

# 480 Legend Series

---

*Digital Weight Indicator  
Version 1.05*

## Operation Manual



**RICE LAKE**<sup>®</sup>  
WEIGHING SYSTEMS

October 3, 2019

PN 163374 Rev D

An ISO 9001 registered company  
© Rice Lake Weighing Systems. All rights reserved.

Rice Lake Weighing Systems® is a registered trademark of  
Rice Lake Weighing Systems.

All other brand or product names within this publication are trademarks or registered  
trademarks of their respective companies.

All information contained within this publication is, to the best of our knowledge, complete and  
accurate at the time of publication. Rice Lake Weighing Systems reserves the right to make  
changes to the technology, features, specifications and design of the equipment without notice.

The most current version of this publication, software, firmware and all other product updates  
can be found on our website:

[www.ricelake.com](http://www.ricelake.com)

# Contents

<b>1.0</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Safety .....	2
1.2	Operating Modes .....	3
1.3	Front Panel Display .....	3
1.3.1	Key Functions .....	4
1.3.2	Annunciator Functions .....	5
1.4	Front Panel Key Functions .....	6
1.4.1	Navigating Through Levels .....	6
1.4.2	Edit Parameter Values .....	7
1.4.3	Numeric Keypad - Editing Procedure (480Plus Only) .....	7
1.5	Indicator Operations .....	8
1.5.1	Status Lights While in Various Menus .....	8
1.5.2	Zero Scale .....	8
1.5.3	Toggle Units .....	8
1.5.4	Acquire Tare .....	8
1.5.5	Preset Tare (Keyed Tare) .....	9
1.5.6	Display Tare .....	9
1.5.7	Print Ticket .....	10
1.5.8	Toggle Gross/Net Mode .....	10
1.5.9	View Audit Trail .....	10
1.5.10	Enter New Unit ID .....	11
1.5.11	Display Accumulator .....	11
1.5.12	Display or Change Time and Date .....	12
1.5.13	Display, Edit and Set Setpoint Value .....	13
1.5.14	View Firmware Version .....	13
1.5.15	Enter User Password .....	14
<b>2.0</b>	<b>User Menus .....</b>	<b>15</b>
<b>3.0</b>	<b>Appendix .....</b>	<b>20</b>
3.1	Error Messages .....	20
3.2	Regulatory Mode Functions .....	22
3.3	Compliance .....	23
3.4	Specifications .....	24



Technical training seminars are available through Rice Lake Weighing Systems. Course descriptions and dates can be viewed at [www.ricelake.com/training](http://www.ricelake.com/training) or obtained by calling 715-234-9171 and asking for the training department.



*Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit [www.ricelake.com/webinars](http://www.ricelake.com/webinars).*

# 1.0 Introduction

---

The 480 is a single-channel digital weight indicator housed in a NEMA Type 4X/IP66-rated stainless steel enclosure. The indicator front panel consists of a large (.8 in, 20 mm), six-digit, seven-segment LED display and seven-button keypad.



Manuals can be viewed or downloaded from the Rice Lake Weighing Systems website at [www.RiceLake.com](http://www.RiceLake.com).

Warranty information can be found on the website at [www.ricelake.com/warranties](http://www.ricelake.com/warranties)

## Features

- Auto switching AC power supply 115 VAC to 230 VAC, 50-60 Hz.
- Drives up to ten 350 $\Omega$  or twenty 700 $\Omega$  load cells.
- Supports four and six wire load cell connections.
- Two communications ports with Demand or Continuous outputs.
- Optional analog output module provides 0–10/2–10 VDC or 0–20/4–20 mA tracking of gross or net weight values.
- Optional digital I/O card, four outputs/two inputs for setpoints and key functions.
- Unit ID up to six numeric, operator entered.
- Accumulator with report and clear.
- Time and date.
- Audit trail tracking.

## Supported Applications

- Custom Ticket Printing: Gross, Net & Setpoint format can be customized up to 300 characters and print Time and Date, Unit ID, and Consecutive Ticket Number.
- Basic Weighing: Gross or net mode with operator menu to other functions.
- Accumulation: Weights are totaled, with armed print function.
- Batching: Up to eight batch steps with latched or continuous outputs for Gross, Net, Delay setpoint. Actions include trip high or low, wait for standstill, print, accumulate and tare.
- Keyed Tare: Preset tare value can be entered when the gross weight is at zero.
- Local/Remote: Remote unit displays weight and transmits key press commands to the local unit.

## 1.1 Safety

### Safety Signal Definitions:



*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.*



*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.*



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



*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.*



*Failure to heed may result in serious injury or death.*

***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.

***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 Operating Modes

The 480 has two modes of operation:

### Weigh Mode

The indicator displays gross or net weights as required, using the annunciators described in [Section 1.3.2 on page 5](#) to indicate scale status and the type of weight value displayed.

### User Menu Setup Mode

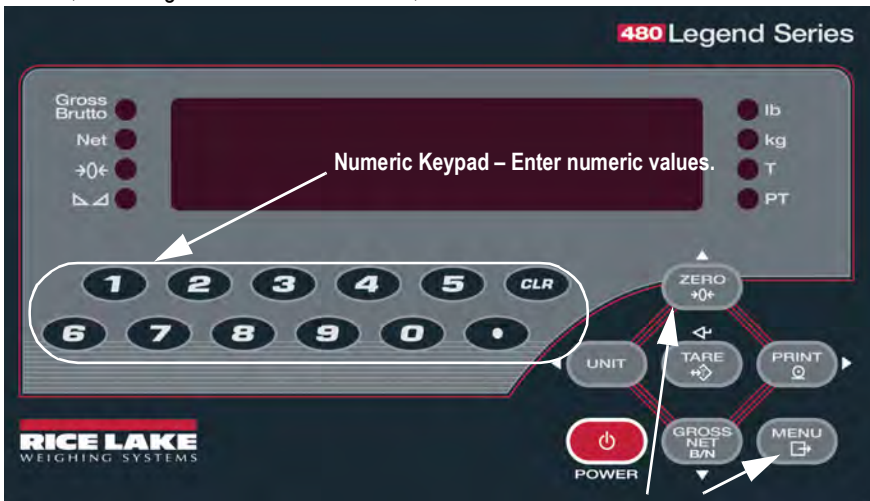
The user menu setup mode is used to access the Accumulator Functions, Audit Trail, display the Tare, Unit ID, Time & Date, Setpoints, Serial Communications parameters, Print Formats, and view the Firmware Version.

It is accessible by pressing the **MENU** key on the front panel.

## 1.3 Front Panel Display

[Figure 1-1](#) shows the 480 LED annunciators, keypad and key functions.

The symbols shown by the keys (representing up, down, enter, left, right) describe the key functions assigned in the operating modes. The keys are used to navigate through menus, select digits within numeric values, and increment/decrement values.



The up, down, enter, left and right arrows by the keys describe the functions assigned in the operating modes.

Keys are also used to navigate through menus, select digits within numeric values, and increment/decrement values.

*Figure 1-1. 480 Front Panel, Showing LED Annunciators and Key Functions*

### 1.3.1 Key Functions









Key	Function
 POWER	Turns the unit on/off. <b>Note: If power mode is set to manual, the POWER button must be used to turn the unit on and off. If power mode is set to auto, the unit will automatically power on when it's plugged in and the only way to turn it off is to unplug power.</b>
 MENU	The MENU key is used to access the User Setup menu.
 ZERO →0←	Sets the current gross weight to zero, provided the amount of weight to be removed or added is within the specified zero range and the scale is not in motion. The zero band is defaulted to 2% of full scale, but can be configured for up to 100% of full scale.
 UNIT	Switches the weight display to an alternate unit. In numeric entry mode used as a “clear” key.
 PRINT	Sends “on-demand” print format out the serial port, provided the conditions for standstill are met. PRINT may be displayed while the unit prints.
 TARE	Performs one of several predetermined Tare functions dependent on the mode of operation s. To view a stored tare, see <a href="#">Section 1.5.6 on page 9</a> . Also acts as an “enter” key for numeric or parameter entry.
 GROSS NET B/N	Toggles the display between gross and net. If a tare value has been entered or acquired, the net value is the gross weight minus the tare. Gross mode is shown by the Gross/Brutto annunciator; net mode is shown by the Net annunciator.
 CLR	During a numeric entry, sets the currently select digit to 0, then selects one digit to the right.

Table 1-1. Key Functions



#### Note

See the 480 Legend Series Technical manual (PN 119201) for more information.



### 1.3.2 Annunciator Functions

The 480 display uses a set of eight LED annunciators to provide additional information about the value being displayed.



LED	Description
	<p><b>Gross/Brutto LED</b> Gross weight display mode (or Brutto in OIML mode)</p> <p><b>Net LED</b> Net weight display mode</p> <p><b>→0← Zero (Center of Zero) LED</b> The 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.</p> <p><b>▲ ▼ Standstill LED</b> 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.</p>
	<p><b>lb/kg LED</b> Displays which unit of measure is being used. lb and kg annunciators indicate the units associated with the displayed value: lb = pounds, kg = kilograms. The displayed units can also be set to short tons (tn), metric tons (t), ounces (oz), grams (g), NONE (no units information displayed). The lb and kg LEDs function as primary and secondary units annunciators. If neither primary nor secondary units are lb or kg, the lb annunciator is lit for primary units and kg is lit for secondary units.</p> <p><b>T LED</b> Indicates that a push-button tare weight has been acquired and stored in memory.</p> <p><b>PT LED</b> Indicates that a preset tare weight has been keyed in or entered and stored in memory.</p>

Table 1-2. LED Annunciators



#### Note

See the 480 Legend Series Technical manual (PN 119201) for more information.

## 1.4 Front Panel Key Functions

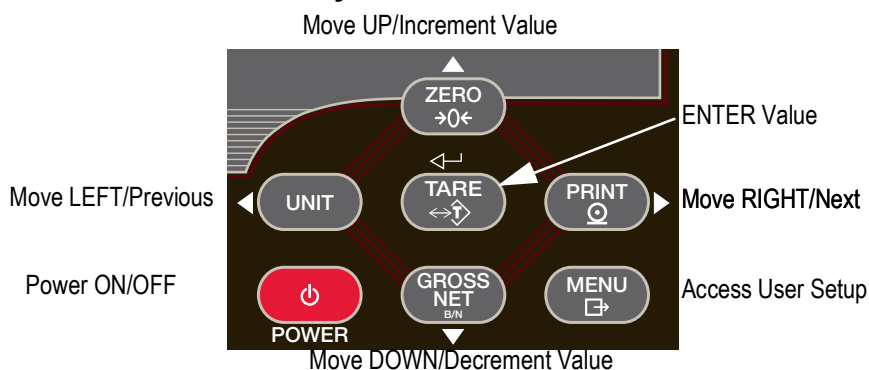
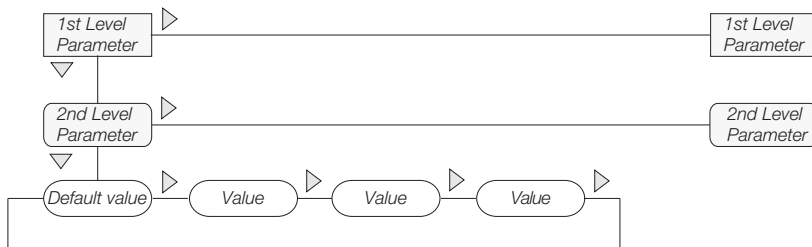


Figure 1-2. Front Panel Key Functions

Four front panel keys are used as directional keys to navigate through the menus (see Figure 1-2).

- **UNIT** (◀) and **PRINT** (▶) scroll left and right on the same menu level.
- **ZERO** (▲) and **GROSS/NET** (▼) move up and down to different menu levels.
- The **TARE** key serves as an Enter key (◀→) for selecting parameter values within the menus.
- The **MENU** key allows front panel access to user setup and configuration mode.

### 1.4.1 Navigating Through Levels



When moving through values below the first menu level, press ▲ to return to the level above.

Figure 1-3. 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 you want. When moving through the menu parameters, the present value appears first on the display.

## 1.4.2 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 **ENTER (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.

0 0 0 0 0 0

When editing numeric values, press ◀ or ▶ to change the digit selected. Press ▲ or ▼ to increment or decrement the value of the selected digit. Press ↵ to save the value entered and return to the level above.



Figure 1-4. Editing Procedure for Numeric Values

## 1.4.3 Numeric Keypad - Editing Procedure (480Plus Only)



Figure 1-5. Numeric Keypad for the 480Plus

With the numeric keypad option, the method for editing numeric values relies on the numbers which are embossed on the keypad in oppose to using the arrows.

1. When editing numeric values, insert the required value using the numeric keypad.
2. Press ↵ to save the value entered and return to the level above.
  - Press  to set the currently selected digit to 0.
  - Press  to enter a decimal point.



### 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.

## 1.5 Indicator Operations

Basic 480 operations are summarized below.



**Note**

See the *480 Legend Series Technical manual (PN 119201)* for more information.

### 1.5.1 Status Lights While in Various Menus

Sub-menu levels are indicated by the LEDs as shown below.

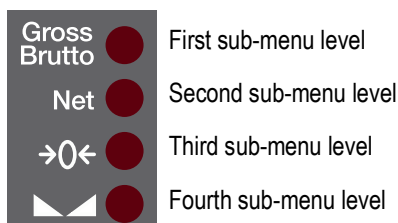


Figure 1-6. Status Lights

### 1.5.2 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.

### 1.5.3 Toggle Units



1. Press to toggle between primary and secondary units. The current unit LED will be lit.

### 1.5.4 Acquire Tare

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


See [Section 3.2 on page 22](#) for Regulatory Mode Functions.

### 1.5.5 Preset Tare (Keyed Tare)

1. With the scale empty and display showing zero weight, press .
2. Display will show (000000); the focused digit will flash.
3. Edit the value using the following method; or with the *480PLUS*, use the keypad.
  - Press ◀ or ▶ to select the digit.
  - Press ▲ or ▼ to increment or decrement the value.
4. Press  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.

### 1.5.6 Display Tare




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


1. Press .
2. Press ▼ to AUDIT.
3. Press ▶ to **TARE** and press ▼.
4. Press ▲ repeatedly to return to weighing mode.

If there is no tare in the system, the value displayed will be zero and the Gross and Net LED will be turned off.


See [Section 3.2 on page 22](#) for more information.

## 1.5.7 Print Ticket

1. Press  to print either the Gross or Net format.
2. Wait for  LED to light.
3. Press  to send data to the serial port.

If  LED is not lit and the **PRINT** key is pressed, the print action will take place only if the scale comes out of motion within 3 seconds. If the scale stays in motion for over 3 seconds, the **PRINT** key press is ignored.











## 1.5.8 Toggle Gross/Net Mode

1. Press  to switch the display mode between gross and net. If a tare value has been entered or acquired, the net value is the gross weight minus the tare.



Gross mode — **Gross/Brutto** LED is lit.

Net mode — **Net** LED is lit.




## 1.5.9 View Audit Trail

1. Press .
2. Press  to AUDIT.
3. Press . The audit trail CALIB is displayed.
4. Press  then  or  to CNT, TIME or DATE.
5. Press  to view selected parameter.
6. Press  twice to return to CALIB.
7. Press  to the audit trail CONFIG and repeat steps 5 and 6 to view configuration number.
8. Press  repeatedly to return to weighing mode.

### 1.5.10 Enter New Unit ID

1. Press .
2. Press  $\nabla$  to AUDIT.
3. Press  $\triangleright$  until display reads UNIT ID.
4. Press  $\nabla$  to view the current value.
5. Edit the value using the following method; or with the 480PLUS, use the keypad.
  - Press  $\triangleleft$  or  $\triangleright$  to select the digit.
  - Press  $\triangle$  or  $\nabla$  to increment or decrement the value.
6. Press  when the value is correct.
7. Press  $\triangle$  repeatedly to return to weighing mode.

### 1.5.11 Display Accumulator

1. Press .
2. Press  $\nabla$  to AUDIT.
3. Press  $\triangleright$  until display reads ACCUM.
4. Press  $\nabla$  to display VIEW.
5. Press  $\triangleleft$  or  $\triangleright$  to select desired parameter (VIEW, TIME, DATE, PRINT, CLR Y).
  - For VIEW, TIME or DATE, press  $\nabla$  to view the value. Press  $\triangle$  or  to return to selected parameter.
  - To PRINT or CLEAR, press  $\nabla$ , then press  to print or clear the accumulator. Press  $\triangle$  to return to selected parameter
6. Press  $\triangle$  repeatedly to return to weighing mode.





#### Note

*If the accumulated value exceeds 999999, display show "EE ACC". The value will still be correct and will print correctly up to 1,000,000,000.*

## 1.5.12 Display or Change Time and Date

To set the date and time:

1. Press .
2. Press  $\nabla$  to AUDIT.
3. Press  $\triangleright$  until display reads TIMDAT (TIME/DATE).
4. Press  $\nabla$  and select Time or Date with  $\triangleleft$  or  $\triangleright$ .
5. Press  $\nabla$  to view the current setting.
6. To edit the value of the time, in 24 hour or 12 hour format (hh.mm.ss), use the following method.
  - Press  $\triangleleft$  or  $\triangleright$  to select hours, minutes, or seconds – the selected value will be flashing
  - Press  $\triangle$  or  $\nabla$  to increment or decrement the value.
7. Press  when the value is correct.

Use the same procedure to enter the date in the same format configured for the indicator.

8. Press  $\triangle$  repeatedly to return to weighing mode.






### Note

***The time and date are backed up with an internal battery. If the main power is interrupted, time and date will not be lost.***


***When in 12 hour format, the PT LED indicates pm setting.***




### 1.5.13 Display, Edit and Set Setpoint Value

1. Press .
2. Press  $\nabla$  to AUDIT.
3. Press  $\triangleright$  until display reads **SETPNT**.
4. Press  $\nabla$  and navigate across to desired setpoint number (1-8).
5. Press  $\nabla$  and navigate across to select User.
6. Press  $\nabla$  and navigate across to select Value or Enable.
7. Press  $\nabla$  to view and edit the value.
  - To edit Value, use the following method; or with the *480PLUS*, use the keypad.
    - Press  $\triangleleft$  or  $\triangleright$  to select the digit.
    - Press  $\triangle$  or  $\nabla$  to increment or decrement the value.
    - Press  when the value is correct.
  - To edit **ENABLE**:
    - Press  $\triangleleft$  or  $\triangleright$  to select ON/OFF.
    - Press  when the value is correct.
8. Press  $\triangle$  repeatedly to return to weighing mode.

### 1.5.14 View Firmware Version

1. Press .
2. Press  $\nabla$ . AUDIT is displayed.
3. Press  $\triangleright$  until display reads VERS.
4. Press  $\nabla$ . FIRMW is displayed.
5. Press  $\nabla$  to view version.
6. Press  $\triangle$  repeatedly to return to weighing mode.

### 1.5.15 Enter User Password

1. Remove the setup switch access screw from the back of the enclosure.
2. Insert a non-conductive tool into the access hole and press the configuration switch. Indicator display changes to show **CONFIG**.
3. Press ◀ or ▶ until PASWRD is displayed.
4. Press ▾. CNFG is displayed.
5. Press ▷ to USER.
6. Press ▾. 000000 is displayed.
7. To edit the password, use the following method; or with the 480PLUS, use the keypad.
  - Press ◀ or ▶ to select the digit.
  - Press ▲ or ▼ to increment or decrement the value.
  - Press  when the value is correct.
8. Press ▲ to return to PASWRD.
9. Press ▷ to CONFIG.
10. Press ▲ to return to weighing mode.

When entering a user function, the operator will now be required to enter the password.

**IMPORTANT**

***Enter 999999 to reset password, this will also reset the configuration back to default values.***

# 2.0 User Menus

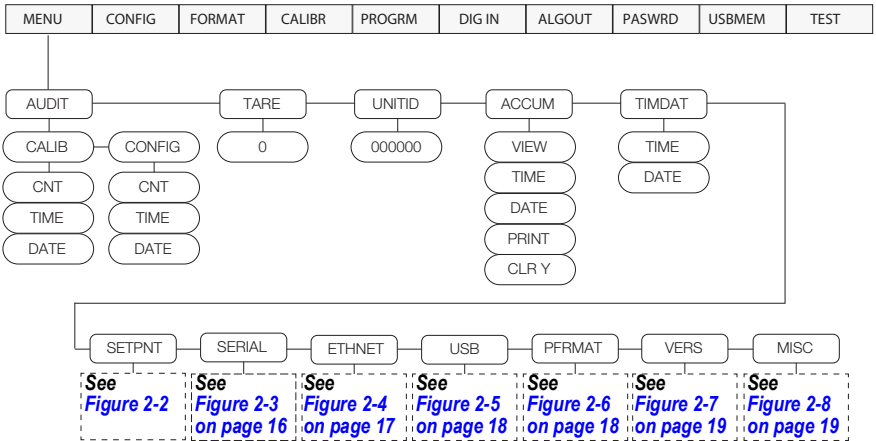


Figure 2-1. Menu Key User Menu

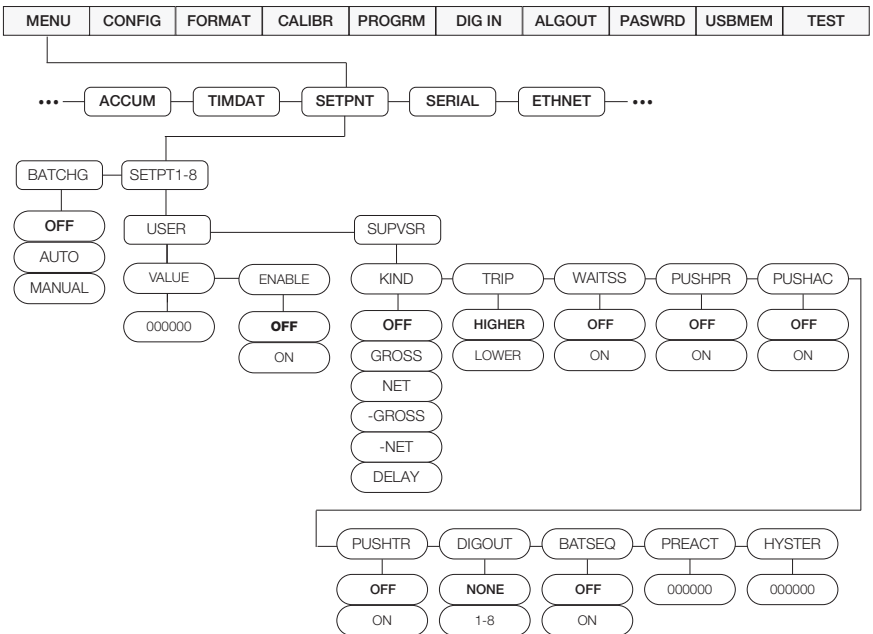


Figure 2-2. Setpoint Setup Menu

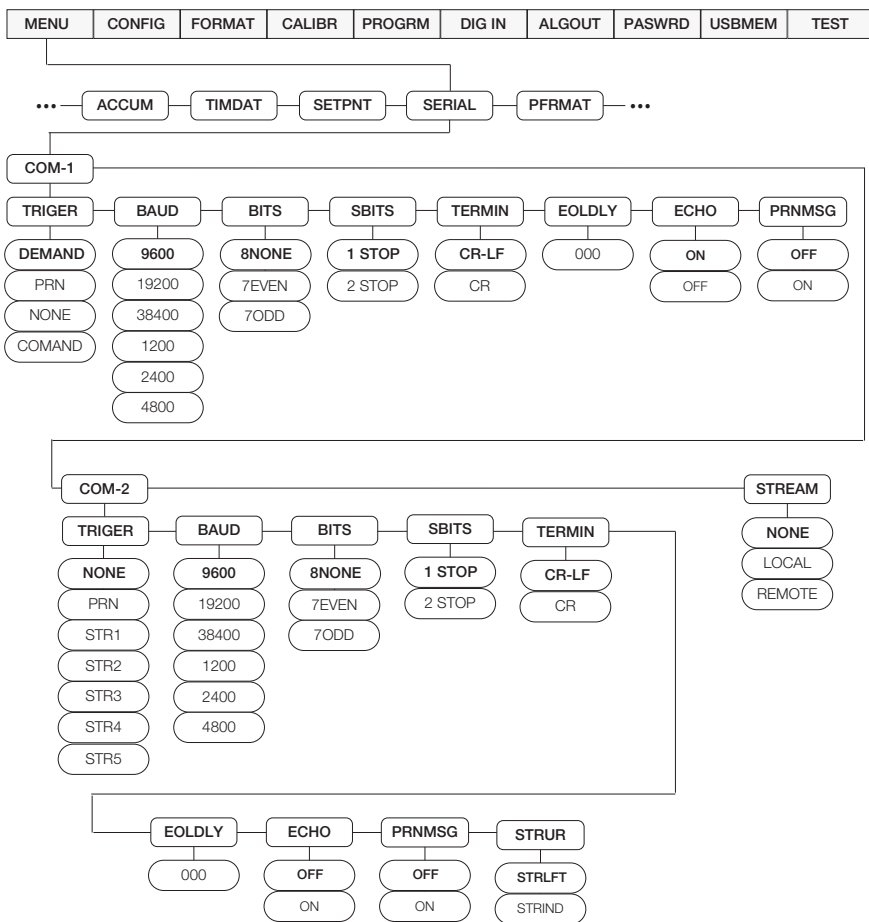


Figure 2-3. Serial Menu

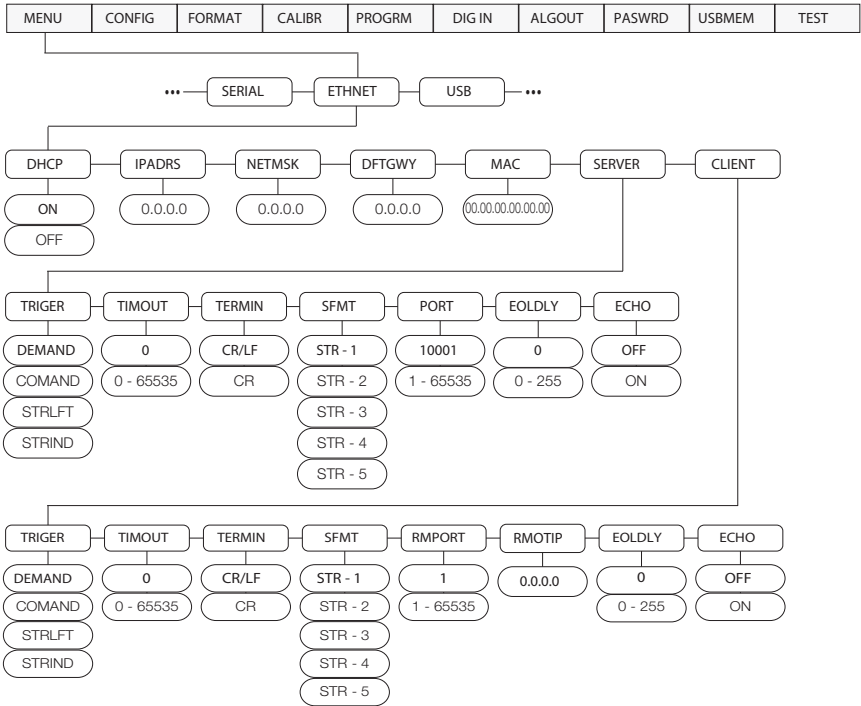


Figure 2-4. Ethernet Menu Layout

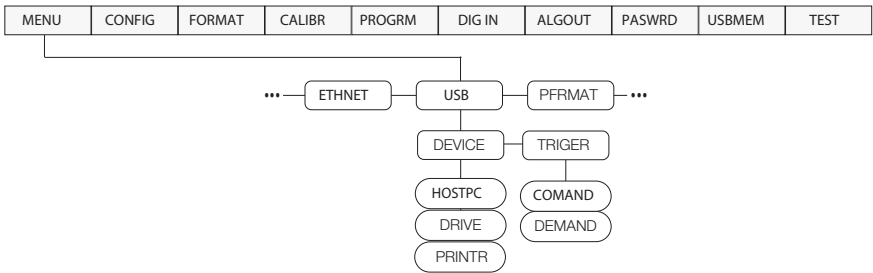


Figure 2-5. USB Menu Layout

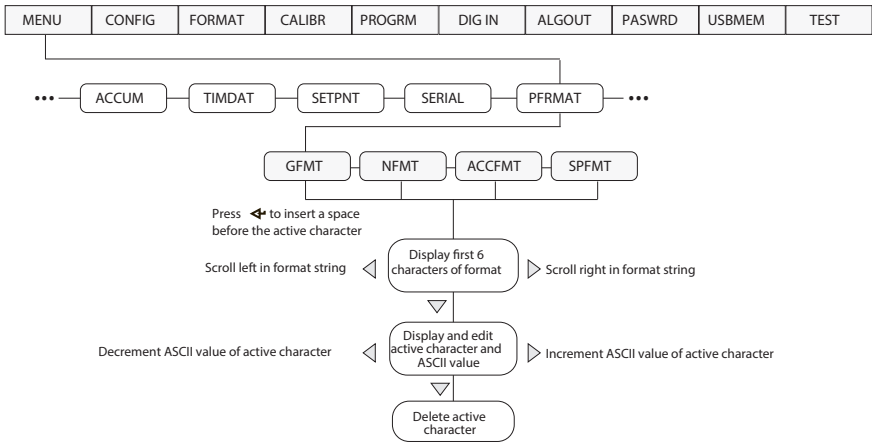


Figure 2-6. Print Format Menu

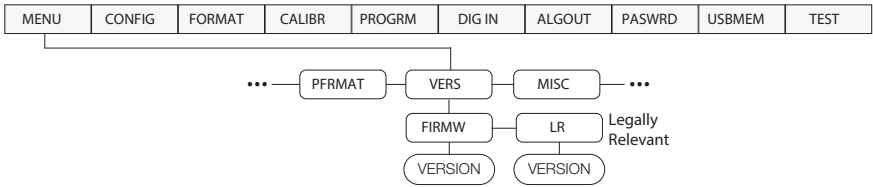


Figure 2-7. Version User Menu

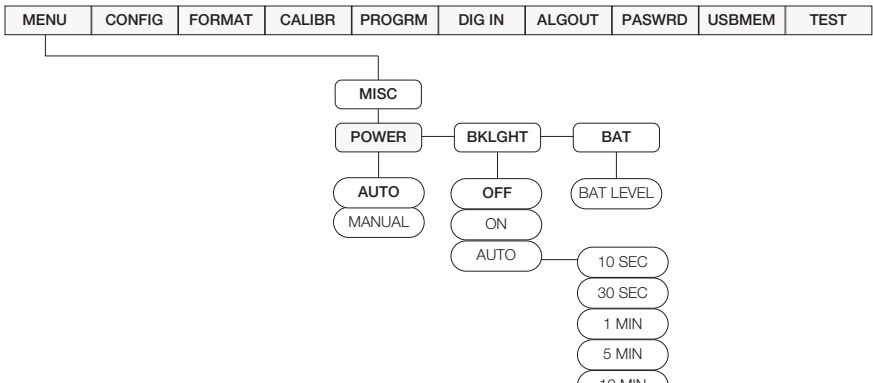


Figure 2-8. Misc. Menu

## 3.0 Appendix

### 3.1 Error Messages

The 480 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
E A/D	A/D physical error	Call Rice Lake Weighing Systems (Rice Lake Weighing Systems) Service at 800-472-6703.
EEEROM	EEPROM physical error	
EVIREE	Virgin EEPROM	Use TEST menu to perform DEFLT (restore defaults) procedure, then recalibrate load cells.
EPCKSM	Parameter checksum error	
EACKSM	A/D calibration checksum error	A/D converter requires recalibration. Call Rice Lake Weighing Systems Service.
EFCKSM	Printer format checksum error	Call Rice Lake Weighing Systems Service at 800-472-6703.
ELCKSM	Load cell calibration checksum error	Recalibrate load cells.
EIDATA	Internal RAM checksum error	Call Rice Lake Weighing Systems Service at 800-472-6703.
E REF	A/D reference error	A/D converter requires recalibration. Call Rice Lake Weighing Systems Service.
ERROR	Internal program error	Check configuration. Call Rice Lake Weighing Systems Service if unable to clear error by cycling power or if error recurs.
OVERFL	Overflow error	Weight value too large to be displayed.
-----	Gross > overload limit	Gross value exceeds overload limit. Check configuration or signal input level. Overload can be caused by input signal > 45 mV or common mode voltage > 950 mV.
-----	Gross < 20d behind zero	
-----		Gross value is more than 20 divisions behind zero.
RNGERR	GRADS > 100,000 WVAL > 100,000	Only shows up in Config mode.
EEPERR	EEPROM error	Call Rice Lake Weighing Systems for service at 800-472-6703.
HINOFF?	High offset	Zero load at powerup is more than initial zero range (INIZR) setting of calibration zero – remove the extra load.

Table 3-1. 480 Error Messages



Error Message	Description	Solution
LINOFF	Low offset	Zero load at power up is less than initial zero range (INIZR) setting of calibration zero – add the missing load.
NOBATT	No battery	The RTC lost time/date tracking at previous power off state due to low battery or no battery condition. The printer, accumulator and AUDUT functions will fail to get time and date.
EUCKSM	Configuration checksum	The checksum value of configuration has changed from that stored in memory.
OIMLER	OIML parameter error	Parameter set incorrectly for use in the OIML mode. Example: Primary units set for lb or oz.
EE-ACC	Accumulator error	Error with the accumulator such as attempting to display an accumulated value greater than six digits.

*Table 3-1. 480 Error Messages*



Shorting the excitation voltage shuts the excitation voltage off. The only way to restore excitation voltage is to cycle power.

## 3.2 Regulatory Mode Functions

Regulatory Parameter	Weight On Scale	Tare In System	Front Panel Key Tare	Front Panel Key Zero
NTEP	Zero	No	"000000"	Zero
		Yes	Clear tare	Zero
	Negative	No	No action	Zero
		Yes	Clear tare	Zero
	Positive	No	Tare	Zero
		Yes	Tare	Zero
Canada	Zero	No	"000000"	Zero
		Yes	Clear tare	Clear tare
	Negative	No	No action	Zero
		Yes	Clear tare	Clear tare
	Positive	No	Tare	Zero
		Yes	No action	Clear tare
OIML	Zero	No	"000000"	Zero
		Yes	Clear tare	Zero & Clear tare
	Negative	No	No action	Zero
		Yes	Clear tare	Zero & Clear tare
	Positive	No	"000000"	Zero
		Yes	Tare	Zero & Clear Tare
None	Zero	No	"000000"	Zero
		Yes	Clear tare	Clear tare
	Negative	No	No action	Zero
		Yes	Clear tare	Clear tare
	Positive	No	Tare	Zero
		Yes	Clear tare	Clear tare



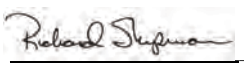
Table 3-2. TARE and ZERO Key Functions for REGULAT Parameter Settings



### Note

*At zero weight push-button tare will prompt for keyed tare when tare function is set to keyed or both.*

### 3.3 Compliance

	<b>EU DECLARATION OF CONFORMITY</b> <i>EU-KONFORMITÄTSERKLÄRUNG</i> <i>DÉCLARATION UE DE CONFORMITÉ</i>		Rice Lake Weighing Systems 230 West Coleman Street Rice Lake, Wisconsin 54868 United States of America
			
<b>Type/Typ/Type:</b> 480 and 482 indicator			
English	We declare under our sole responsibility that the products to which this declaration refers to, is in conformity with the following standard(s) or other regulations document(s).		
Deutsch	Wir erklären unter unserer alleinigen Verantwortung, dass die Produkte auf die sich diese Erklärung bezieht, den folgenden Normen und Regulierungsbestimmungen entsprechen.		
Francais	Nous déclarons sous notre responsabilité que les produits auxquels se rapporte la présente déclaration, sont conformes à la/aux norme/s suivante ou au/aux document/s normatif/s suivant/s.		
EU Directive	Certificates	Standards Used / Notified Body Involvement	
2014/30/EU EMC	-	EN 55022:2010, EN 61000-3-2:2006+A1(09)+A2(09), EN 61000-3-3:2008, EN 55024:2010	
2014/35/EU LVD	-	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013	
2011/65/EU RoHS	-	EN 50581:2012	
Signature:			Place: <u>Rice Lake, WI USA</u>
Type Name:	<u>Richard Shipman</u>		Date: <u>May 3, 2019</u>
Title:	<u>Quality Manager</u>		

## 3.4 Specifications

### Model Numbers

United States	480-2A/480Plus-2A (NEMA Type 5-15)
International	480-2A/480Plus-2A (CEE 7/7)

### Power – AC

Line Voltages	115 to 230 VAC
Frequency	50 or 60 Hz
Power Consumption	70 mA @ 115 VAC (8W) 35 mA @ 230 VAC (8W)
Fusing	2.5 A 5 x 20 mm fuse

### Analog Specifications

Full Scale Input Signal	Up to 35 mV
Excitation Voltage	$5 \pm 0.1$ VDC
Sense Amplifier	Differential amplifier with 4- and 6-wire sensing
Analog Signal	
Input Range	Up to 7 mV/V
Analog Signal	
Sensitivity	0.1 $\mu$ V/graduation minimum 0.5 $\mu$ V/grad recommended
Local Resistance	35-1140 $\Omega$
Noise (ref to input)	0.5 $\mu$ V p-p
Internal Resolution	523,376 counts
Display Resolution	100,000 dd
Measurement Rate	37 measurements/sec
Input Sensitivity	38 nV per internal count
System Linearity	Within 0.01% of full scale
Zero Stability	13 nV/ $^{\circ}$ C
Span Stability	13 ppm/ $^{\circ}$ C
Calibration Method	Software, constants stored in EEPROM
Common Mode	
Voltage	AGND + 250mV V min Excitation - 250 mV V max
Rejection	120 dB minimum @ 50 or 60 Hz
Normal Mode	
Rejection	100 dB minimum @ 50 or 60 Hz
Input Overload	-0.3 V to Excitation +0.3 V
RFI Protection	Signal, excitation, and sense lines protected by capacitor bypass and ESD suppressors

**Analog Output (Optional)**

Type	Fully isolated, voltage or current output, 16-bit resolution.
Voltage output	0 –10 VDC
Voltage load resistance	1K $\Omega$ minimum
Current output	0–20 mA or 4–20 mA
Current loop resistance	1200 $\Omega$ maximum

**Digital Specifications**

Microprocessor	ARM Cortex M3 STM32F103ZET6
Digital Filters	Adaptive Filter and Rolling Averaging Filter; software selectable

**Digital I/O (Optional)**

Type	Fully isolated
Digital Inputs	2 or 4 inputs, Opto isolated, 5 to 24 VDC input, active high
Digital Outputs	4 or 8 dry-contact relays Up to 30VDC at 2A current

**Serial Communications**

Port 1	Full duplex RS-232
Port 2	Full duplex RS232, or output only Active 20mA current loop.
Both Ports	1200 to 38400 bps; 7 or 8 data bits; even, odd, or no parity; 1 or 2 stop bits

**Operator Interface**

Display	6-digit LED display. 7-segment, 0.8 in (20 mm) digits
LED annunciators	Gross, net, center of zero, standstill, lb/primary units, kg/secondary units, T, PT
Keypad	7-key flat membrane panel

**Environmental**

Operating Temperature	–10 to +40°C (legal); –10 to +50°C (industrial)
Storage Temperature	–25 to +70°C
Humidity	0–95% relative humidity

**Enclosure**

Enclosure Dimensions	9.5 in x 6 in x 2.75 in 24 cm x 15 cm x 7 cm
Weight	6 lb
Rating/Material	4X

## Certifications and Approvals



### NTEP

CoC Number 12-123

Accuracy Class III/IIIL  $n_{max}$ : 10 000



### OIML R76/2006-NL1-15.24

European Test Certificate TC8322

Accuracy Class III  $n_{max}$ : 10 000

## Measurement Canada

Approval AM-5892

Accuracy Class III/IIILD  $n_{max}$ : 10 000



UL

File Number: 151461

LISTED



### FCC

The 480 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.

## Warranty

2-year limited warranty

.





© Rice Lake Weighing Systems Specifications subject to change without notice.  
Rice Lake Weighing Systems is an ISO 9001 registered company.

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