880 Performance™ Series

Controller/Indicator

Operation Manual

RICE LAKE
WEIGHING SYSTEMS

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PN 152240 Rev A

Contents

1.0 Introduction

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

IMPORTANT

Use caution when inserting the non-conductive tool into the backplate, press the tool in about 3/4", using the board as a guide, until the switch is engaged (a gentle click is felt). Do not use excessive force that may damage the switch. Information contained within this manual is exclusively for units with CPU board, PN 175109 (blue in color). See Section 2.0 on page 15 for drawing and replacement part information.

The 880 Technical Manual (PN 158387) is referred to in this manual is available online at **www.RiceLake.com**.

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

Warranty information can be found at **www.RiceLake.com/warranties**

1.1 Safety

Safety Signal Definitions:

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

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

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

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

General Safety

Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Contact any Rice Lake Weighing Systems dealer for replacement manuals.

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 5.0 on page 32.***

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.

1.2 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, 0-20 mA or 4–20 mA tracking of gross or net weight values
- Optional four channel relay module, dry connect 3 A at 115 VAC, 3 A at 30 VDC
- 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

1.3 Operating Modes

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

1.3.1 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.

1.3.2 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. ***SCALE*** displays.

IMPORTANT ***Breaking the seal to enter configuration mode voids a Legal for Trade unit.***

1.3.3 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

The front panel consists of a six-button keypad and a six-digit, 14-segment LED display. The Universal front panel includes a numeric key pad.

The numeric display consists of six, 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.

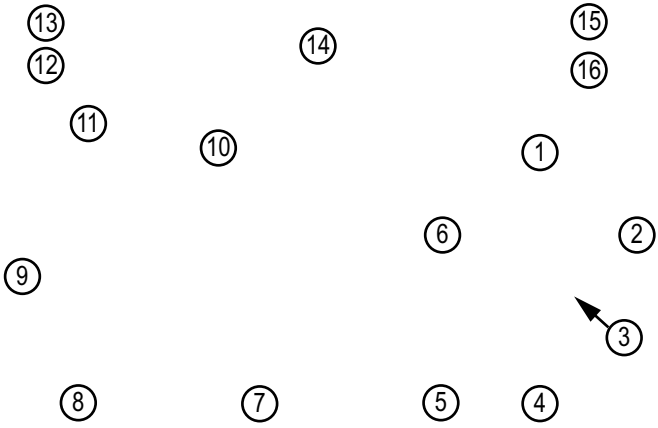


Figure 1-1. 880 Front Panel Display (Universal Model)

Item No.	Function
1	Sets the current gross weight to zero; used to navigate to other menus or to select another digit when editing a value
2	Sends an on-demand print format to a communications port, provided the conditions for standstill are met; if enabled in configuration, ***Print*** may displayed while the unit is printing; used to navigate to other menus or select another digit when editing a value
3	Performs several predetermined tare functions dependent on the mode of operation selected in the **TAREFN**; acts as enter for numeric or parameter entry
4	Toggles displayed weight 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; used to navigate to different menus or to select another digit when editing a value
5	Allows access to the user setup menu; also acts as the cancel key when editing parameter values, or **Exit** key when in the configuration or user setup menus
6	Switches the weight display to an alternate unit, defined in the format menu, see Section 3.2.4 on page 40; units available: lb, kg, oz, metric ton, ton, gram; used to navigate to different menus or to select another digit when editing a value
7	Clears a numeric entry from the LCD (not available with the panel mount)
8	Inserts a decimal point where necessary (not available with the panel mount)
9	The numeric keypad can be used to enter values; values may also be entered by scrolling through values with the arrow keys (not available with the panel mount)
10	R1, Rs, R3
11	Scale is at standstill or within the specified motion band; some operations, including Zero, Tare and Printing, can only be completed LED is lit
12	Indicates the current gross weight reading is within ±0.25 display divisions of the acquired zero, or is within the center of zero band; a display division is the resolution of the displayed weight value, or the smallest incremental increase or decrease which can be displayed or printed
13	Gross weight mode (or Brutto in OIML mode)
14	Net weight mode
	lb/kg LED – the lb and kg annunciators indicate the units associated with the displayed value. If the displayed value is pounds, lb lights; if the displayed value is kilograms, kg lights; primary or secondary – if the other units value is neither lb or kg then lb lights for the units assigned as primary, and kg lights for the units assigned as secondary; lb/tn, t, oz, g, or none – alternate conversions which 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 conversions, and the other unit value is lb then kg lights; tn, t, oz, g, or none – alternate conversions which 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 conversions, and the other unit value is kg then lb lights
16	T LED – indicates a tare has been acquired and stored by the system; PT LED – indicates a preset tare weight has been keyed in or entered via the EDP serial port

Table 1-1. Key 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

1.5.1 Navigating Through Levels

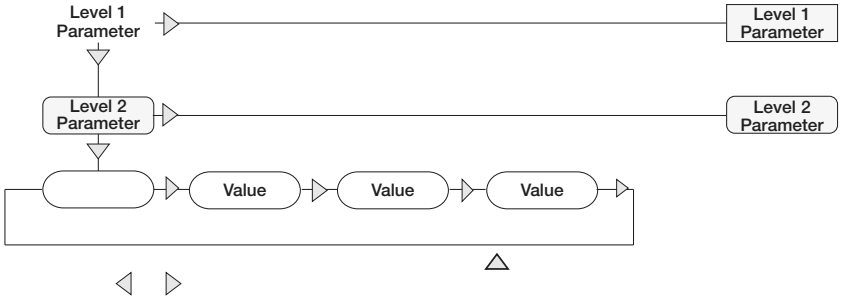


Figure 1-2. Setup Mode Menu Navigation

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

1.5.2 Edit Parameter Values

To change a parameter value, scroll left or right to view the values for a parameter.

When the desired value displays, press 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 begins flashing if a decimal value is allowed. Use the navigation keys to move the decimal point left or right. Press when done.

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

1.5.3 Alphanumeric Entry Procedure

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

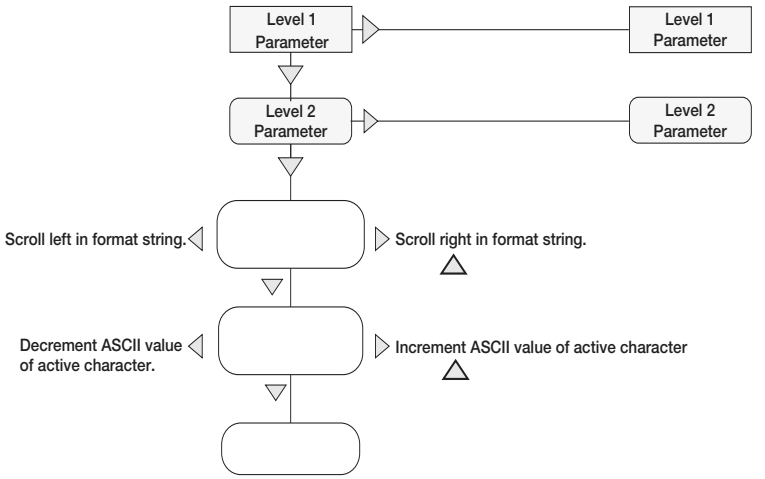


Figure 1-3. Editing Procedure for Numeric Values

1.5.4 Numeric Values Editing Procedure (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).

Figure 1-4. Numeric Keypad

1. Using the numeric keypad, insert the required value.
   - Press to clear the currently selected digit
   - Press to enter a decimal point
2. Press 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 to toggle the display mode between gross and net.

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 to switch between primary and secondary units. The current units LED lights.

1.6.3 Zero Scale

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

The scale must be stable and within the configured zero range for the scale to be zeroed. If the scale cannot be zeroed, Nozero displays.

1.6.4 Acquire Tare

1. Place a container on the scale and wait for the ◣ ◢ LED to light.
2. Press to acquire the tare weight of the container. The Net weight is displayed and the **T** LED lights to display 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 to zero the scale if needed.
3. Press (or in OIML mode). Display shifts to gross weight and the Gross LED is lit.

If keyed tares are allowed, press to open the keyed tare prompt.

To clear the tare, press 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 . ***000000*** displays 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 to move to the decimal point entry
- Press ◁ or ▷ to adjust the decimal point placement
- Press when the value is correct

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

Entering a keyed tare of zero removes the stored tare value.

1.6.7 Print Ticket

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

1.6.8 Front Panel User Setup

Press 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 . ***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 to return to ***Calib***.
6. Press ▷ to display ***CFG***.
7. Press ▽ to view the Configuration Counter.
8. Press to return to ***CFG***.
9. Press 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 voids 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.
7. Select the type by pressing ◁ or ▷ to desired setting then press ▽ to set the value. For complete list of settings see the 880 Technical Manual (PN 158387) for more information.
8. When all settings have been made, press to return to weigh mode.

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

1.6.11 Display or Edit Setpoint Value

1. Press . ***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 which 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 to move to the decimal point entry

• Press ◁ or ▷ to adjust the decimal point placement

8. Press to accept the displayed value.
9. Repeat the above steps to set ***Preact***, if enabled.
10. When all settings have been made, press to return to weigh mode.

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.

1.6.12 Turn Setpoint On or Off

Turn a setpoint off at the front panel.

1. Press . ***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 which is operator accessible.
5. Press ▽ then press ◁ or ▷ to **Enable**.
6. Press ▽ then press ◁ or ▷ to turn setpoint **On/Off**.
7. Press to accept the setting.
8. Press to return to weigh mode.

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.

1.6.13 Set Time and Date

1. Press . ***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 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 when the value is correct. ***Time*** is displayed.
10. Press to return to weigh mode.

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

Accum is only displayed if the accumulator is enabled. See the 880 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 to print the value.

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

1.6.15 Clear the Accumulator

1. Press 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 to clear the accumulator. ***Clear*** displays briefly and returns to ***CLR Y***.
5. Press 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.

1.6.16 Display Tare

When a stored Tare value is displayed, the Gross and Net LEDs turn off then →0← lights.

To display a stored tare:

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

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

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

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 2-1. 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.

IMPORTANT ***Use caution when inserting the non-conductive tool into the backplate, press the tool in about 3/4", using the board as a guide, until the switch is engaged. Do not use excessive force that may damage the switch.***

Note ***If audit trail is enabled, press to access setup mode. Press ◁ or ▷ until SETUP displays then press ▽ to Scale. See the 880 Technical Manual (PN 158387) for more information.***

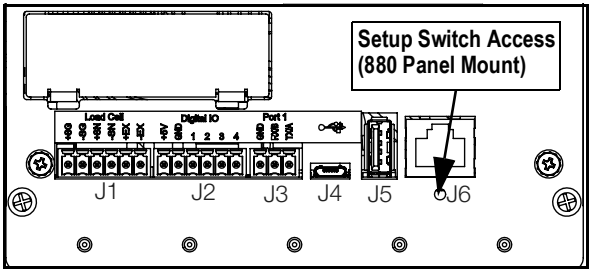


Figure 2-1. Back View – Setup Switch Access

When the indicator is placed in configuration mode, **SCALE** displays. 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 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. When Revolution configuration is complete, configuration data is downloaded to the indicator.

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

2.1.2 EDP Command Configuration

The EDP command set can be used to configure the 880 indicator using either a computer or terminal. Like Revolution, EDP command configuration sends commands to the indicator EDP port; unlike Revolution, EDP commands can be sent using an 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.

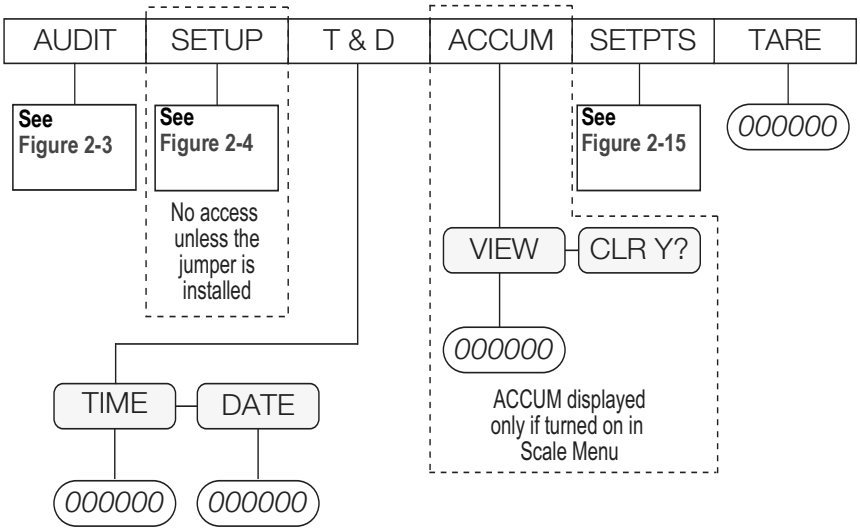


Figure 2-2. 880 Menu Layout

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 setpoints; 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 chosen under each parameter are arranged horizontally. To save page space, menu settings display in vertical columns. The factory default setting display at the top of each column and is bold. Parameters are surrounded by a dotted-line box display under the special circumstances explained under each box.

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

2.2.1 Audit Menu

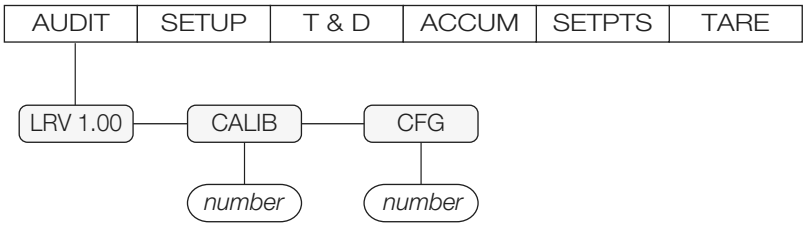


Figure 2-3. Audit Menu Structure

Parameter	Choices	Description
LRV	**---**	Legally relevant firmware version
CALIB	**000000**	Displays total calibration events (read only)
CFG	**000000**	Displays total configuration events (read only)

Table 2-2. Audit Menu Parameters

2.2.2 Setup Menu

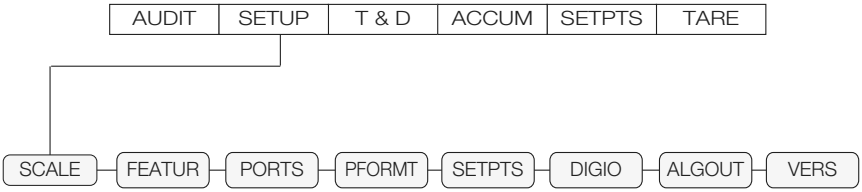


Figure 2-4. Setup Menu Structure

2.2.3 Scale Menu

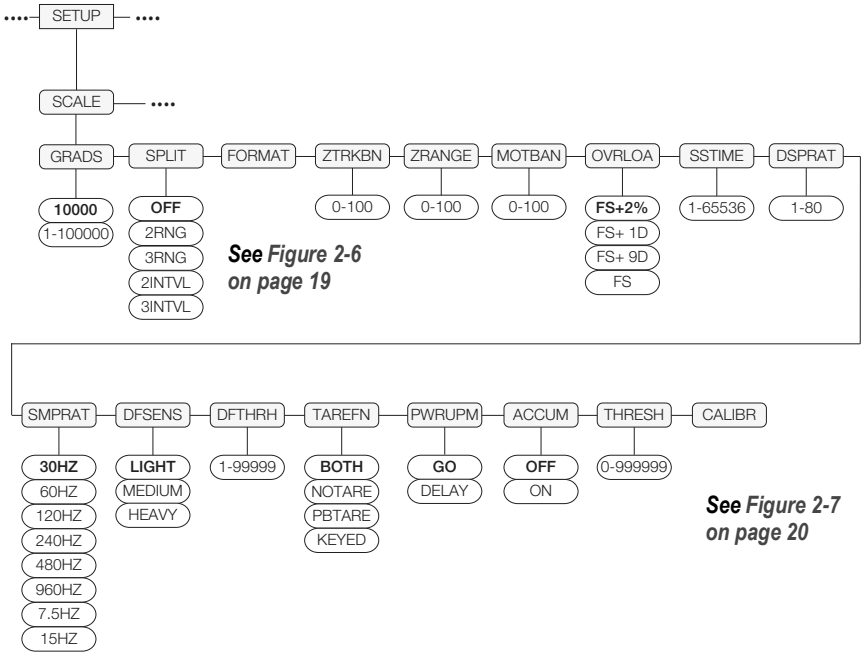
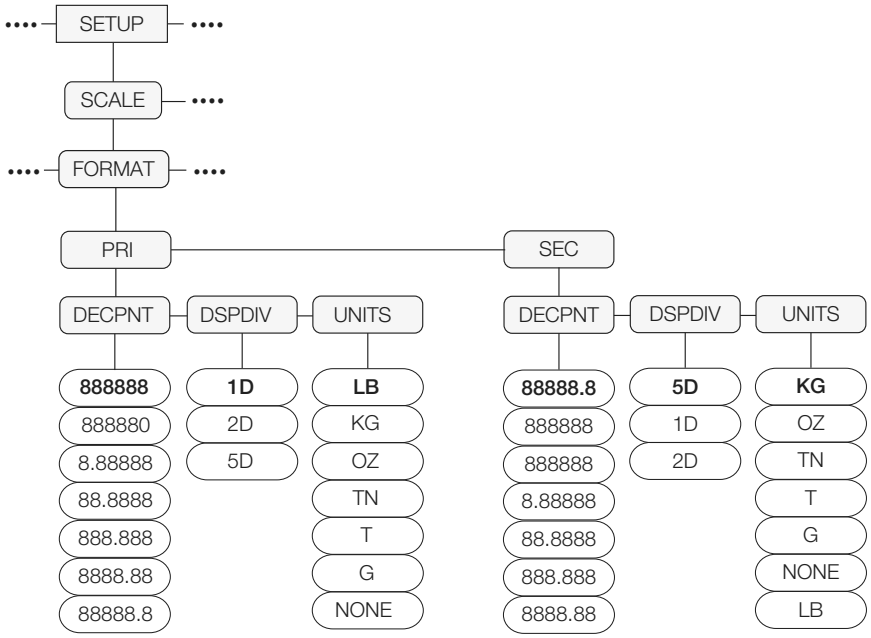
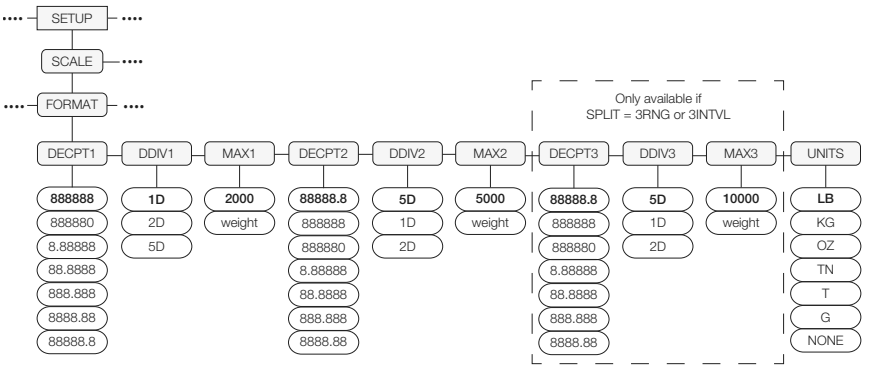


Figure 2-5. Scale Menu Structure

2.2.4 Format Menu



If SPLIT = OFF



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

Figure 2-6. Format Menu Structure

2.2.5 Calibration Menu

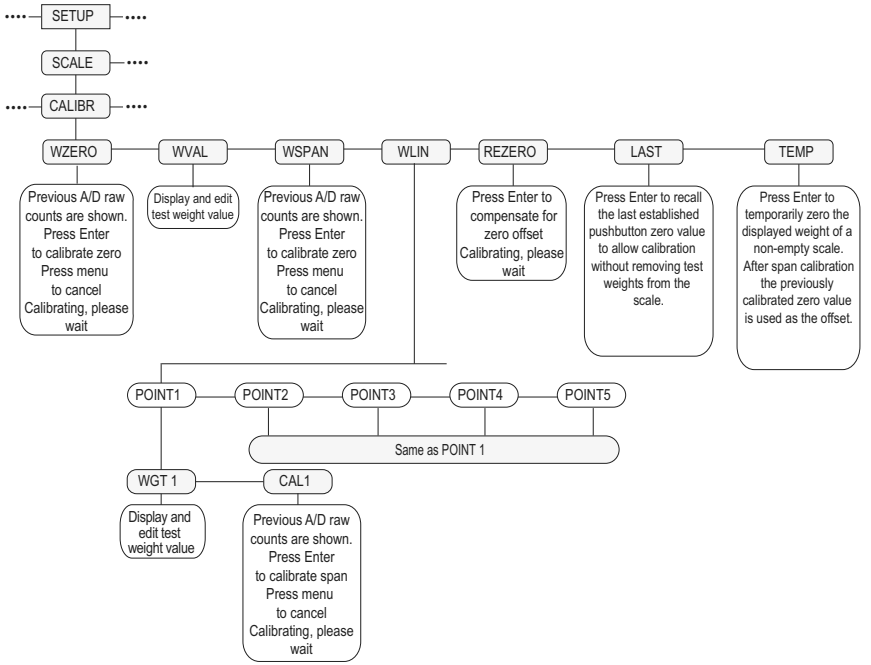


Figure 2-7. Calibration Menu Structure

2.2.6 Feature Menu

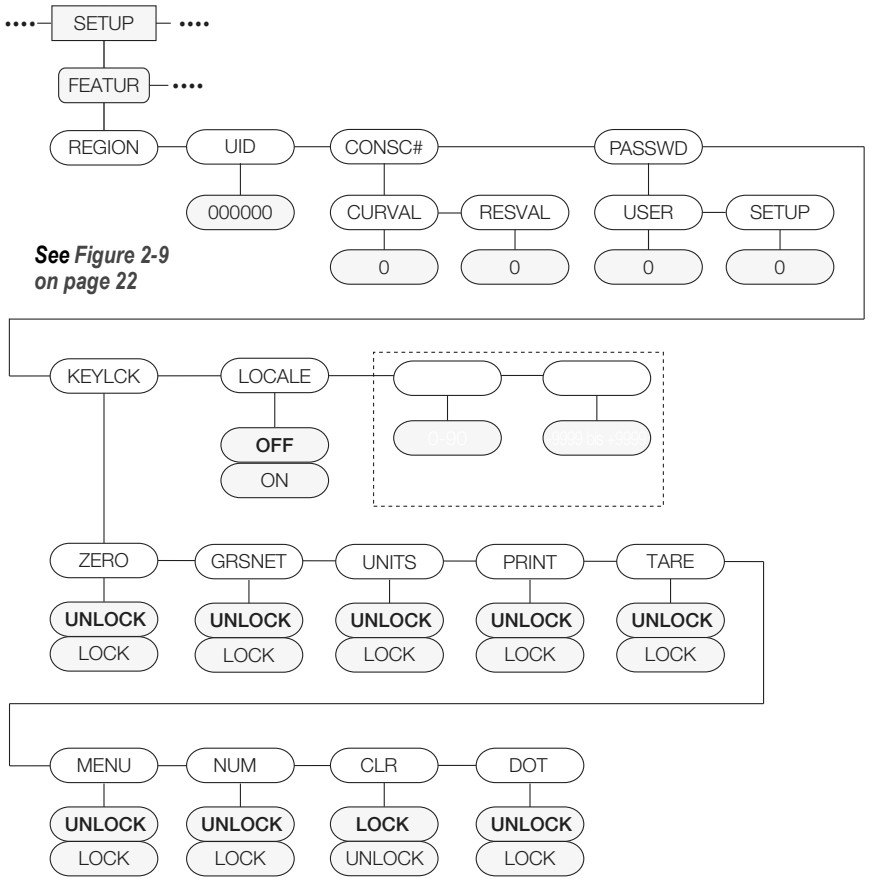


Figure 2-8. Feature Menu Structure

2.2.7 Region Menu

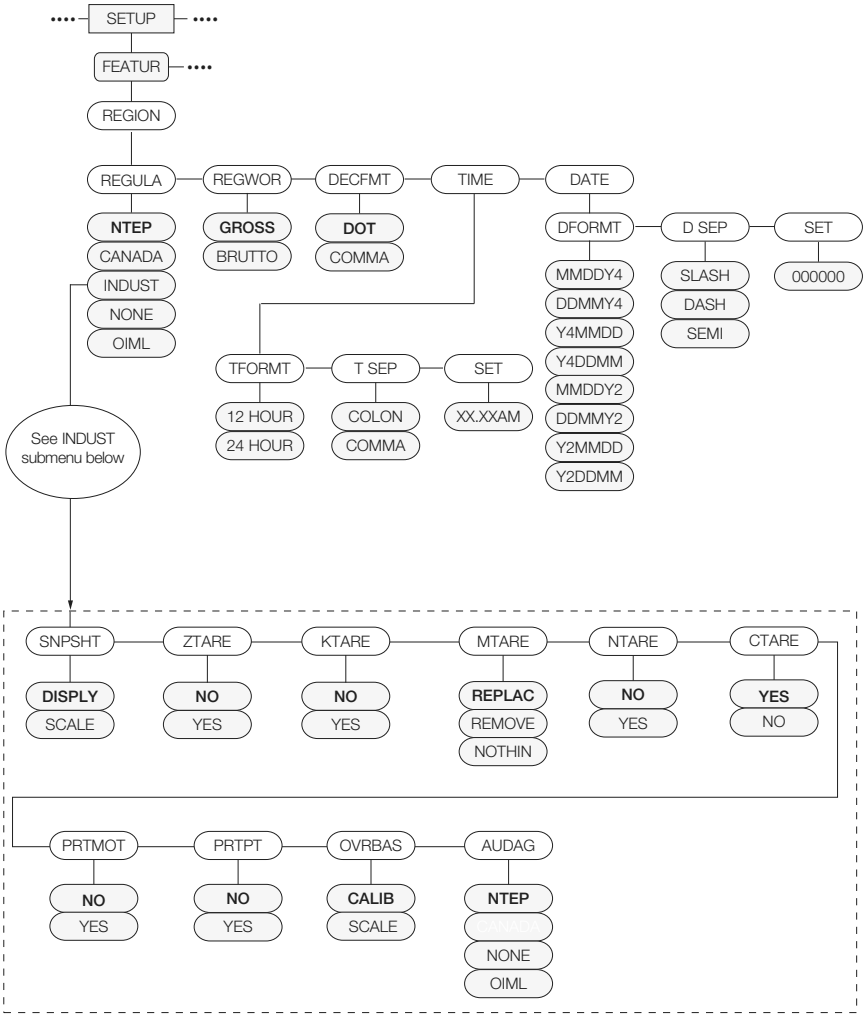


Figure 2-9. Region Menu Structure

2.2.8 Ports Menu

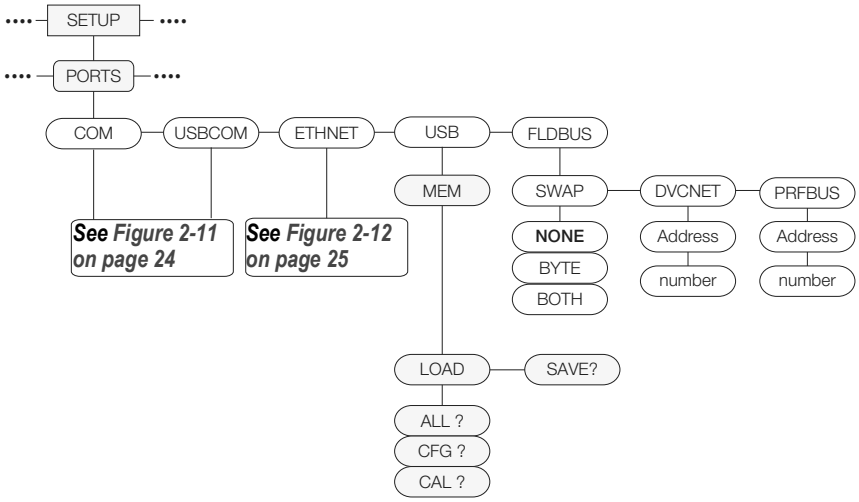


Figure 2-10. Ports Menu Structure

2.2.9 Com and USBCOM Menu

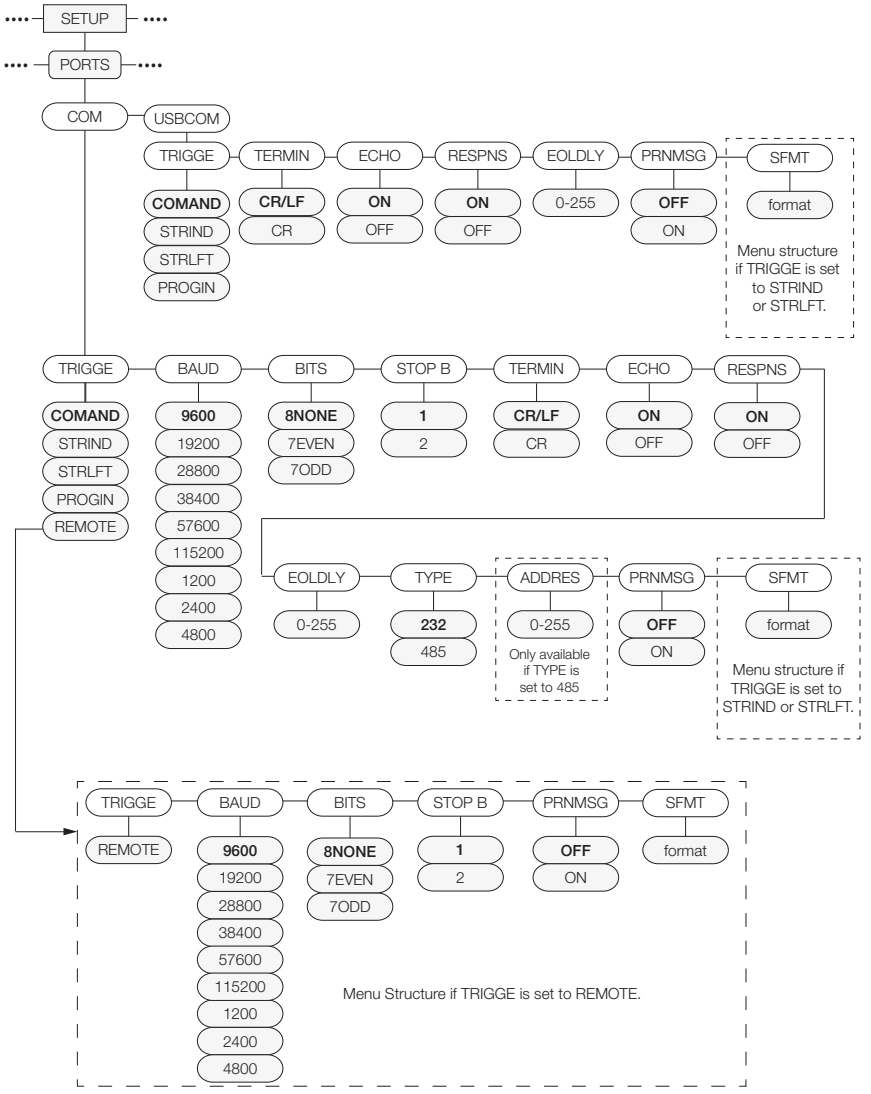


Figure 2-11. Com Menu Structure

2.2.10 Ethernet Communications Menu

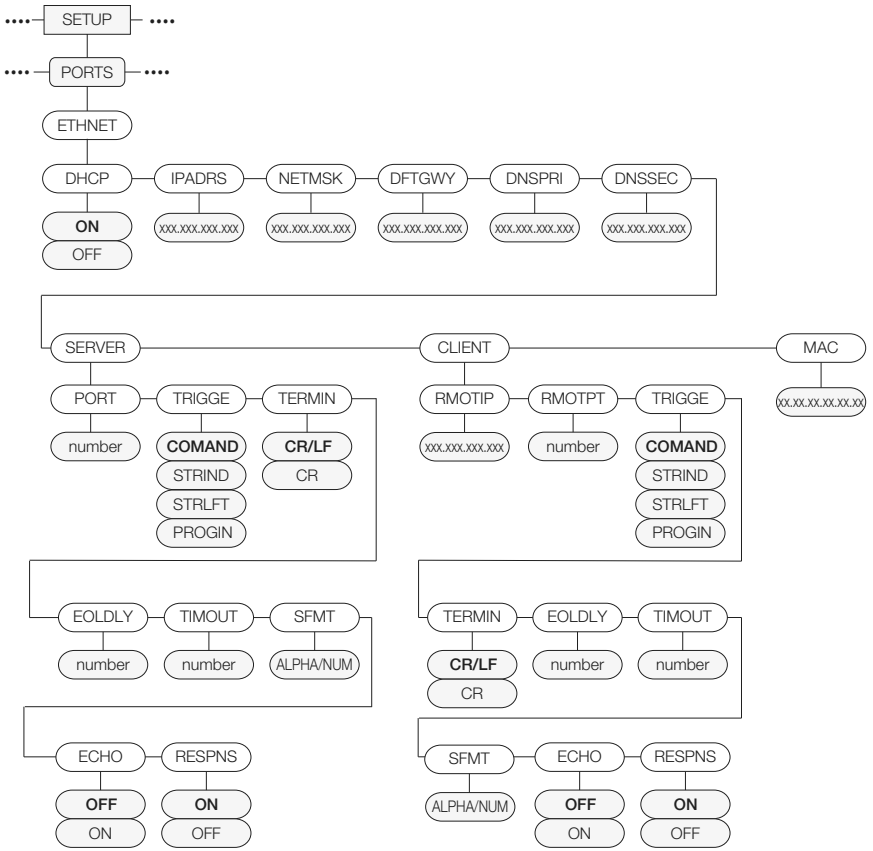


Figure 2-12. Ethernet Communications Menu Structure

2.2.11 USB Host

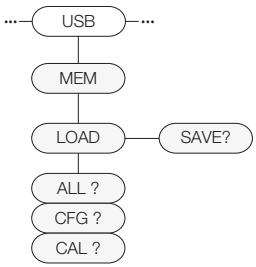


Figure 2-13. USB Host Menu Structure

2.2.12 Print Format Menu

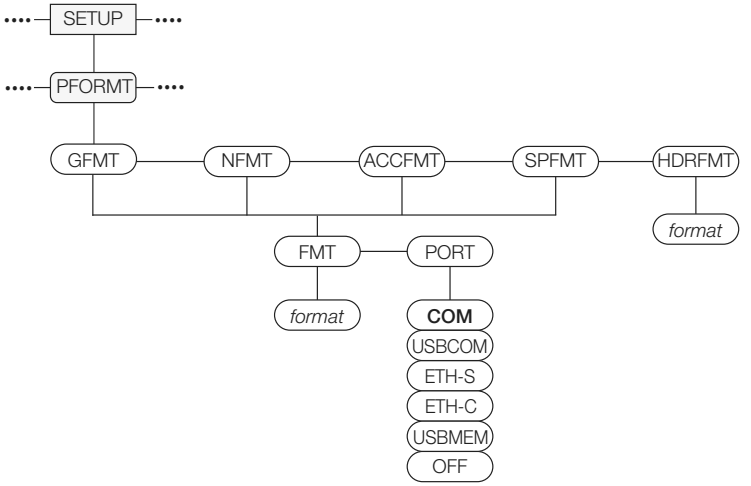


Figure 2-14. Print Format Menu Structure

2.2.13 Setpoint Menu

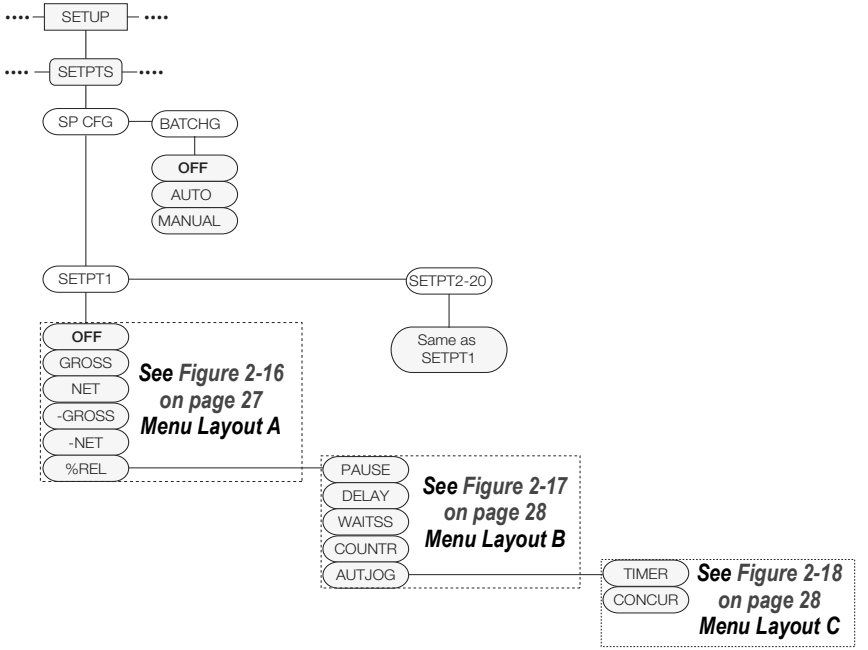


Figure 2-15. Setpoint Menu Structure

Setpoint Menu – Layout A

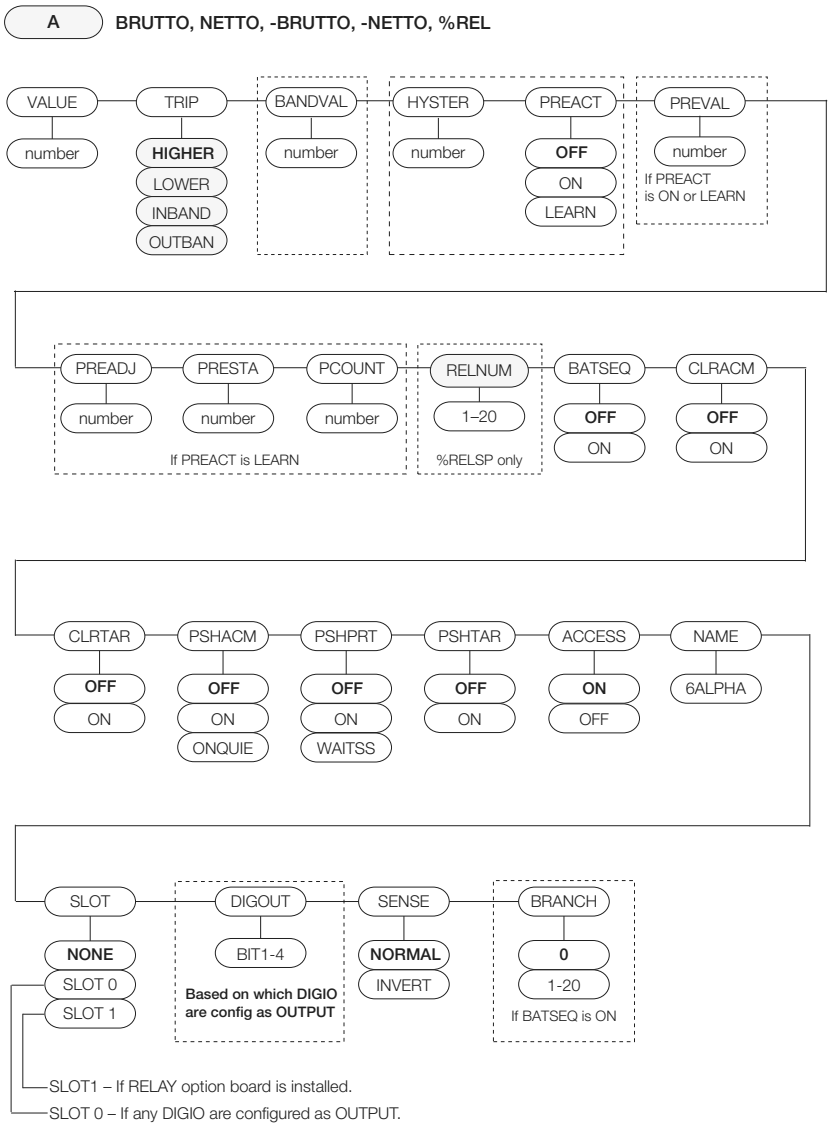


Figure 2-16. Setpoint Menu Structure – Layout A

Setpoint Menu – Layout B

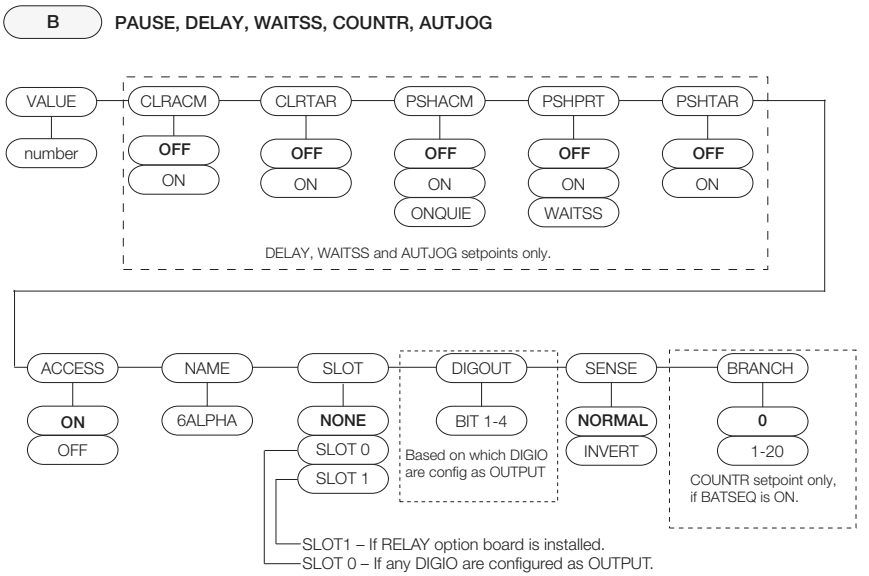


Figure 2-17. Setpoint Menu Structure – Layout B

Setpoint Menu – Layout C

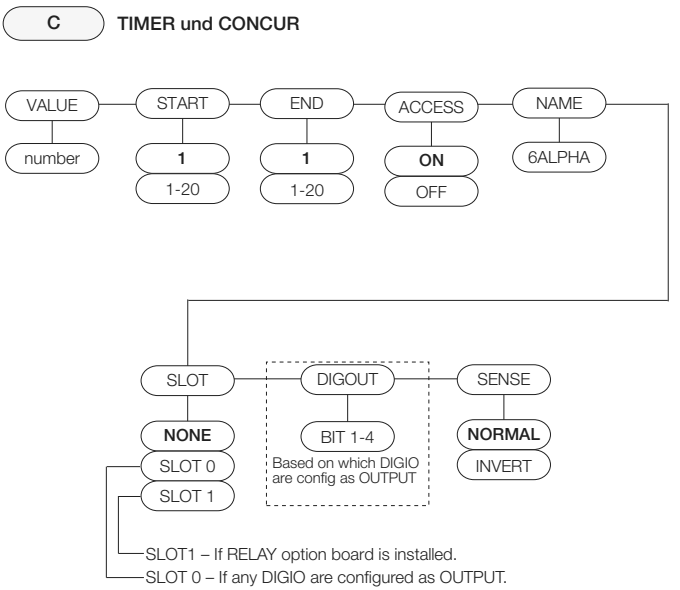


Figure 2-18. Setpoint Menu Structure – Layout C

2.2.14 Digital Input/Output Menu

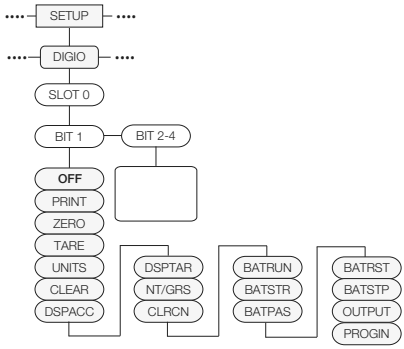


Figure 2-19. Digital Input/Output Menu Structure

2.2.15 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.

Minimum calibration occurs at 0.5V and 1mA for a 0-10 V and 0-20 mA output respectively.
For analog output board PN 131601, ensure SW2 switch is in the ON position if installed onto the blue CPU board (PN 175109) or in the OFF position if installed onto the green CPU board (PN 131597). The SW2 switch is located on the backside of the analog output card.
This information does not apply for analog output board PN 164704.

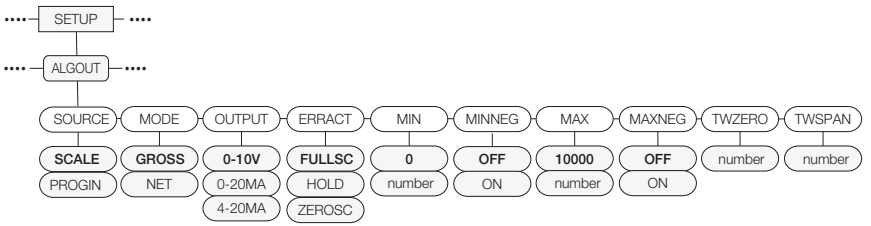


Figure 2-20. Analog Output Menu Structure

2.2.16 Version Menu

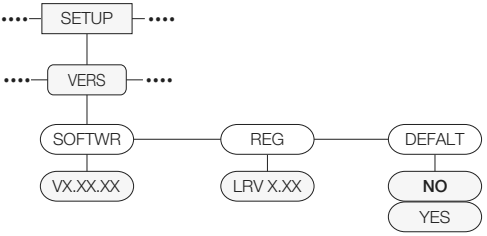


Figure 2-21. Version Menu Structure

3.0 Troubleshooting

This section provides an overview of common troubleshooting procedures.

3.1 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; 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 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, and others	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 – the parameter being edited displays, allowing the value to be corrected	Re-enter a value which 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

4.0 Compliance

EU DECLARATION OF CONFORMITY

EU-KONFORMITÄTSERKLÄRUNG
DÉCLARATION UE DE CONFORMITÉ

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

Type/Typ/Type: 880 indicator series

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

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

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

EU Directive	Certificates	Standards Used / Notified Body Involvement
2014/30/EU EMC	-	EN 55011:2009+A1:2010, EN 61326-1:2006
2014/35/EU LVD	-	IEC 60950-1 ed.2
2011/65/EU RoHS	-	EN 50581:2012

Signature: Richard Shipman

Type Name: Richard Shipman

Title: Quality Manager

Place: Rice Lake, WI USA

Date: May 3, 2019

5.0 Specifications

Power

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

Analog Specifications

Full Scale Input Signal	-45 mV–+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–45 mV
Analog Signal Sensitivity	0.3 µV/graduation minimum at 7.5 Hz
	1.0 µV/graduation typical at 120 Hz
	4.0 µV/graduation typical at 960 Hz
A/D Sample Rate	7.5–960 Hz, software selectable
Input Impedance	200 MW, typical
Noise	
(Usable Minimum LSB)	0.3 µV p-p
Internal Resolution	8,000,000 counts at 23 usable bits, approximate
Display Resolution	100 000 dd
Input Sensitivity	10 nV per internal count
System Linearity	±0.01% of full scale
Temperature	0±150 nV/°C, maximum
Span	±3.5 ppm/°C, maximum
Calibration Method	Software, constants stored in EEPROM
Common Mode	Voltage ±0.8 V in unbalanced condition
Common Mode	Rejection 120 dB minimum at 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:1 kΩ minimum
	Current output: 0–20 mA or 4–20 mA
	External loop resistance: 500Ω maximum

Digital I/O

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

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

Enclosure

Panel Mount	
Enclosure Dimensions	5.15" x 3.88" x 4.57"
	(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" x 8.1" x 4.3"
	(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 ClassIII/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.

The 880 complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

230 W. Coleman St. • Rice Lake, WI 54868 • USA
U.S. 800-472-6703 • Canada/Mexico 800-321-6703 • International 715-234-9171 • Europe +31 (0)26 472 1319