT25-500444	TERMINAL BLOCK, 8 POS PLUG	1
20	60043-1043	TERMINAL BLOCK, 5 POS PLUG	1
21	AWT20-503179	GASKET, PLATE FRONT 1080	1
22	57359-0015	NETWORK CERTIFICATION LABEL	1
23	AWT20-503823	LABEL, CERTIFICATION 1080	1

Comm 2 TB1	LABEL	DESCRIPTION
TB1-1	GND	SIGNAL GROUND
TB1-2	TX	RS232 TRANSMIT
TB1-3	RTS	RETURN TO SEND HANDSHAKE
TB1-4	RX	RS232 RECEIVE
TB1-5	CTS	CLEAR TO SEND HANDSHAKE
TB1-6	+5 VDC	5 VDC @ 150 mA POWER

ANALOG OUT TB7	LABEL	DESCRIPTION
TB7-1	VOUT	ANALOG VOLTAGE OUTPUT
TB7-2	COM	COMMON ANALOG GROUND
TB7-3	COUT	ANALOG CURRENT OUTPUT
TB7-4		N/A
TB7-5	GND	CHASSIS GROUND / SHIELD TERMINAL



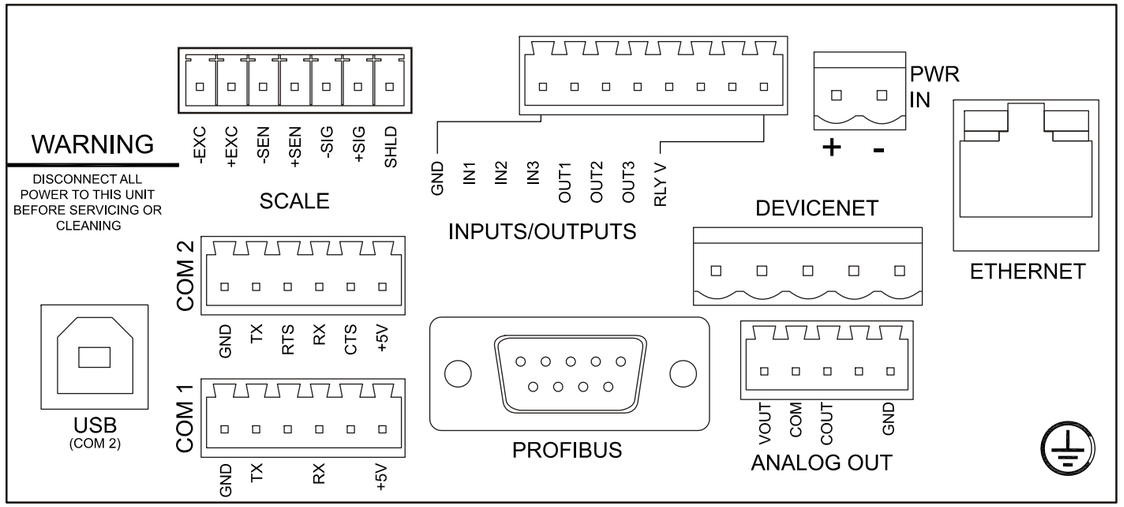
POWER TB6	LABEL	DESCRIPTION
TB6-1	+	9-36 VDC POWER IN
TB6-2	-	POWER GROUND

I/O CUTOFF TB3	LABEL	DESCRIPTION
TB3-1	GND	CHASSIS GROUND / SHIELD TERMINAL
TB3-2	IN1	INPUT 1
TB3-3	IN2	INPUT2
TB3-4	IN3	INPUT3
TB3-5	OUT1	DIGITAL OUTPUT 1
TB3-6	OUT2	DIGITAL OUTPUT 2
TB3-7	OUT3	DIGITAL OUTPUT 3
TB3-8	RLY V	RELAY VOLTAGE

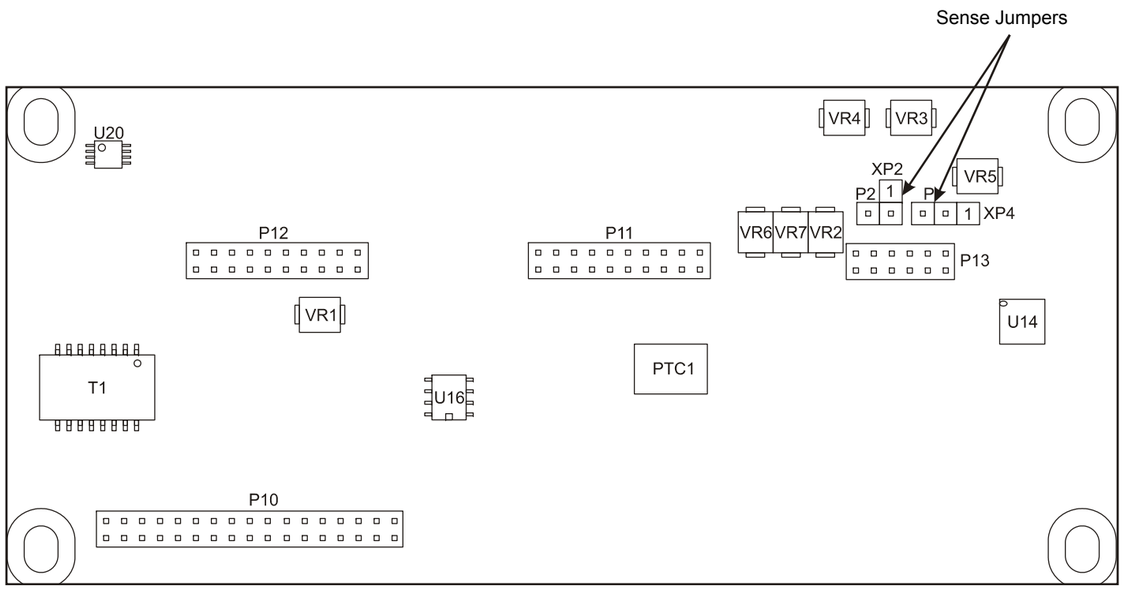
Comm 1 TB2	LABEL	DESCRIPTION
TB2-1	GND	SIGNAL GROUND
TB2-2	TX / XMTB	RS232 TRANSMIT / RS485 TRANSMIT B
TB2-3	XMTA	RS485 TRANSMIT A
TB2-4	RX / RCVB	RS232 RECEIVE / RS485 RECEIVE B
TB2-5	RCVA	RS485 RECEIVE A
TB2-6	+5 VDC	5 VDC @ 150 mA POWER

SCALE INPUT TB5	LABEL	DESCRIPTION
TB5-1	-EXC	NEGATIVE EXCITATION (BLK)
TB5-2	+EXC	POSITIVE EXCITATION (GRN)
TB5-3	-SEN	NEGATIVE SENSE LEAD (BLU)
TB5-4	+SEN	POSITIVE SENSE LEAD (YEL)
TB5-5	-SIG	NEGATIVE SIGNAL (RED)
TB5-6	+SIG	POSITIVE SIGNAL (WHT)
TB5-7	SHIELD	CHASSIS GROUND / SHIELD TERMINAL

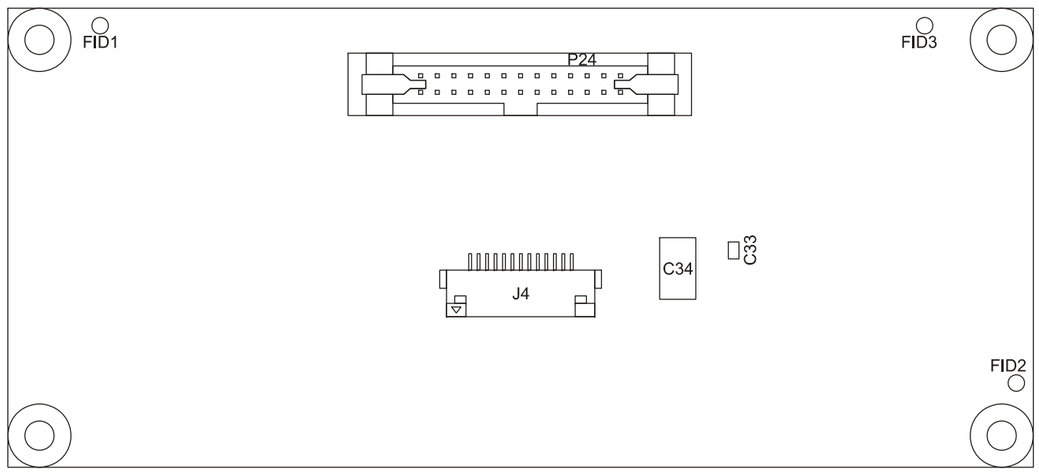
DEVICENET TB4	LABEL	DESCRIPTION
TB4-1	V-	BUS POWER GROUND
TB4-2	CAN_L	CAN BUS LOW
TB4-3	SHIELD	SHIELD TERMINAL
TB4-4	CAN_H	CAN BUS HIGH
TB4-5	V+	+24 VDC *
* An external power supply will be used to supply V+ power. Typically this supply will be preinstalled at the location.		



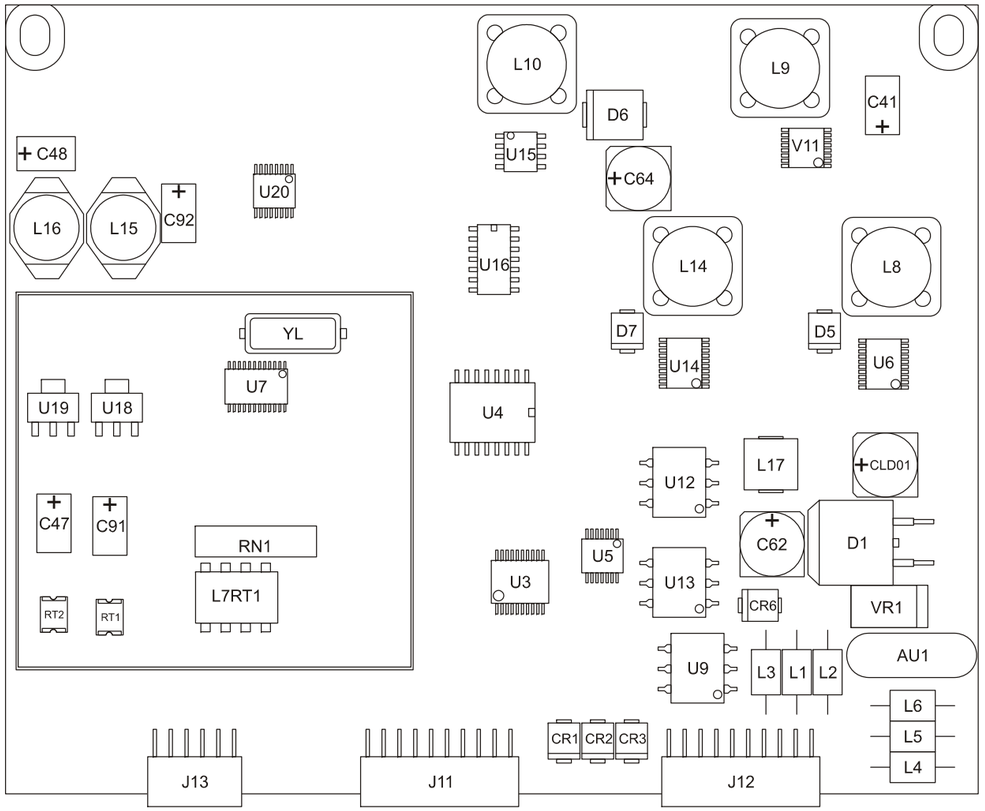
Back side of the 1080 connector board
PN AWT25-500375



Component side of the 1080 connector board
PN AWT25-500375
(some components not shown)



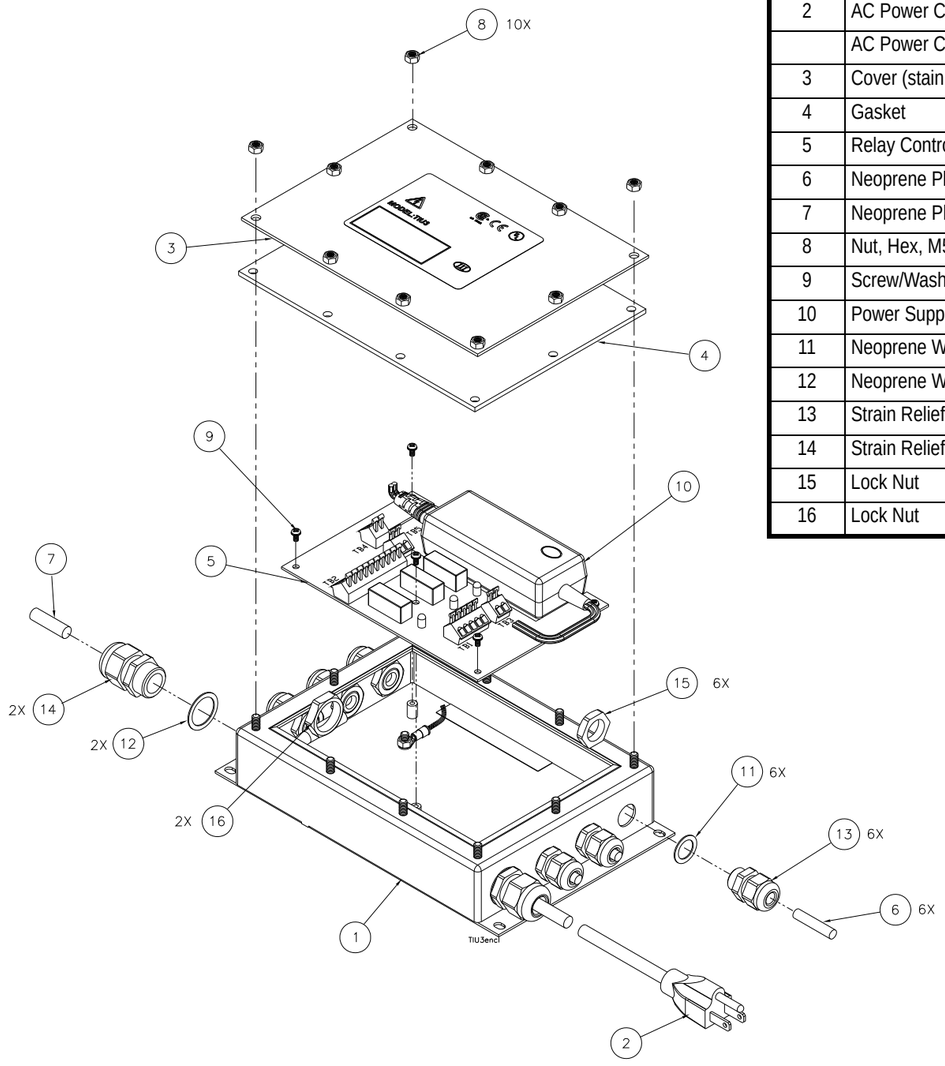
Component side of the 1080 display board
PN AWT25-500377



Component side of the 1080 interface PC board
PN AWT25-500373
(some components not shown)

Back side of the 1080 interface PC board
PN AWT25-500373

11.5 Trips interface unit (TIU3) (optional) parts & assembly

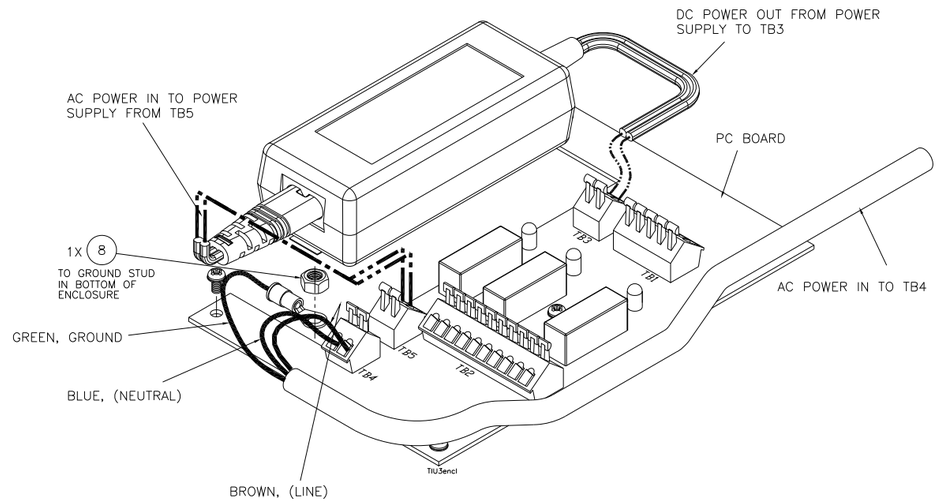


ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Enclosure (stainless steel)	55909-0071	1
2	AC Power Cord (USA)	49180-0116mts	1
	AC Power Cord (UK)	49180-0124mts	1
3	Cover (stainless steel)	55907-0016	1
4	Gasket	55908-0015	1
5	Relay Control PC Board Assy	56957-0013mts	1
6	Neoprene Plug (1/4" dia.)	27429-0014	
7	Neoprene Plug (8mm dia.)	27429-1087	
8	Nut, Hex, M5 x 0.8	46574-0090	11
9	Screw/Washer Assy, M3.5 x 0.6	55511-0014	5
10	Power Supply, 90-264VAC, 12VDC 2.2A	AWT25-000674	1
11	Neoprene Washer	26357-0020	6
12	Neoprene Washer	26357-0053	2
13	Strain Relief	55177-0027	6
14	Strain Relief	55177-0043	2
15	Lock Nut	55177-1025	6
16	Lock Nut	55177-1041	2

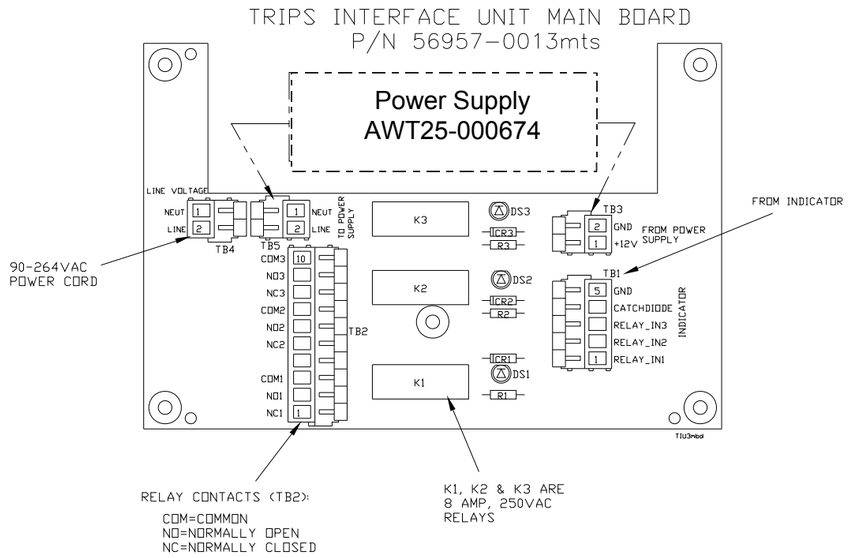
NOTE TORQUE SPEC:
All M5 fasteners- 25.0 in. lbs., [3.0 N/m]
All M3.5 fasteners- 12.0 in. lbs., [1.35 N/m]

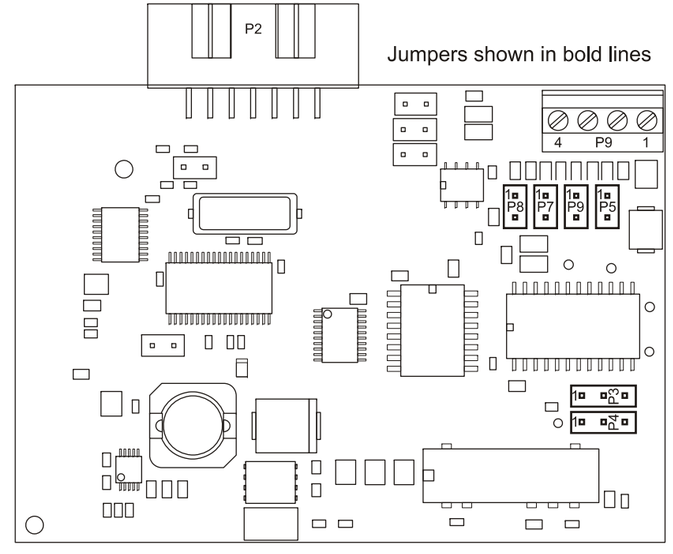
WIRING DETAIL

(REF: MAIN BOARD ILLUSTRATION & SYSTEM BLOCK DIAGRAM FOR MORE CONNECTION DETAILS)



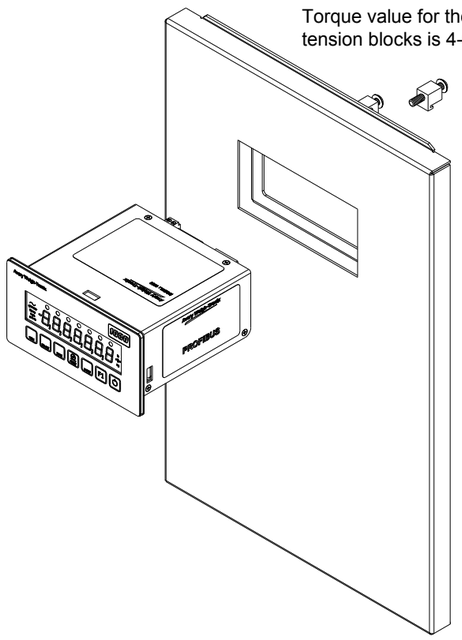
TRIPS INTERFACE UNIT MAIN BOARD
P/N 56957-0013mts



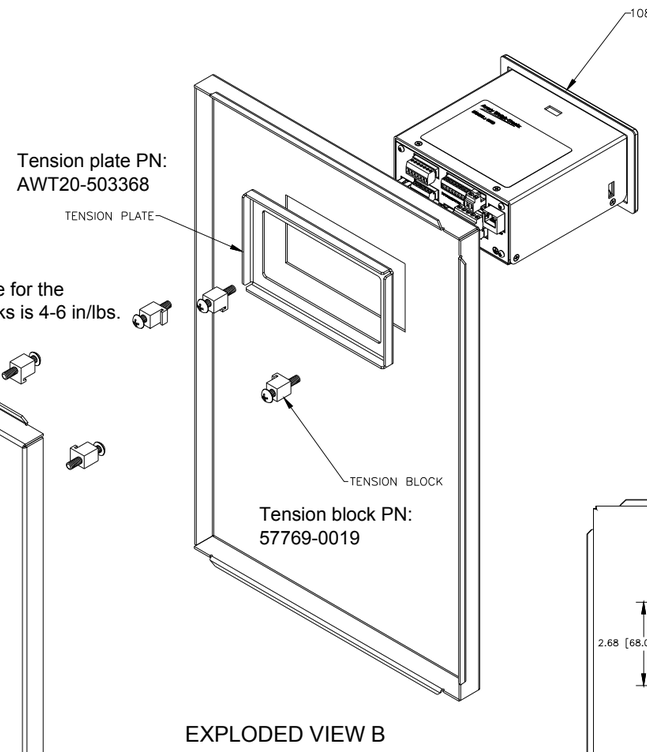


Analog Output Card						
Types of Output	Jumper					
	P3	P4	P5	P9	P7	P8
4 TO 20MA	1-2	2-3	1	1	1	1
0 TO 20MA	2-3	1-2	1	1	1	1
0 TO 24MA	1-2	1-2	1	1	1	1
0 TO 5V	2-3	2-3	1-2	1	1	1
0 TO 10V	2-3	2-3	1	1-2	1	1
±5V	2-3	2-3	1	1	1-2	1
±10V	2-3	2-3	1	1	1	1-2

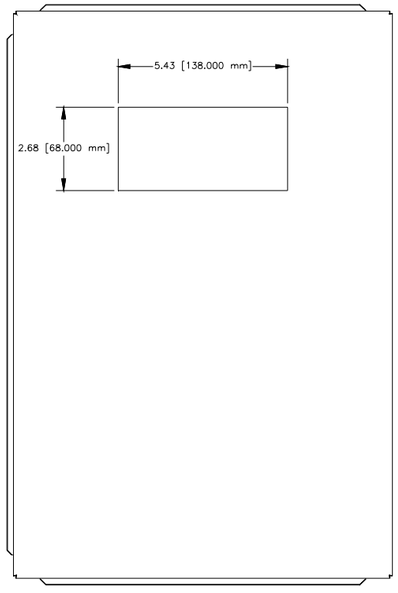
11.7 Panel Mount Illustrations



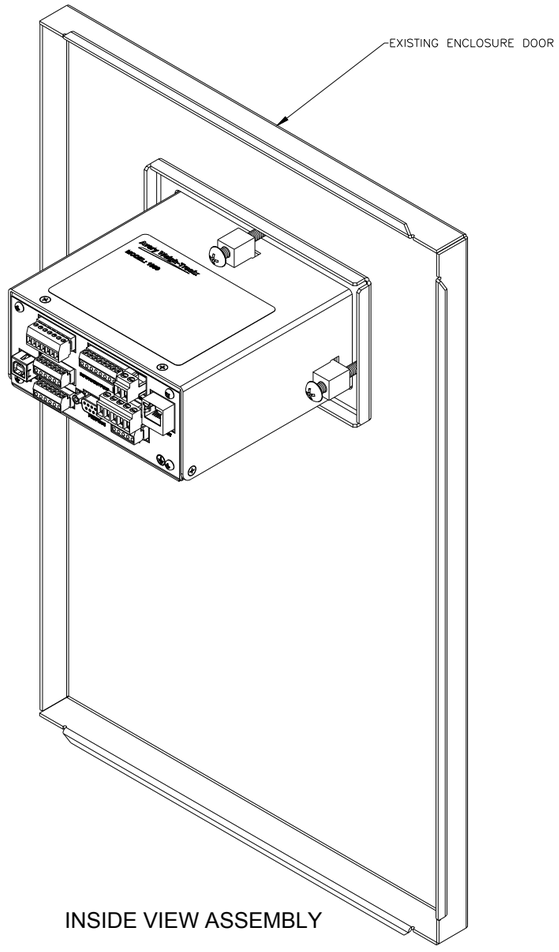
EXPLODED VIEW A



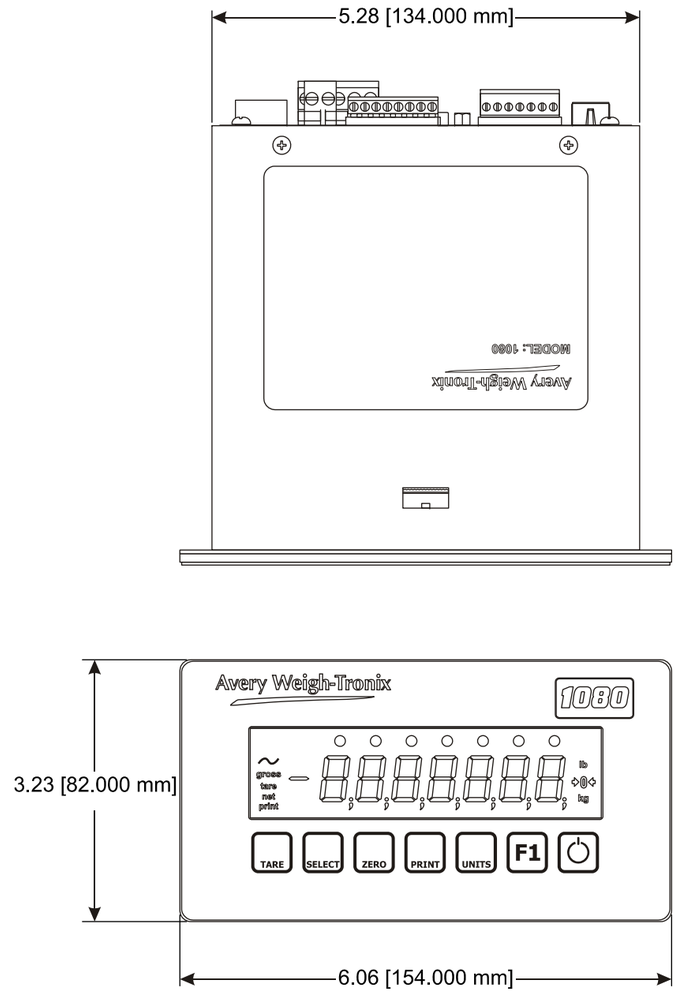
EXPLODED VIEW B

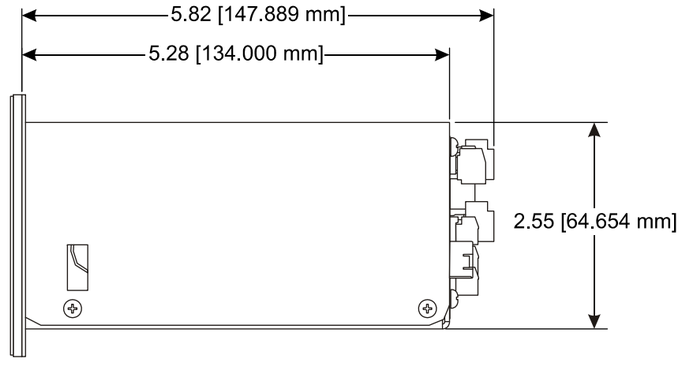


CUTOUT DIMENSIONS



INSIDE VIEW ASSEMBLY


5.28 [134.000 mm]
MODEL: 1080
Avery Weigh-Tronix
3.23 [82.000 mm]
Avery Weigh-Tronix
1080
gross
tare
net
print
lb
kg
TARE
SELECT
ZERO
PRINT
UNITS
F1
6.06 [154.000 mm]


5.82 [147.889 mm]
5.28 [134.000 mm]
2.55 [64.654 mm]

Avery Weigh-Tronix

Standard Scale & Supply Company
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Redford, MI 48239
313-255-6700
www.standardscale.com