880 Performance Series

Controller/Indicator
Panel Mount Size 5.5
Software Version 3

Operation Manual

RICE LAKE
WEIGHING SYSTEMS

PN 152240

Contents

Version 3, April 25, 2017

1.0 Introduction

This manual is intended for operators who use the *880* digital weight indicators.

Important ***This manual applies to indicators using Version 3 of the 880 firmware and because the 880 board design has changed, there are new part numbers which now has 5.5 inch boards and associated new part numbers. Please be advised, past generation boards and parts are not interchangeable with the new boards. Information contained within this manual is exclusively for units with CPU board, PN 175109 (blue in color). See Section 2.0 for drawing and replacement part information.***

The 880 *Technical* manual (PN 158387) that is referred to throughout this manual and is available online at **www.ricelake.com/manuals.**

Manuals can be viewed or downloaded the Rice Lake Weighing Systems website at **www.ricelake.com/manuals.**

Warranty information can be found on the website at **www.ricelake.com/warranties**

This *Operator's Manual (PN 152240)* is included with the indicator and provides basic operating instructions for users of the *880*, please leave it with the indicator when installation and configuration are complete.

1.1 Overview

The *880* is a programmable single-channel digital weight indicator, available in either a panel mount enclosure or universal enclosure. The front panel bezel can be sealed to a NEMA Type 4X/IP69K rating. The front panel consists of a 6-button keypad and a 6-digit, 14-segment LED display; the Universal front panel also includes a numeric key pad.

Features include:

- Drives up to 8 350Ω or 16 700Ω load cells
- Supports four and six wire load cell connections
- Four configurable digital inputs or outputs
- Full duplex RS-232 or half duplex RS-485 communications up to 115200 bps
- Ethernet TCP/IP interface for 10Base-T/100Base-TX network communications
- USB interface for host (type A connection) or device
- Expansion slot for one option card
  - •Optional DeviceNet™ interface for communications network with Allen-Bradley® controllers
  - •Optional Ethernet/IP interface for Allen-Bradley PLC and other Ethernet/IP master devices
  - •Optional Profibus® DP interface
  - •Optional Modbus TCP interface
  - •Optional Profinet Interface
  - •Optional EtherCAT interface
  - •Optional analog output module provides 0–10 VDC, 0-20mA or 4–20 mA tracking of gross or net weight values
  - •Optional four channel relay module, dry connect 3A @ 115VAC, 3A @ 30VDC
- Available in 115-230 VAC and 12-24 VDC versions
- 62 K of non-volatile RAM can be allocated to databases using the Revolution database editor
- Custom event-driven programs can be written with the iRite language up to 102 K in program size

1.2 Safety

Safety Symbol Definitions

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

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

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

General Safety

Do not operate or work on this equipment unless you have read and understand the instructions and warnings in this manual. Contact any Rice Lake Weighing Systems dealer for replacement manuals. Proper care is your responsibility.

WARNING

Failure to heed may result in serious injury or death.

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

Do not open the indicator, all procedures that require work inside the indicator enclosure are to be performed by qualified service personnel only.

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

Do not operate without the enclosure completely assembled.

Do not use for purposes other than weight taking.

Do not place fingers into slots or possible pinch points.

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

Do not exceed the rated specification of the unit. See Section 3.0.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Do not submerge.

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

1.3 Operating Modes

The three modes of operation for the *880* are described in the following sections.

Weigh Mode

In this mode, the indicator displays gross or net weights to indicate the type of weight value displayed and annunciators to indicate scale status.

Configuration Mode

Most of the procedures described in this manual, including configuration and calibration, require the indicator to be in configuration mode.

To enter configuration mode, remove the fillister head screw from the enclosure backplate. Insert a non-conductive tool into the access hole and press the setup switch once. The indicator display changes to show the word ***SCALE.***

Important ***Breaking the seal to enter the configuration mode will void a Legal for Trade unit.***

User Setup Mode

User setup mode (accessed by pressing **MENU**) is used to:

- View the audit trail
- Set the time and date
- View or clear the accumulator value
- Change setpoint values
- View the current tare value
- Enter setup mode (if audit trail is enabled)

See *880 Technical* manual (PN 158387) for more information.

1.4 Front Panel Display

Figure 1-1 shows the *880* front panel keys and the key functions assigned in weigh mode.

The numeric display consists of six large, 14-segment LED digits. If a negative number is displayed the first LED is used to display -, reducing the number of available digits to five.

The symbols on the keys in Figure 1-1 (representing up, down, enter, left, right) describe the key functions assigned in setup mode. The keys are used to navigate through menus, select digits within numeric values, and increment/decrement values.

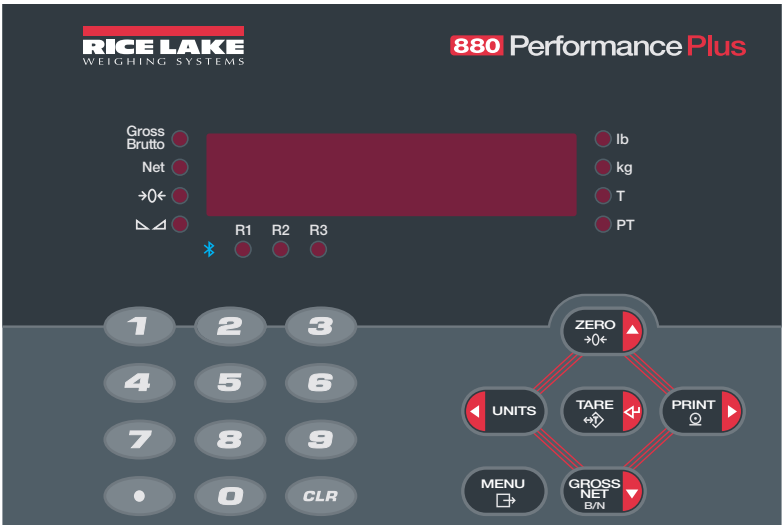


Figure 1-1. 880 Front Panel Display (Universal Model Shown)

Key	Function
	The **Zero** key sets the current gross weight to zero. Also used to navigate to different menus or to select another digit when editing a value.
	The **Print** key sends an on-demand print format out a communications port, provided the conditions for standstill are met. If enabled in configuration, ***Print*** may be displayed while the unit prints. Also used to navigate to different menus or to select another digit when editing a value.
	The **Gross/Net** key toggles the weight display between gross and net mode. If a tare value has been entered or acquired, the net value is the gross weight minus the tare. Gross mode is indicated by the **Gross/ Brutto** annunciator; net mode is indicated by the **Net** annunciator. Also used to navigate to different menus or to select another digit when editing a value.
	The **Menu** key allows access the user setup menu. This key also acts as the cancel key when editing parameter values, or as an exit key when in the configuration or user setup menus.
	The **Units** key switches the weight display to an alternate unit, defined in the Format menu. Units Available: lb, kg, oz, metric ton, ton, gram Also used to navigate to different menus or to select another digit when editing a value.
	The **Tare** key performs one of several predetermined Tare functions dependent on the mode of operation selected in the ***TAREFN*** parameter. This key also acts as enter for numeric or parameter entry.

Table 1-1. Key Functions

Key	Function
	The **Clear** key clears a numeric entry from the LCD.
	The **Decimal Point** key inserts a decimal point where necessary.
	The Numeric Keypad can be used to enter values. Values may also be entered by scrolling through values with the arrow keys.

Table 1-1. Key Functions

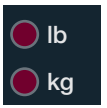
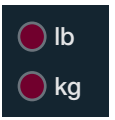
Key	Function
	**Gross/Brutto LED** Gross weight mode (or Brutto in OIML mode) **Net LED** Net weight mode. **→0← Center of Zero LED** Indicates that the current gross weight reading is within +/- 0.25 display divisions of the acquired zero, or is within the center of zero band. A display division is the resolution of the displayed weight value, or the smallest incremental increase or decrease that can be displayed or printed. **Standstill LED** Scale is at standstill or within the specified motion band. Some operations, including Zero, Tare and Printing, can only be done when the standstill LED is on.
	**lb/kg LED** Displays which unit of measure is being used. The lb and kg annunciators indicate the units associated with the displayed value. If the displayed value is pounds, lb will be lit. If the displayed value is kilograms, kg will be lit.
	**primary/secondary LED** If the other units value is neither lb or kg, then lb will be lit for the units assigned as primary, and kg will be lit for the units assigned as secondary.
	**lb/tn,t,oz,g,none LED** Alternate units that can be displayed include short tons (tn), metric tons (t), ounces (oz), grams (g), or NONE (no units). If the displayed units is one of these alternate units, and the other unit value is lb, then lb will be lit.
	**tn,t,oz,g,none /kg LED** Alternate units that can be displayed include short tons (tn), metric tons (t), ounces (oz), grams (g), or NONE (no units). If the displayed units is one of these alternate units, and the other unit value is kg, then kg will be lit.

Table 1-2. Annunciator Functions

Key	Function
	**T LED** Indicates that a tare has been acquired and stored by the system. **PT LED** Indicates that a preset tare weight has been keyed in or entered via the EDP serial port.
	**Bluetooth** Bluetooth communications enabled **R1, R2 and R3** Range indicators – When multi interval or multi range are enabled, LEDs indicate the divisions or the capacity range.

Table 1-2. Annunciator Functions

1.5 Menu Structures and Parameter Descriptions

The front panel keys, are used to navigate through the menus in setup mode (see Figure 1-2).

-  and  move left and right (horizontally) in a menu level.
-  and  move up and down (vertically) to different menu levels.
-  serves as an enter key for selecting parameter values within the menus.

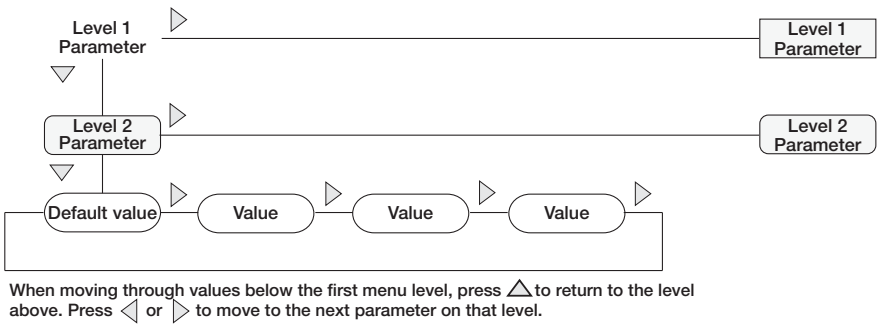


Figure 1-2. Setup Mode Menu Navigation

To select a parameter, press  or  to scroll left or right until the desired menu group appears on the display, then press  to move down to the sub-menu or parameter to be edited. When moving through the menu parameters, the current selected value appears first on the display.

Edit Parameter Values

To change a parameter value, scroll left or right to view the values for that parameter. When the desired value appears on the display, press TARE to select the value and move back up one level. To edit numerical values, use the navigation keys to select the digit and to increment or decrement the value. Alternatively, use the numeric keypad to enter the digits. The decimal point will begin flashing if a decimal value is allowed. Use the navigation keys to move the decimal point left or right. Press TARE when done.

See the *880 Technical* manual (PN 158387) for more information.

Alphanumeric Entry Procedure

Use the following scheme for alphanumeric entry when using the five button keypad.

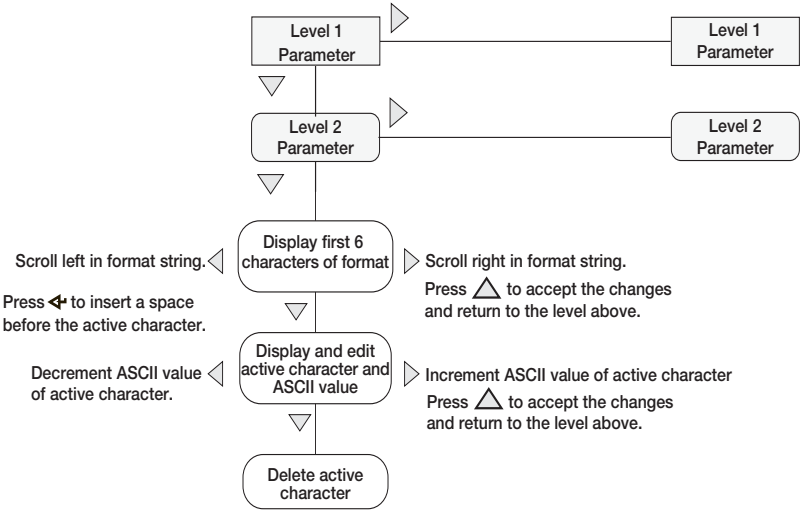


Table 1-3. Editing Procedure for Numeric Values

1.5.1 Editing Procedure for Numeric Values (880Plus Only)

When using the numeric keypad option, the method for editing numeric values relies on the numbers which are embossed on the keypad (as opposed to using the arrows).

1. Using the numeric keypad, insert the required value.
   - Press CLR to clear the currently selected digit.
   - Press • to enter a decimal point.

Figure 1-3. Numeric Keypad

2. Press TARE to save the value entered and return to the level above.

Note *When editing fractional numeric values, the decimal point must be positioned in accordance with the primary units formatting, otherwise the keyed number may be rejected by the software.*

1.6 Indicator Operations

Basic *880* operations are summarized below.

1.6.1 Toggle Gross/Net Mode

1. Press GROSS NET B/N to toggle the display mode between gross and net.

Note *Net mode is available when a tare value has been entered or acquired (Net = Gross minus Tare). If tare has not been entered or acquired, the display remains in gross mode. The LEDs next to Gross or Net indicate the current mode.*

1.6.2 Toggle Units

Press UNITS to switch between primary and secondary units. The current units LED will be lit.

1.6.3 Zero Scale

1. In gross mode, remove all weight from the scale and wait for the ◣ ◢ LED to light.
2. Press ZERO →0← . The →0← LED lights to indicate the scale is zeroed.

Note *The scale must be stable and within the configured zero range for the scale to be zeroed. If the scale cannot be zeroed, Nozero will display.*

1.6.4 Acquire Tare

1. Place a container on the scale and wait for the ◣ ◢ LED to light.
2. Press TARE to acquire the tare weight of the container. The Net weight is displayed and the T LED lights to show the tare value was entered.

1.6.5 Remove Stored Tare Value

1. Remove all weight from the scale and wait for the ◣ ◢ LED to light. The display should read zero and the →0← LED should be lit.
2. Press ZERO to zero the scale if needed.
3. Press TARE (or ZERO in OIML mode). Display shifts to gross weight and the Gross LED is lit.

Note *If keyed tares are allowed, press* TARE *to open the keyed tare prompt. To clear the tare, press* TARE *again.*

1.6.6 Preset Tare (Keyed Tare)

Tare mode must be set to keyed or both for the preset tare feature to function.

1. With the scale empty and zero weight on the display, press TARE. ***000000*** will display with the focused digit flashing.
2. Edit the value using the keypad on the *880Plus* or use the following method for the panel mount.
   - Press ◁ or ▷ to select the digit.
   - Press △ or ▽ to increment or decrement the value.
   - Press TARE to move to the decimal point entry.
   - Press ◁ or ▷ to adjust the decimal point placement.
   - Press TARE when the value is correct.

   The display will change to the Net mode and the **PT** LED lights to show the preset tare was entered.

Entering a keyed tare of zero will remove the stored tare value.

1.6.7 Print Ticket

1. Wait for the ◣ ◢ LED to light.
2. Press PRINT to send data to the configured communications port.

1.6.8 Front Panel User Setup

Press MENU to enter user setup mode. Use ***User Setup*** to:

- View audit trail information
- Enter configuration mode if audit trail is enabled
- View or set time and date
- View or clear the accumulator
- Change setpoint values and enable/disable setpoints
- View the current tare value

1.6.9 Displaying Audit Trail Information

The Audit Trail Configuration and Calibration counters can be viewed through the User Menu.

1. Press MENU. ***Audit*** is displayed.
2. Press ▽ to display the ***Legally Relevant Firmware*** version.
3. Press ▷ to display ***Calib***.
4. Press ▽ to view the Calibration Counter.

5. Press MENU to return to ***Calib***.
6. Press ▷ to display ***CFG***.
7. Press ▽ to view the Configuration Counter.
8. Press MENU to return to ***CFG***.
9. Press MENU to return to the weigh mode.

1.6.10 Setpoints

Setpoints must be enabled in the configuration mode to be accessible in the user setup mode.

Important ***Breaking the seal to enter the configuration mode will void a Legal for Trade unit.***

To enter the configuration mode:

1. Remove the large fillister head screw from the back of the enclosure.
2. Insert a non-conductive tool into the access hole and press the setup switch. ***Scale*** displays.
3. Press ◁ or ▷ until ***Setpts*** is displayed.
4. Press ▽. ***SP CFG*** is displayed.
5. Press ▽. Press ◁ or ▷ to desired setpoint number.
6. Press ▽ to enter setpoint settings.

   Select the type by pressing ◁ or ▷ to desired setting, then press ▽ to set the value. For complete list of choices see the *880 Technical* manual (PN 158387) for more information.
7. When all settings have been made, press MENU to return to weigh mode.

Note ***Setpoints are now accessible from the front panel menu.***

Display or Edit Setpoint Value

1. Press MENU. ***Audit*** is displayed.
2. Press ◁ or ▷ until ***Setpts*** is displayed.
3. Press ▽ and the first available setpoint number is displayed.
4. Press ◁ or ▷ to toggle through each setpoint that is operator accessible.
5. Press ▽. ***Value*** is displayed.
6. Press ▽ again to display or edit the value.
7. Edit the value using the keypad on the *880Plus* or use the following method for the panel mount.
   - Press △ or ▽ to increment or decrement the value of the flashing digit.
   - Press ◁ or ▷ to select the digit to edit.
   - Press TARE to move to the decimal point entry.
   - Press ◁ or ▷ to adjust the decimal point placement.
8. Press TARE to accept the displayed value.
9. Repeat the above steps to set ***Preact***, if enabled.
10. When all settings have been made, press MENU to return to weigh mode.

Note ***Setpoint Value and Preact Value may be accessible from the front panel in weigh mode.***

Some indicator configurations may not allow setpoint values to be changed through the front panel or may require a password to display or change the setpoint value.

Turn Setpoint On or Off

Turn a setpoint off at the front panel.

1. Press MENU. ***Audit*** is displayed.
2. Press ◁ or ▷ until ***Setpts*** is displayed.
3. Press ▽ and the first available setpoint number is displayed.
4. Press ◁ or ▷ to toggle through each setpoint that is operator accessible.
5. Press ▽, then press ◁ or ▷ to **Enable**.
6. Press ▽, then press ◁ or ▷ to turn setpoint **On/Off**.
7. Press TARE to accept the setting.
8. Press MENU to return to weigh mode.

Note ***Some indicator configurations may not allow setpoints to be turned off through the front panel or may require a password to turn the setpoint on and off.***

1.6.11 Set Time and Date

1. Press MENU. ***Audit*** is displayed.
2. Press ◁ or ▷ until ***T&D*** is displayed.
3. Press ▽. ***Time*** is displayed.
4. Press ▽ to enter time.
5. Edit the value using the keypad on the *880Plus* or use the following method for the panel mount.
   - Press ◁ or ▷ to select the digit.
   - Press △ or ▽ to increment or decrement the value.
6. Press TARE when the value is correct. ***Date*** is displayed.
7. Press ▽ to enter date.
8. Edit the value in the specified format *MMDDYY*, *DDMMYY*, or *YYMMDD*. Press ◁ or ▷ to select the digit. Press △ or ▽ to increment or decrement the value.
9. Press TARE when the value is correct. ***Time*** is displayed.
10. Press MENU to return to weigh mode.

1.6.12 Display Accumulator

Enable the accumulator before use in either weigh mode or setpoint operations. Once enabled, weight (net weight if a tare is in the system) is accumulated whenever a print operation is performed using the **Print** key, digital input, setpoint ***PSHACC*** operation or ***KPRINT*** serial command. The scale must return to below the threshold value (except for the setpoint ***PSHACC*** operation) before the next accumulation.

1. Press MENU to enter the user setup mode, ***Audit*** is displayed.
2. Press ◁ or ▷ until ***Accum*** is displayed.

Note ***Accum is only displayed if the accumulator is enabled. See Technical manual (PN 158387) for more information.***

3. Press ▽. ***View*** is displayed.
4. Press ▽ to view the current accumulator value.
5. While the accumulator value is displayed, press PRINT to print the value.

Note ***The format of the print output can be configured using the accumulator print format. See the 880 Technical manual (PN 158387) for more information.***

1.6.13 Clear the Accumulator

1. Press MENU to enter the user setup mode. ***Audit*** is displayed.
2. Press ◁ or ▷ until ***Accum*** is displayed.
3. Press ▽, then press ◁ or ▷ until ***CLR Y*** is displayed.
4. Press TARE to clear the accumulator. ***Clear*** will display briefly and display returns to ***CLR Y***.
5. Press MENU to return to the weigh mode.

The Print key only performs one accumulation, and only if the weight is above the accumulator threshold. Weight must return to below the accumulator threshold value before another accumulation is allowed.

Accumulator threshold is configured in the setup menu. See the 880 Technical manual (PN 158387) for more information.

1.6.14 Display Tare

When a stored Tare value is displayed, the Gross and Net LEDs will be off and →0← will be lit. To display a stored tare:

1. Press MENU.
2. Press ▷ to ***Tare*** and press ▽ to view the current tare value.
3. Press MENU twice to return to weigh mode.

If there is not a tare in the system, the value displayed will be zero and the Gross and Net LED will be turned off.

See the *880* Technical manual (PN 158387) for more information pertaining to the regulatory mode of operation.

2.0 Configuration

To configure the *880* indicator, the indicator must be placed in configuration mode. The setup switch is accessed through a small hole on the enclosure (see Figure 3-1). The setup switch access hole is located on the backplate for the panel mount, and from the bottom of the enclosure on the universal model. Insert a non-conductive tool into the access hole and press the setup switch. ***Scale*** displays.

Important ***Use caution when inserting the non-conductive tool into the backplate, press the tool in about 3/4 inch, using the board as a guide, until the switch is engaged (a gentle click will be felt). Do not use excessive force, the switch may be damaged.***

Note ***If audit trail is enabled, Press*** MENU ***to access setup mode. Press ◁ or ▷ until SETUP is displayed, then press ▽ to SCALE.***

See Technical Manual (PN 158387) for more information.

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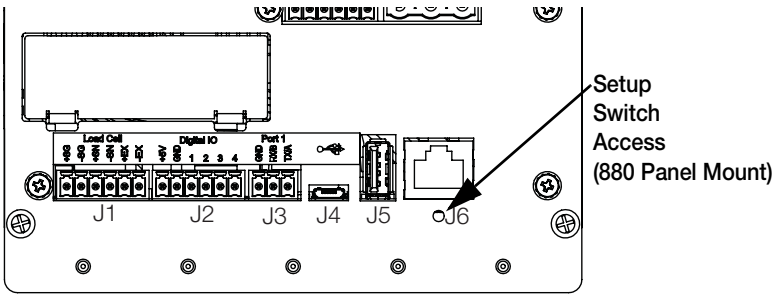


Figure 2-1. Back View – Setup Switch Access

When the indicator is placed in configuration mode, the word ***SCALE*** is shown on the display. The SCALE menu is the first of eight top-level menus used for configuring the indicator. Detailed descriptions of these menus are given in the *880* Technical manual (PN 158387). When configuration is complete, return to the SCALE menu and press the △ (ZERO) key to exit setup mode.

When configuration is complete, press MENU to return to the weigh mode.

2.1 Configuration Methods

The *880* indicator can be configured by using the front panel keys to navigate through a series of configuration menus or by sending commands or configuration data to the EDP port. Configuration using the menus is described in the *880* Technical manual (PN 158387).

Configuration using the EDP port can be accomplished using either the EDP command set described in the *880* Technical manual or Version 3.0 or later of the Revolution® configuration utility.

2.1.1 Revolution® Configuration

The Revolution configuration utility provides the preferred method for configuring the *880* indicator. Revolution runs on a personal computer to set configuration parameters for the indicator. When Revolution configuration is complete, configuration data is downloaded to the indicator.

Note ***See Section 5.0 of the Technical manual (PN 158387) for more information on Revolution.***

2.1.2 EDP Command Configuration

The EDP command set can be used to configure the *880* indicator using either a personal computer or terminal. Like Revolution, EDP command configuration sends commands to the indicator EDP port; unlike Revolution, EDP commands can be sent using any external device capable of sending ASCII characters over a serial connection.

EDP commands duplicate the functions available using the indicator front panel and provide some functions not otherwise available. EDP commands can be used to simulate pressing front panel keys, to configure the indicator, or to dump lists of parameter settings. See the *880* Technical manual for more information about using the EDP command set.

2.1.3 Front Panel Configuration

The *880* indicator can be configured using a series of menus accessed through the indicator front panel when the indicator is in setup mode. Table 2-1 summarizes the functions of each of the main menus.

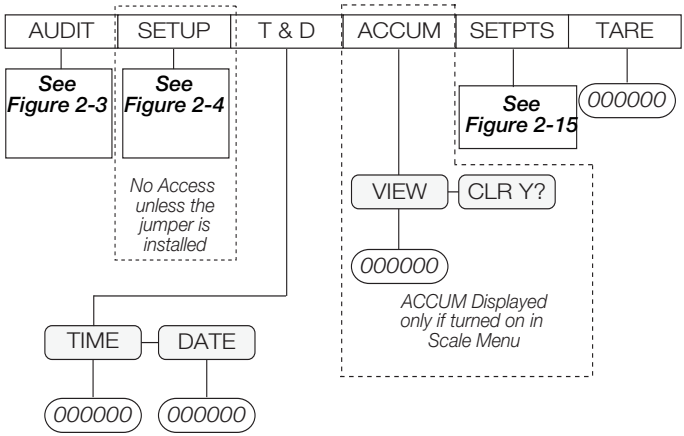


Figure 2-2. 880 Menu Layout

Menu		Menu Function
AUDIT	Audit Trail	Displays the legally relevant (LR) firmware version, configuration count and calibration count.
SETUP	Setup	Used to enter configuration mode, if audit trail is enabled.
T&D	Time and Date	View and change time and date.
ACCUM	Accumulator	View, print or clear the current accumulator value, if enabled..
SETPTS	Setpoints	Configure setpoint values and enable/disable setupoints. Only configured setpoints are available.
TARE	Tare	Tare function. Enables or disables push-button and keyed tare

Table 2-1. 880 Menu Summary

2.2 Menu Structures and Parameter Descriptions

The following sections provide graphic representations of the *880* menu structures. In the actual menu structure, the settings you choose under each parameter are arranged horizontally. To save page space, menu choices are shown in vertical columns. The factory default setting appears at the top of each column and is bolded. Parameters shown surrounded by a dotted-line box only appear under the special circumstances explained under each box.

Most menu diagrams are accompanied by one or more tables that describe all parameters and parameter values associated with that menu option. Default parameter values are shown in bold type.

2.2.1 Audit Menu

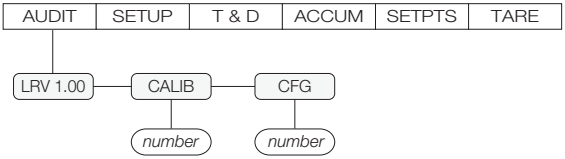


Figure 2-3. Audit Menu Structure

AUDIT Menu		
Parameter	**Choices**	**Description**
LRV	**---**	Legally relevant firmware version
CALIB	**000000**	Displays total calibration events.
CFG	**000000**	Displays total configuration events.

Table 2-2. Audit Menu Parameters

2.2.2 Setup Menu

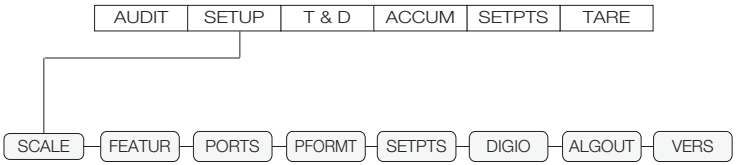


Figure 2-4. Setup Menu Structure

2.2.3 Scale Menu

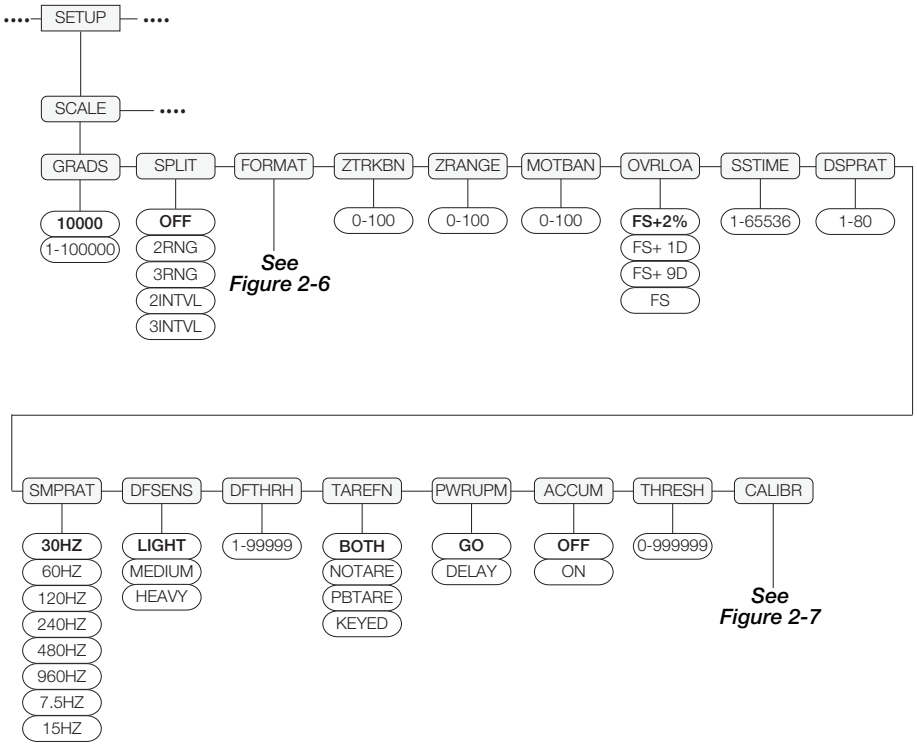
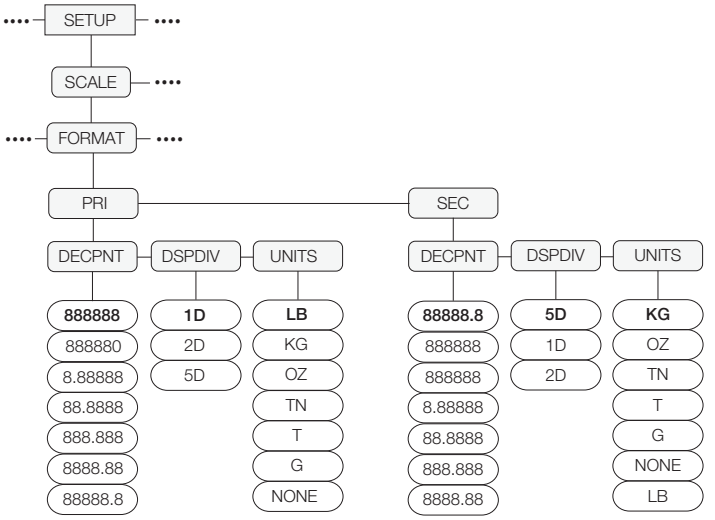
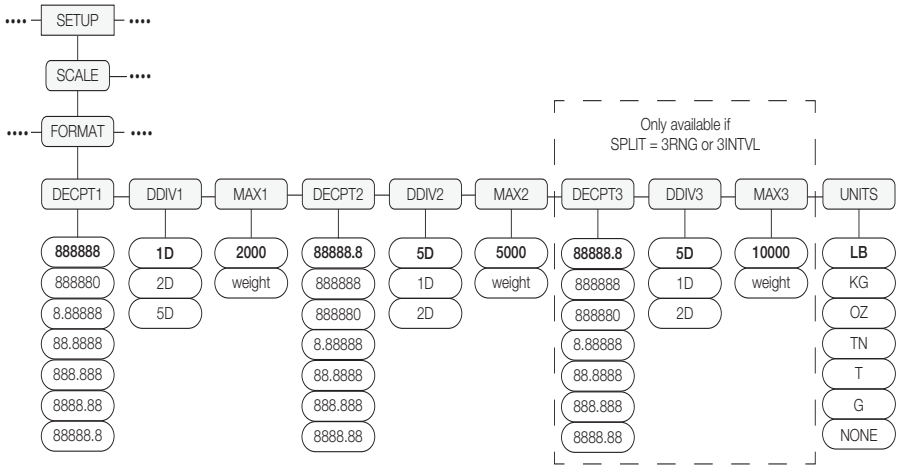


Figure 2-5. Scale Menu Structure

Format Menu



If SPLIT = OFF



If SPLIT = 2RNG, 3RNG, 2INTVL, or 3INTVL

Figure 2-6. Format Menu Structure

Calibration Menu

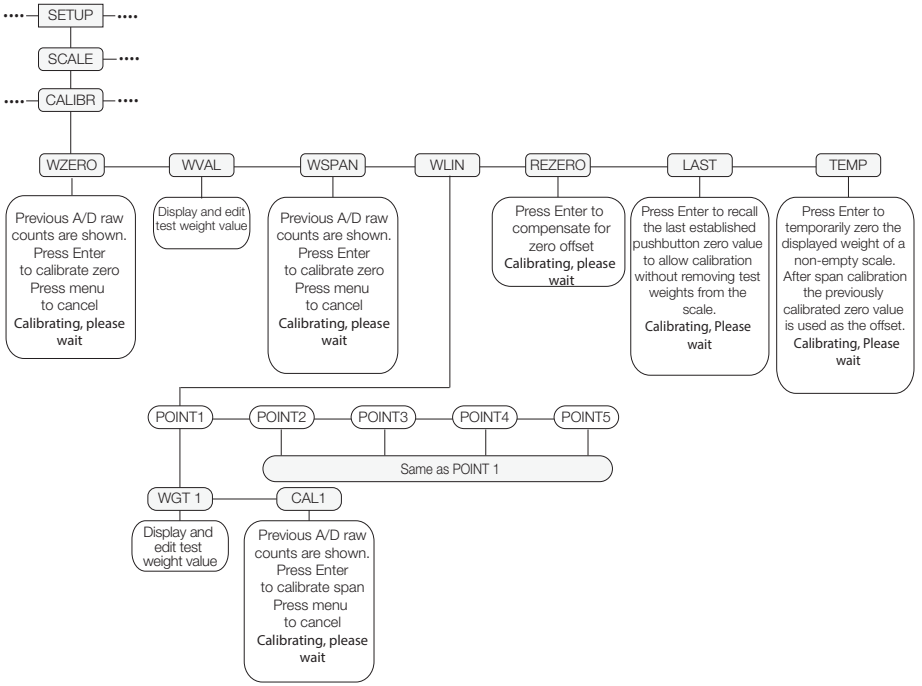


Figure 2-7. Calibration Menu Structure

2.2.4 Feature Menu

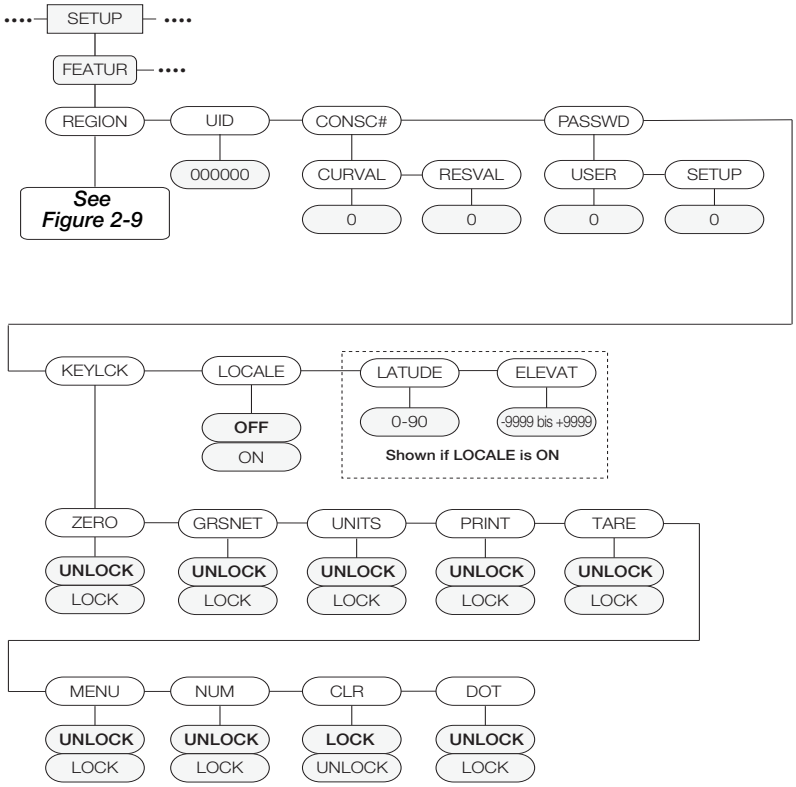


Figure 2-8. Feature Menu Structure

Region Menu

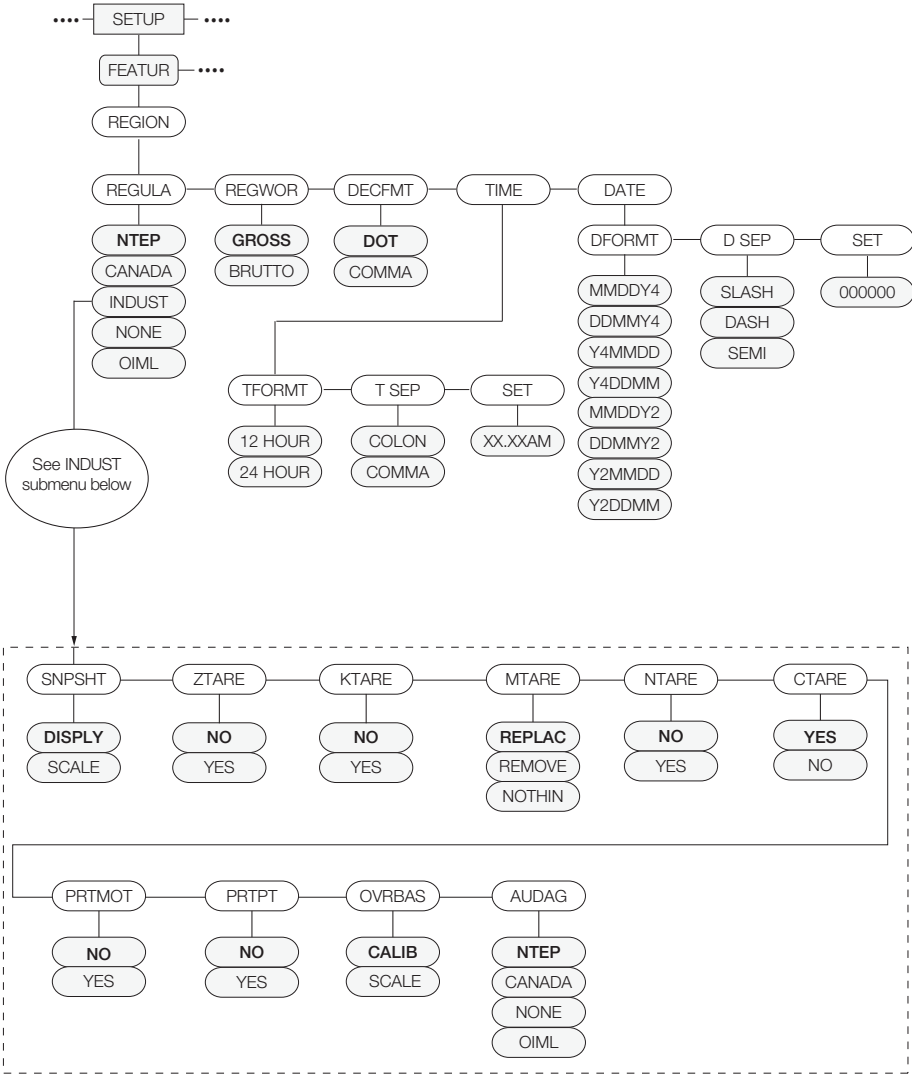


Figure 2-9. Region Menu Structure

2.2.5 Ports Menu

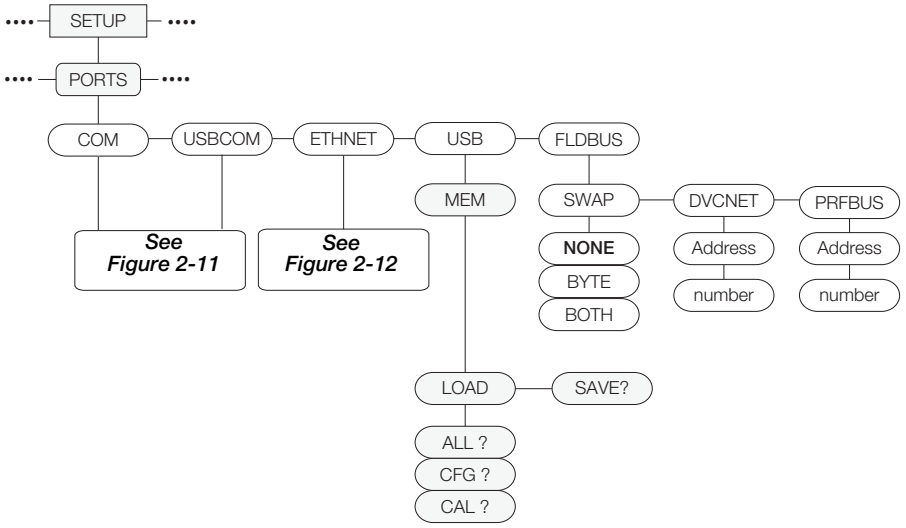


Figure 2-10. Ports Menu Structure

Com and USBCOM Menu

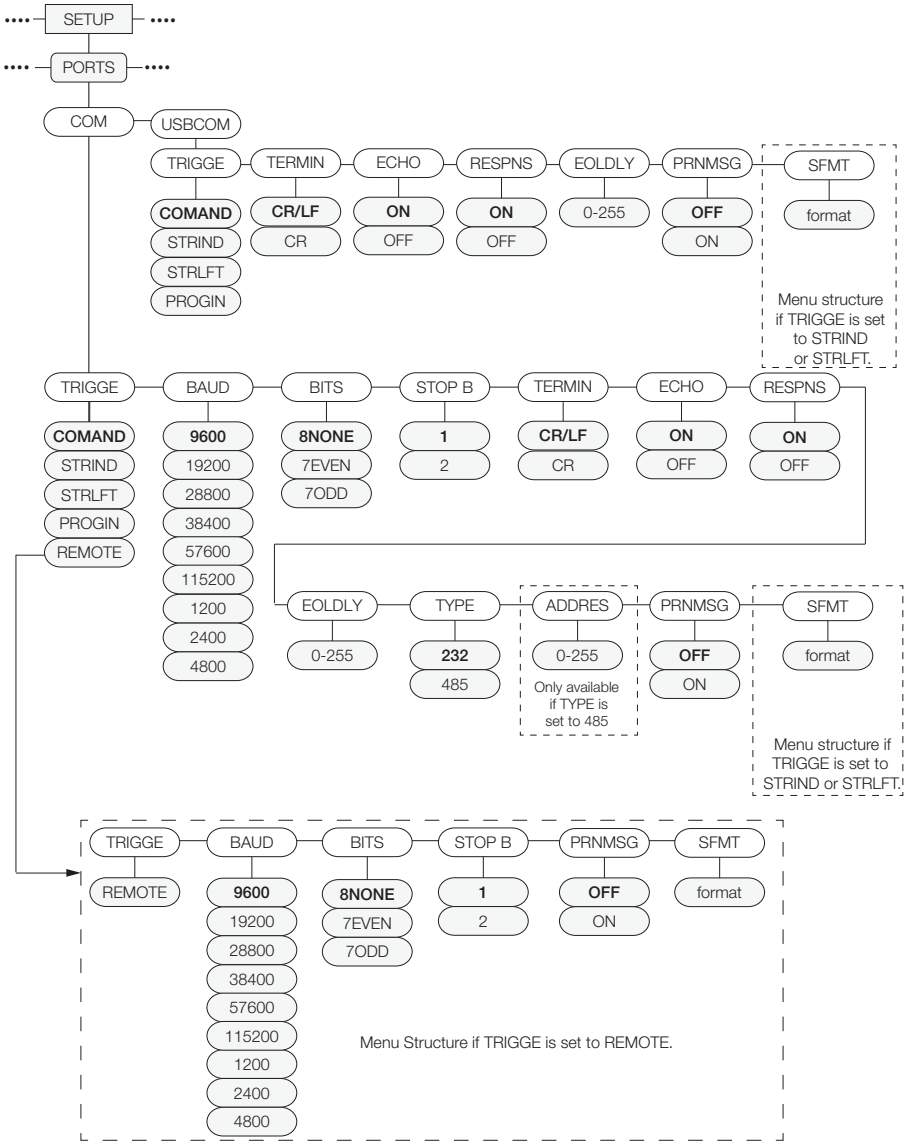


Figure 2-11. Com Menu Structure

2.2.6 Ethernet Communications Menu

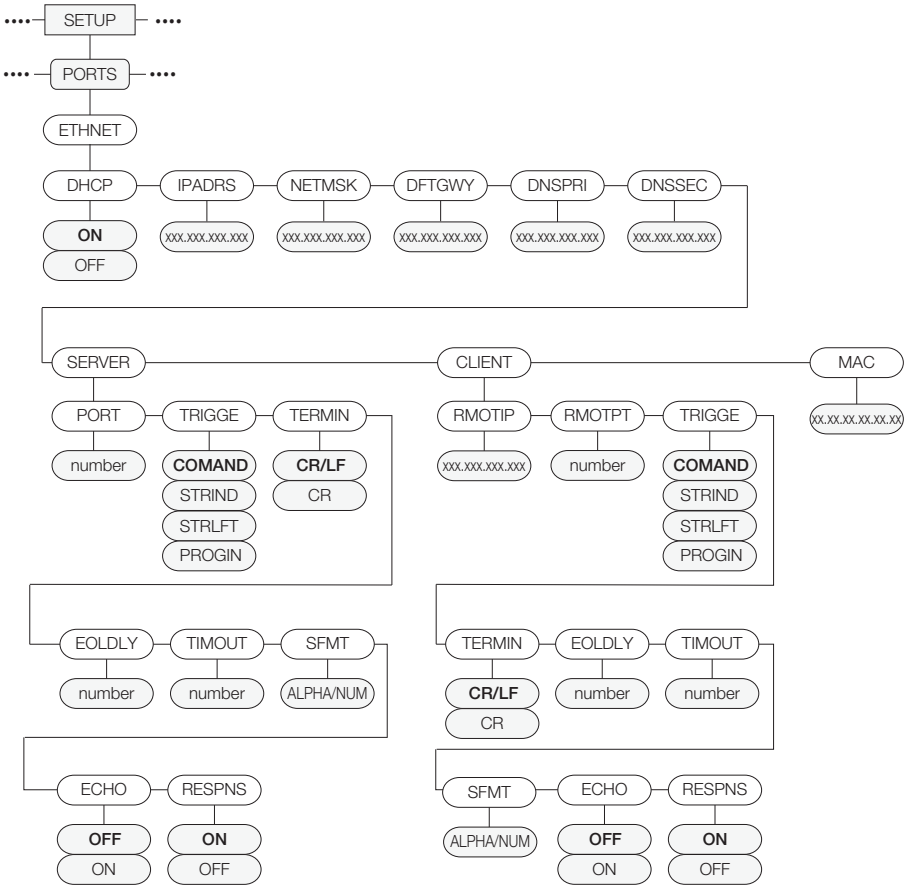


Figure 2-12. Ethernet Communications Menu Structure

2.2.7 USB Host

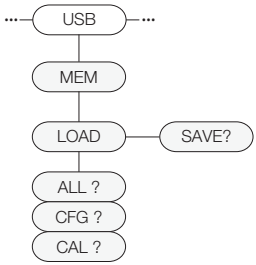


Figure 2-13. USB Host Menu Structure

2.2.8 Print Format Menu

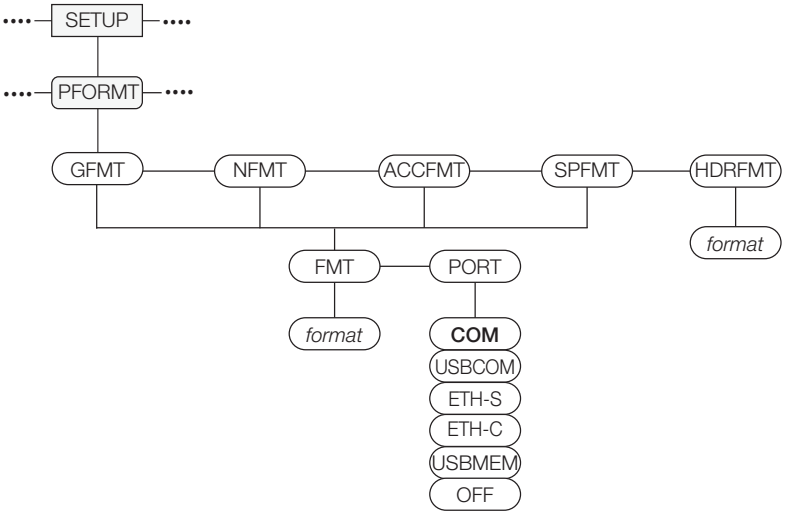


Figure 2-14. Print Format Menu Structure

Note ***See the 880 Technical Manual (158387) for port choice descriptions.***

2.2.9 Setpoint Menu

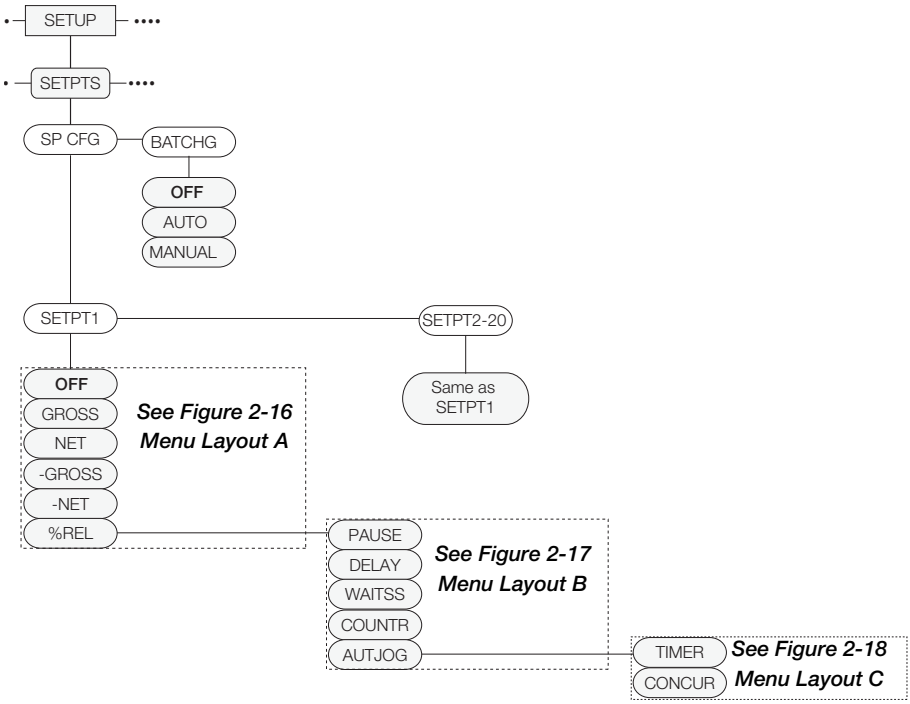


Figure 2-15. Setpoint Menu Structure

Setpoint Menu – Layout A

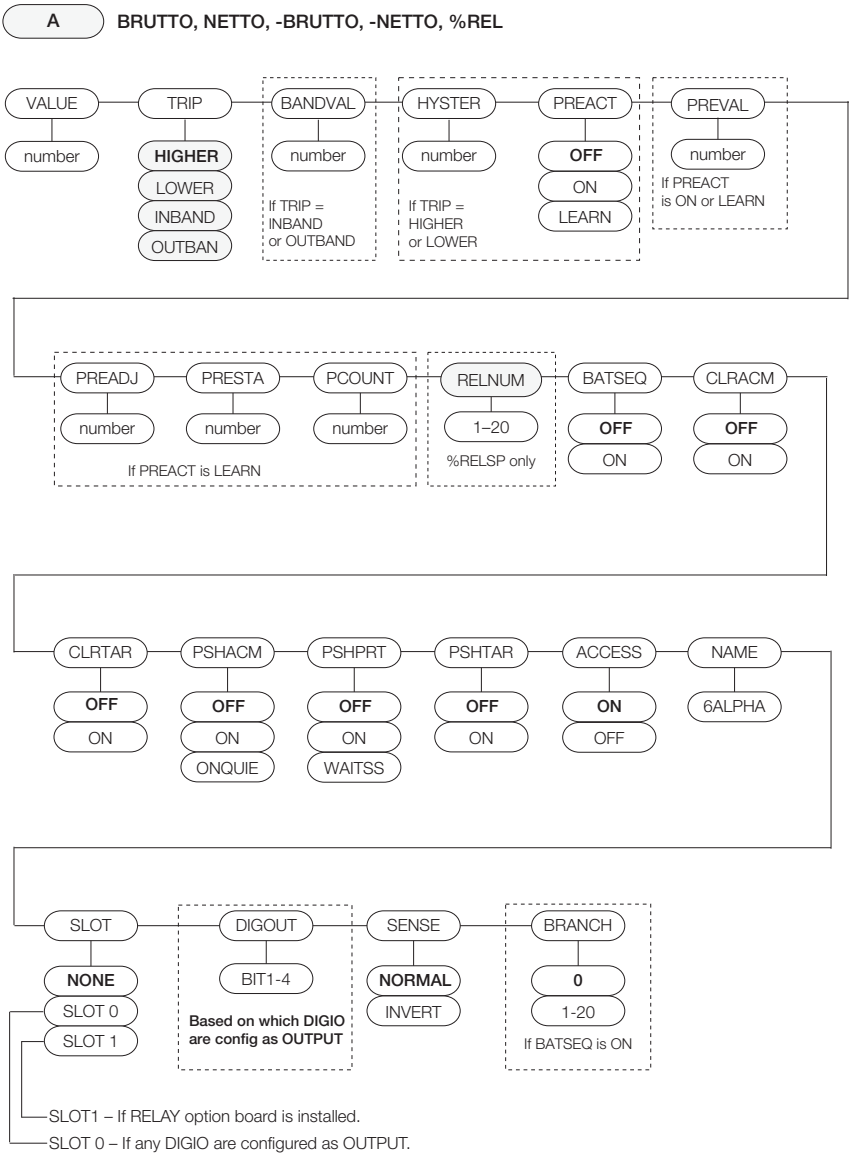


Figure 2-16. Setpoint Menu Structure – Layout A

Setpoint Menu – Layout B

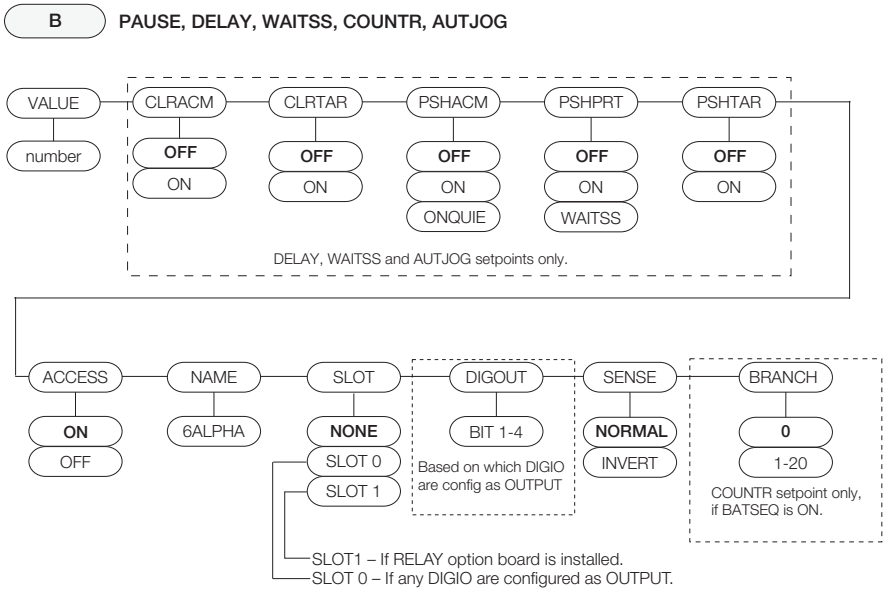


Figure 2-17. Setpoint Menu Structure – Layout B

Setpoint Menu – Layout C

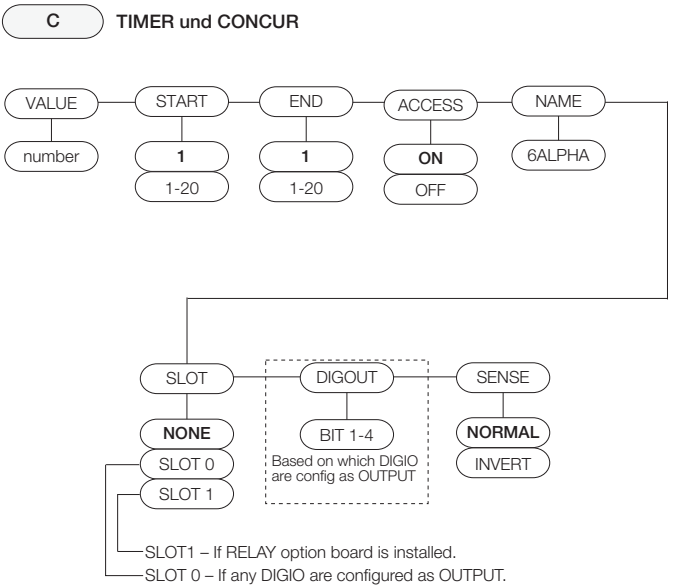


Figure 2-18. Setpoint Menu Structure – Layout C

2.2.10 Digital Input/Output Menu

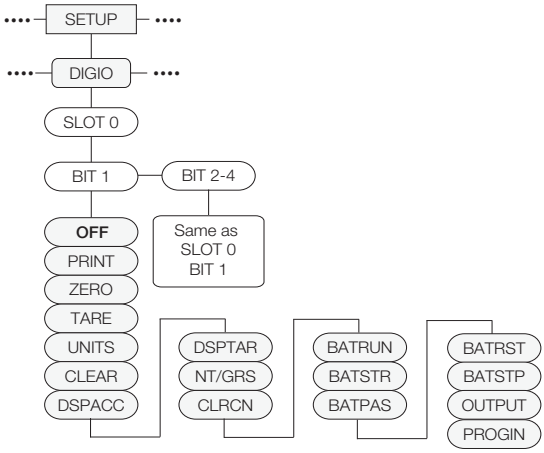


Figure 2-19. Digital Input/Output Menu Structure

2.2.11 Analog Output Menu

The ALGOUT menu is used only if the analog output option is installed. If the analog output option is installed, configure all other indicator functions and calibrate the indicator before configuring the analog output. See Technical/Service Manual for analog output calibration procedures.

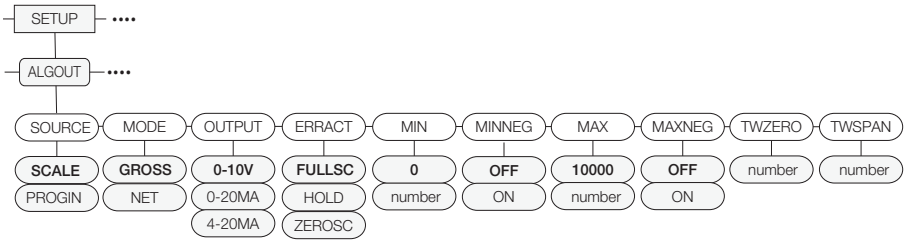


Figure 2-20. Analog Output Menu Structure

2.2.12 Version Menu

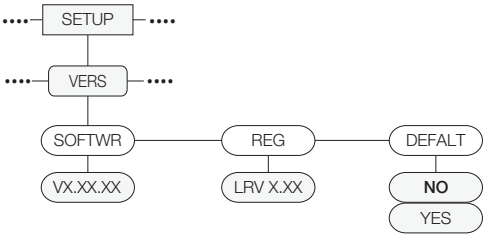


Figure 2-21. Version Menu Structure

3.0 Appendix

3.1 Displayed Error Messages

The *880* provides a number of front panel error messages to assist in problem diagnosis. Table 3-1 lists these messages and their meanings.

Error Message	Description	Solution
– – – – – –	Over range	Check for improper load cell wiring, configuration, calibration, scale hardware problems.
– – – – – –	Under range	
– – – – (center dashes)	A/D out of range Or if using local/remote (serial scale) - loss of serial scale data.	
CFGERR	Configuration error on power up if there was an error loading configuration	Press the Enter key to reboot the indicator.
ERROR	Internal program error	Check configuration.
HWFERR	Hardware failure error • on failure to write to the EEPROM • any error (except for a battery error or an accumulation over range error) when exiting the menu	Press the Enter key to reboot the indicator.
LOBATT	The low battery error flashes every 30 seconds when the battery is low.	Replace the battery.
NOTARE	Tare is prevented because of regulatory mode settings, the configuration of the TAREFN parameter, motion on the scale, etc.	Change regulatory mode settings or the TAREFN parameter.
RANGE	A numeric value entered in configuration is out of the acceptable range. The error is displayed momentarily – then parameter being edited is displayed so the value can be corrected.	Re-enter a value that is in range for the parameter being edited.
NO ZERO	Zero is prevented (due to regulatory mode settings, motion on the scale, zero range settings)	Check zero settings and for motion.

Table 3-1. 880 Error Messages

3.2 Specifications

Power

Line Voltages	Input Voltage – 100-240VAC, 9-36VDC
	Input Frequency – 47-63Hz
Power Consumption	AC: 15 watts
	DC: 20 watts

Analog Specifications

Full Scale Input Signal	-45 mV to +45 mV
Excitation Voltage	10 VDC ±, 8 x 350Ω or 16 x 700Ω load cells
Sense Amplifier	Differential amplifier with 4- and 6-wire sensing
Analog Signal Input Range	-45 mV to 45mV
Analog Signal Sensitivity:	
	0.3 µV/graduation minimum @ 7.5 Hz
	1.0 µV/graduation typical @ 120 Hz
	4.0 µV/graduation typical @ 960 Hz
A/D Sample Rate:	7.5 – 960Hz, software selectable
Input Impedance	200 MΩ, typical
Noise (Usable Minimum LSB)	0.3 µV p-p
Internal Resolution	8 000 000 counts @ 23 usable bits, approximate
Display Resolution	100 000 dd
Input Sensitivity	10 nV per internal count
System Linearity	±0.01% of full scale
Temperature	
Zero	±150 nV/°C, maximum
Span	±3.5 ppm/°C, maximum
Calibration Method	Software, constants stored in EEPROM
Common Mode	Voltage ±0.8V in unbalanced condition
Common Mode Rejection	120 dB minimum @ 50 or 60 Hz
Input Overload	± 12 V continuous, static discharge protected
EMI/RFI Protection	Signal, excitation, and sense lines protected by capacitor bypass and filtering elements
Optional Analog Output	Fully isolated, voltage or current output Voltage output: 0 –10 VDC Load resistance:1kΩ minimum Current output: 0-20 mA or 4–20 mA External loop resistance: 500Ω maximum

Digital I/O

I/O Channels	Up to 4, 5V/TTL, Active Low (0V), each software configurable as input or output
Relay Supply Voltage	5 VDC, 500mA maximum
Input Voltage	0–5.5V maximum
Digital Outputs	Active low, sink up to 24mA per output.
Optional	Four channel relay module, dry connect 3A @ 115VAC, 3A @ 30VDC

Serial Communications

RS-232	Full Duplex
RS-485	Half Duplex
USB	USB Type A Connector 2.0
	USB Micro A/B Connector 2.0
EtherNet	EtherNet TCP/IP

Operator Interface

Panel Mount

Keyboard 6-key membrane panel

Universal Mount

Keyboard 18-key membrane panel with a numerical keypad

Environmental

Operating Temperature	14°F to 104°F (–10 to +40°C) (legal-for-trade applications); 14°F to 122°F (–10 to +50°C) (industrial applications)
Storage Temperature	–25 to +70°C
Humidity	0–95% relative humidity

Enclosure

Panel Mount

Enclosure Dimensions	5.15 in x 3.88 in x 4.57 in (130 mm x 99 mm x 116 mm)
Weight	2.5 lb (1.2 kg)
Rating/Material	Display Bezel NEMA Type 4X, IP69K

Universal Mount

Enclosure Dimensions	6.7 in x 8.1 in x 4.3 in (170 mm x 206 mm x 110 mm)
Weight	7.5 lb (190 kg)
Rating/Material	Display Bezel NEMA Type 4X, IP69K

Certifications and Approvals

NTEP
CoC Number:13-080
Accuracy ClassIII/IIILn_{max}: 10 000

Measurement Canada
Approval: AM-5931C
Accuracy Class III/IIIHD n_{max}: 10 000

File Number: Pending
Panel Mount only. Universal pending.

UL Listings

Universal Model
File Number: E151461

Panel Mount Model
File Number: E151461, Vol 2

The 880 DC indicator must be connected to a class 2 power source in accordance with the NEC (National Electrical Code) and local regulations. See equipment data plate for power requirements.

Notes

Notes

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