



TEK-LCD 7800C

Panel Mount Loop-Powered Process Indicator

Instruction Manual

Document Number: IM-7800C

Decimal Display



Decimal Display with Bargraph



www.tek-trol.com

NOTICE

Read this manual before working with the product. For personal and system safety, and for optimum product performance, make sure you thoroughly understand the contents before installing, using, or maintaining this product.

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Disclaimer

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WARNING

- Risk of electric shock or personal injury.
 - This product is not recommended for life support applications or applications where malfunctioning could result in personal injury or property loss. Anyone using this product for such applications does so at his/her own risk. Tek-Trol LLC shall not be held liable for damages resulting from such improper use.
 - Failure to follow installation guidelines could result in death or serious injury. Make sure only qualified personnel perform the installation.
-



CAUTION

Read complete instructions prior to installation and operation of the meter.

Limited Warranty

Tek-Trol LLC warrants this product against defects in material or workmanship for the specified period under “Specifications” from the date of shipment from the factory.

Tek-Trol’s liability under this limited warranty shall not exceed the purchase value, repair, or replacement of the defective unit.

Registered Trademarks

All trademarks mentioned in this document are the property of their respective owners.

1 Safety Instructions



WARNING

- Read complete instructions prior to installation and operation of the meter.
 - Installation and service should be performed only by trained service personnel. Service requiring replacement of internal components must be performed at the factory.
 - Disconnect from supply before opening enclosure. Keep cover tight while circuits are alive.
 - If the meter is installed in a high voltage environment and a fault or installation error occurs, high voltage may be present on any lead.
-

1.1 Installation



WARNING

Hazardous voltages may exist within enclosure. Installation and service should be performed only by trained service personnel.

Wiring connectors are accessed by opening the enclosure. To access electrical connectors, remove the 2 captive screws, then disconnect the ribbon cable from the display module and set the display module aside.

1.2 Unpacking

Remove the meter from box. Inspect the packaging and contents for damage. Report damages, if any, to the carrier.

If any part is missing or the meter malfunctions, please contact your supplier or the factory for assistance.

2 Product Description

2.1 Introduction

These loop-powered 1/8 DIN digital panel meters can be installed virtually anywhere to provide a convenient and informative display of any 4-20 mA signal. One of the most convenient features of these instruments is their dual line display, which is typically used to display the process variable on the 5-digit alphanumeric top line and the units or a tag on the 8-digit alphanumeric bottom line. Another common setup is to display the input in one scale on the top line (such as feet) and another scale on the bottom line (such as gallons). Both of these lines use 14-segment, alphanumeric characters for clear indication of tags, units, or alarm messages.

Further enhancing the display on these instruments is a 20-segment bargraph available on the TEK-LCD 7800C that also includes a numeric value of the percentage the bargraph represents. There is even a model that displays the level in feet and inches for customers who prefer to see their levels represented that way rather than in decimal format.

These loop-powered meters can be installed virtually anywhere because they get their power from the 4-20 mA loop and therefore require no separate power source. And they only drop 1.5 V (4.7 V with backlight), so they add minimal burden to the loop. Additional features that allow these instruments to be installed virtually anywhere include a NEMA 4X, IP65 front panel, an operating temperature range of -40 to 167°F (-40 to 75°C) (for safe area products), conformally coated PCBs, and a backlit LCD that can be read in bright sunlight or dimly lit areas. Finally, there are intrinsically safe and nonincendive versions of these instruments that can be installed in hazardous areas.

Free, PC-based, software that connects to the meter via a micro USB cable is available for programming and setup of the meters. In addition, the meter can be programmed, set up and operated via the four front panel buttons. Three of these buttons can be used as function keys. In addition, a digital input is standard and is particularly useful for remote reset of the alarms or to trigger an alarm.

All models come equipped with two open collector outputs and are available with two solid-state relays and 4-20 mA analog output options. The open-collector outputs are useful for alarm indication or pulse output. The relays can be programmed for alarm indication, on/off control, or pump alternation.

2.2 Specifications

Except where noted all specifications apply to operation at 77°F.

GENERAL		
DISPLAY	Five Digits Top Display (-9999 to 99999)	0.7" (17.8 mm) high, 14-segment, automatic lead zero blanking.
	Seven Characters (Engineering Units)	0.4" (10.2 mm) high, 14-segment
	Symbols	High & Low Alarm, Password Lock
	Backlight	White
DISPLAY UPDATE RATE	Ambient > -13°F: 2 Updates/Second Ambient < -13°F: 1 Update/5 Seconds	
OVERRANGE	Display flashes 99999	
UNDERRANGE	Display flashes -9999	
PROGRAMMING METHOD	Four through-window buttons when cover is installed. Four internal pushbuttons when cover is removed.	
RECALIBRATION	Recalibration is recommended at least every 12 months.	
MAX/MIN DISPLAY	Max/Min readings reached by the process are stored until reset by the user or until power to the meter is turned off.	
PASSWORD	Programmable password restricts modification of programmed settings. Pass GT: Restricts the reset of grand total to Require re-entering the password. May enable a non-resettable grand total and permanent lockout of grand total- related settings with a specific password.	
NON-VOLATILE MEMORY	All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.	
NORMAL MODE REJECTION	64 dB at 50/60 Hz	

2.3 Mounting

The TEK-LCD 7800C Series has two slotted mounting flanges that may be used for pipe mounting or wall mounting. Alternatively, the unit may be supported by the conduit using the conduit holes provided.

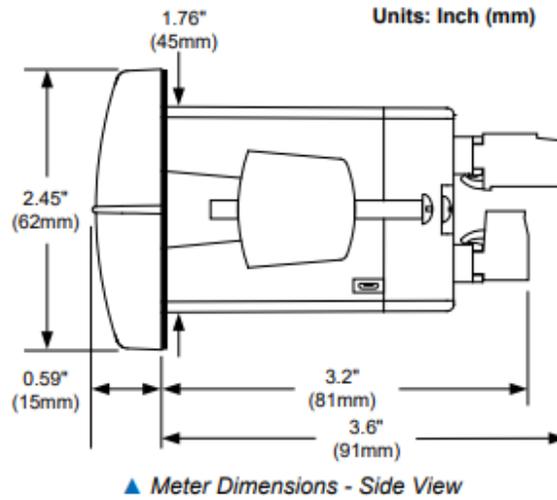


WARNING

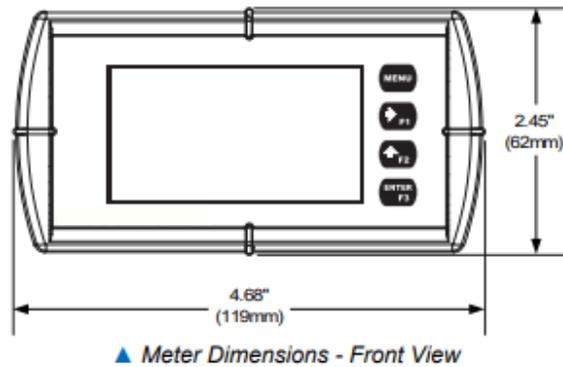
Do not attempt to loosen or remove flange bolts while the meter is in service.

2.4 Dimensional Drawing

Enclosure Dimension - Front View



Enclosure Dimension - Side View



The supplied conduit plug may extend up to 0.21" [0.01ft] from the conduit opening when installed.

2.5 Ordering Information

Popular Model

Model	Description
7800C-LNN*	Loop-Powered, General Purpose, No Options

Accessories

Model	Description
7800C-L2N	Loop-Powered, General Purpose, Two Solid State Relays
7800C-L3N	Loop-Powered, General Purpose, 4-20 mA Analog Output

2.6 Connections



WARNING

-
- Static electricity can damage sensitive components.
 - Observe safe handling precautions for static-sensitive components.
 - Use proper grounding procedures/codes.
 - If the meter is installed in a high voltage environment and a fault or installation error occurs, high voltage may be present on any lead or terminal.
-

To access the connectors, remove the enclosure cover and unscrew the two captive screws that fasten the display module. Disconnect the ribbon cable and remove the display module. Signal connections are made to a four-terminal connector in the base of the enclosure.

SIGNAL -	4-20 mA signal return/negative terminal connection when not using loop powered backlight.
BACKLIGHT +	+9-36 VDC when powering backlight from external supply.
BACKLIGHT -	4-20 mA signal return/negative terminal when using the installed loop powered backlight or ground/negative when powering backlight from external supply.

Refer to Figure 1 for terminal positions.



WARNING

Observe all safety regulations. Electrical wiring should be performed in accordance with all agency requirements and applicable national, state, and local codes to prevent damage to the meter and ensure personnel safety.

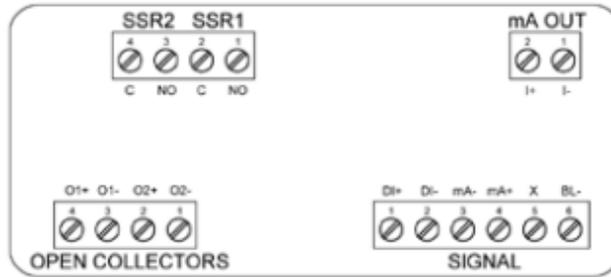
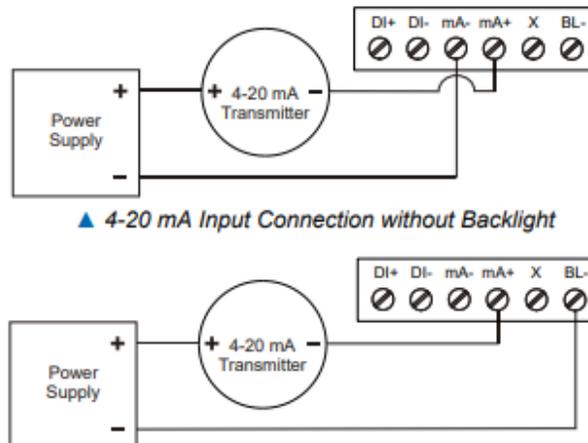


Figure 1.

2.7 Connections & Wiring Diagrams

The following figures show a 4-20 mA loop connected to the meter. The first figure shows the connection without the backlight and the second shows the connection with the backlight. The meter is powered by the 4-20 mA current loop.



3 Setup and Programming

There is **no need to recalibrate** the meter for frequency in Hz when first received from the factory. The meter is **factory calibrated** for Hz prior to shipment. The calibration equipment is certified to NIST standards

3.1 Overview

Setup and programming are done through the infrared through window buttons or using the mechanical buttons when uncovered. There are two slide switches located on the connector board. One is used to select backlight power (if equipped) and the other is to lock or unlock the through-window buttons.

3.2 Through-Window Buttons

The TEK-LCD 7800C Series is equipped with four sensors that operate as through-window buttons so that it can be programmed and operated without removing the cover. These buttons can be disabled for security by selecting the **LOCK** setting on the switch located on the connector board in the base of the enclosure. To actuate a button, press one finger to the window directly over the marked button area. When the cover is removed, the four mechanical buttons located next to the sensors are used. The sensors are disabled when a mechanical button is pressed and will automatically be re-enabled after 60 seconds of inactivity.

The through-window buttons are designed to filter normal levels of ambient interference and to protect against false triggering; however, it is recommended that the through-window buttons be disabled (slide switch to **LOCK**) if there is an infrared interference source in line-of-sight to the display.

Through-Window Button Tips:

- To remove the cover with power applied (safe area only), or to clean the window, select **SERVICE** in the main menu before opening the cover. This will temporarily disable the through-window buttons for 60 seconds to prevent inadvertent use. Use the mechanical buttons while the meter is open.
- To the extent possible, install the display facing away from sunlight, windows, reflective objects and any sources of infrared interference.
- Keep the window clean.
- Tighten the cover securely.
- Use a password to prevent tampering.

After all connections have been completed and verified, apply power to the loop.

3.3 Button and Display



- Press the **Menu** button to enter or exit the Programming Mode at any time.
- Press the **F1**-arrow button to move to the next digit or decimal position during programming.
- Press the **F2**-arrow button to scroll through the menus, decimal point, or to increment the value of a digit.
- Press the **Enter** button to access a menu or to accept a setting.
- Press and hold the **Menu** button for five seconds to access the Advanced features.



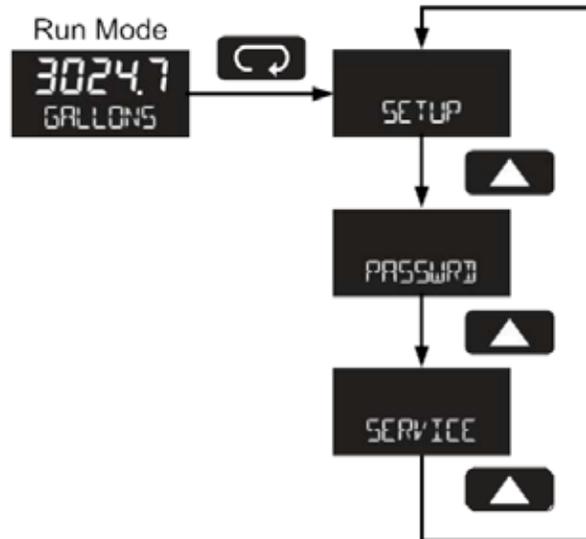
3.4 Setup Menu Display Functions & Messages

The meter displays various functions and messages during setup, programming, and operation. The following table shows the main menu functions and messages in the order they appear in the menu.

Display	Parameter	Action/Setting
SETUP	<i>Setup</i>	Enter <i>Setup</i> menu
DEC.Pt	<i>Decimal point</i>	Enter <i>Decimal Point</i> menu
PROG	<i>Program</i>	Enter the <i>Program</i> menu
SCALE	<i>Scale</i>	Enter the <i>Scale</i> menu
CAL	<i>Calibrate</i>	Enter the <i>Calibrate</i> menu
INPt 1	<i>Input 1</i>	Calibrate input 1 signal or program input 1 value
dSP1	<i>Display 1</i>	Program display 1 value
INPt 2	<i>Input 2</i>	Calibrate input 2 signal or program input 2 value
dSP2	<i>Display 2</i>	Program display 2 value
SPAN ERROR	<i>Span Error</i>	Error, calibration not successful, check signal
TAG	<i>Tag/Units</i>	Enter the <i>Tag/Units</i> Menu
ON	<i>Tag On</i>	Enable <i>Tag/Units</i>
OFF	<i>Tag Off</i>	Disable <i>Tag/Units</i>
PASSWORD	<i>Password</i>	Enter the <i>Password</i> menu
UNLOCKD	<i>Unlocked</i>	Program password to lock meter
LOCKED	<i>Locked</i>	Enter password to unlock meter
99999 -9999	<i>Flashing display</i>	Overrange condition Underrange condition
SERV ICE	<i>Service</i>	Select before removing/installing cover for service or to clean the window

3.5 Main Menu

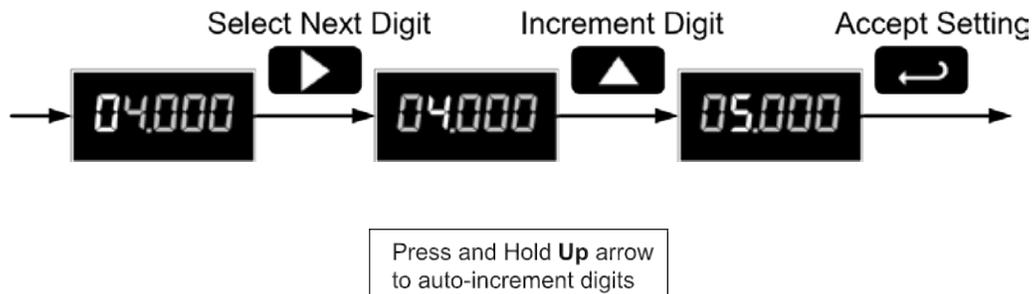
The main menu consists of the mostly used functions: Setup, Password, and Service. Press **MENU** button to enter Programming Mode then press the **Up-Arrow** button to scroll through the main menu.



- Press **Menu**, at any time, to return to the previous menu selection. Press and hold the **Menu** button for 1.5 seconds at any time to return to Run Mode.
- Changes to the settings are saved to memory only after pressing **Enter**.
- The display moves to the next menu every time a setting is accepted by pressing **Enter**.

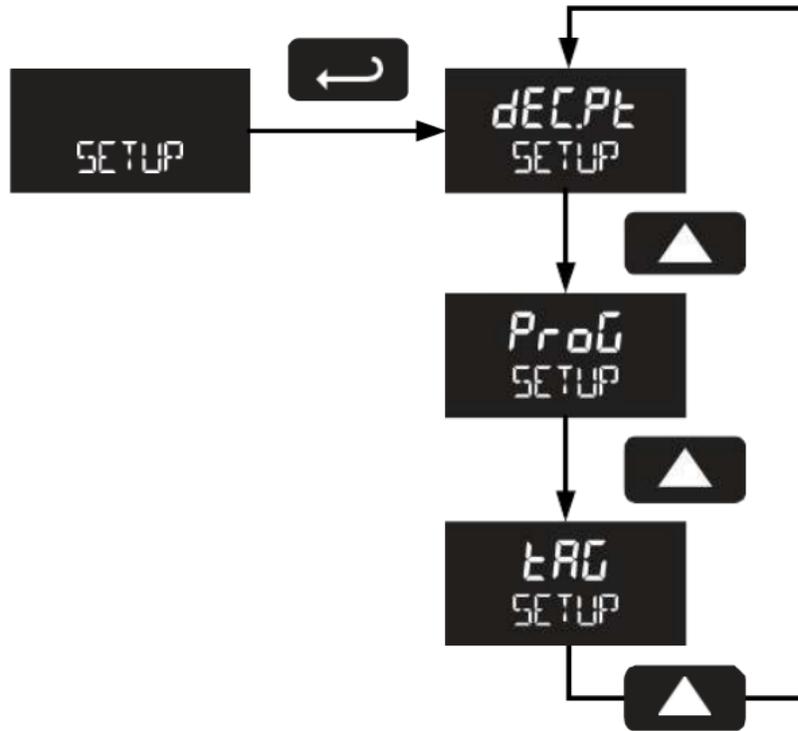
3.6 Setting Numeric Values

The numeric values are set using the **Right** and **Up arrow** buttons. Press **Right arrow** to select next digit and Up arrow to increment digit. The digit being changed blinks. Press the **Enter** button, at any time, to accept a setting or **MENU** button to exit without saving changes. The decimal point is set using the **Right** or **Up arrow** button in the setup-decimal point menu.



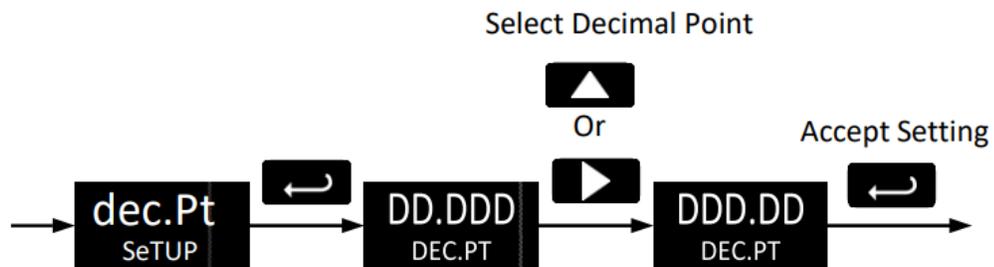
3.7 Setting Up the Meter (SETUP)

Press the **Enter** button to access any menu or press **Up** arrow button to scroll through choices. Press the **Menu** button to back out of a menu or hold the **Menu** button to exit at any time.



3.7.1 Setting the Decimal Point (Dec.Pt)

Decimal point may be set with up to four decimal places or with no decimal point. Pressing the Right arrow moves the decimal point one place to the right until no decimal point is displayed. Pressing the Up arrow moves the decimal point one place to the left.



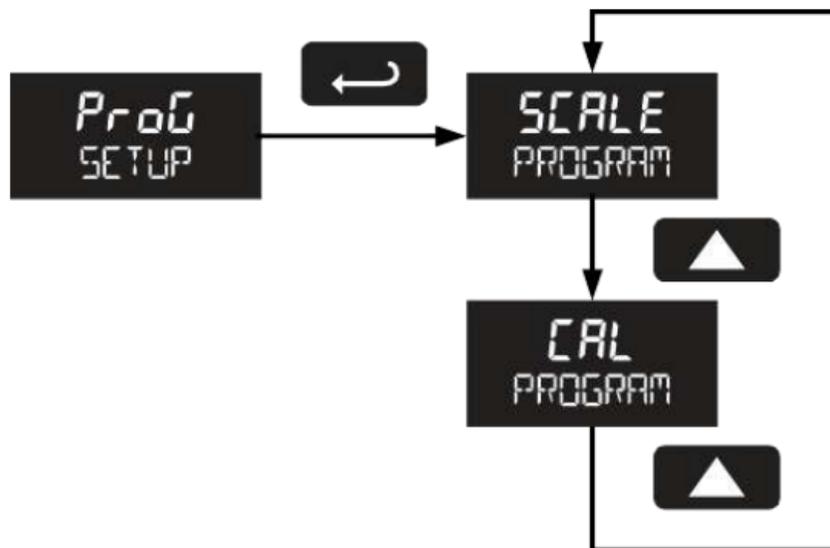
3.7.2 Programming the Meter (ProG)

It is **very important** to read the following information, before proceeding to program the meter:

- There is **no need to recalibrate** the meter for milliamps when first received from the factory.
- The meter is **factory calibrated** for milliamps prior to shipment. The calibration equipment is certified to NIST standards.
- Use the Scale menu to enter the default 2-point scaling without a signal source.
- Use the Calibrate menu to apply a signal from a calibrator or a flow meter for the default 2-point scaling.

Note: The Scale and Calibrate functions are exclusive of each other. The meter uses the last function programmed. Only one of these methods can be employed at a time. The Scale and Calibrate functions can use up to 32 points (default is 2). The number of points should be set in the Advanced menu under the Multi-Point Linearization (Inear) menu selection prior to scaling and calibration of the meter.

Additional parameters, not needed for most applications, are viewed and programmed with the Advanced features menu



3.7.3 Scaling the Meter (SCALE)

The 4-20 mA input can be scaled to display the process in engineering units. A signal source is not needed to scale the meter; simply program the inputs and corresponding display values.

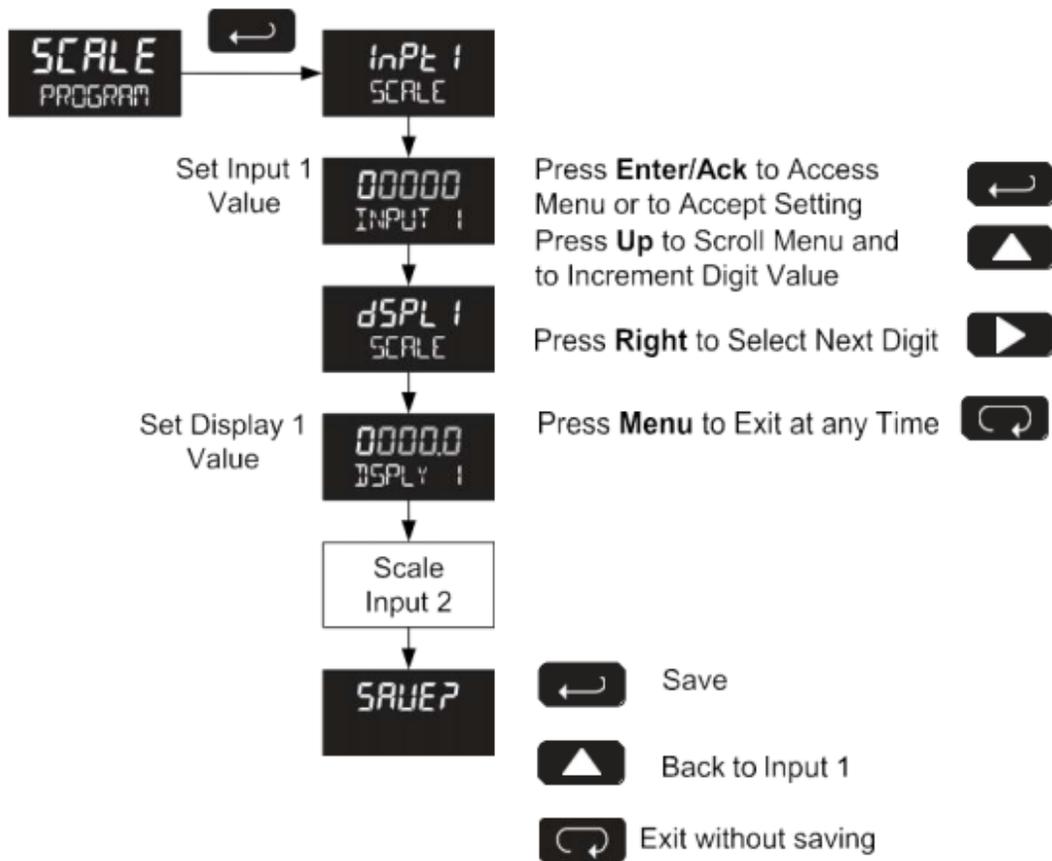


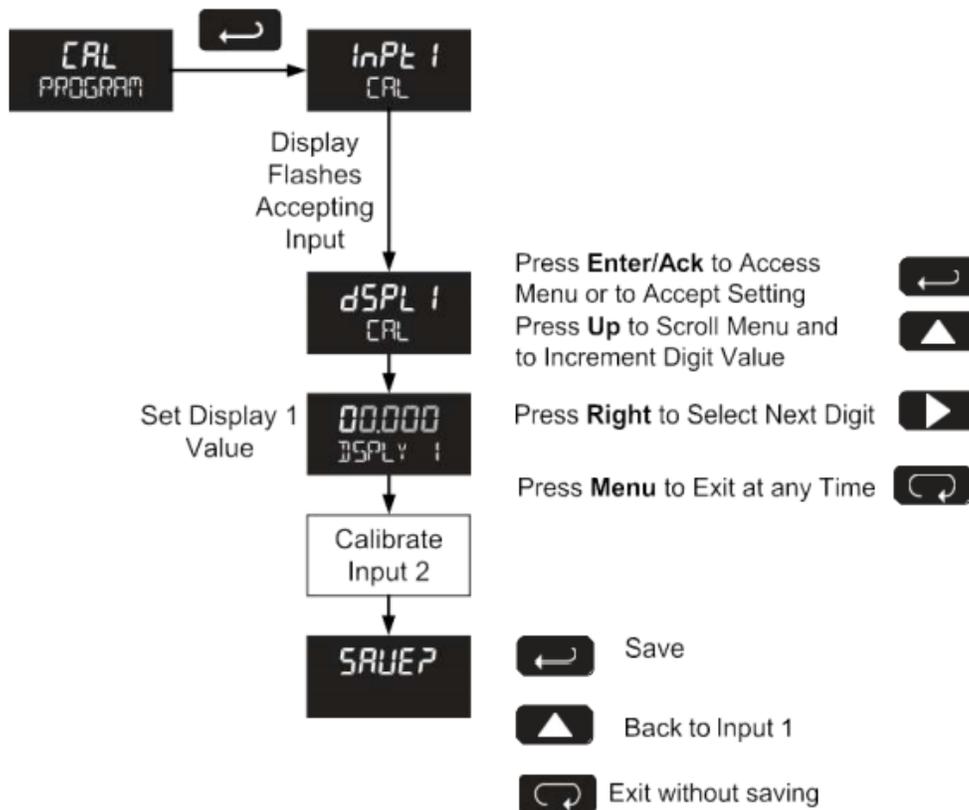
Figure 5. Scale Menu

For instructions on how to program numeric values see.

3.7.4 Calibrating the Meter (GATE)

To scale the meter without a signal source, refer to Scaling the Meter (SCALE).

The meter can be calibrated to display the process in engineering units by applying the appropriate input signal and following the calibration procedure. The use of a calibrated signal source is strongly recommended.



1. Press the **Up-arrow** button to scroll to the Calibration menu(CAL) and press **Enter**.
2. The meter displays **InPt 1**. Apply a known signal and press **Enter**. The display will flash while accepting the signal.
3. After the signal is accepted, the meter displays **dSP1 1**. Press **Enter**. Enter a corresponding display value for the signal input, and press **Enter** to accept.
4. The meter displays **InPt 2**. Apply a known signal and press **Enter**. The display will flash while accepting the signal.
5. After the signal is accepted, the meter displays **dSP1 2**. Press **Enter**. Enter a corresponding display value for the signal input and press **Enter** to accept.
6. After completing calibration the save? display will need to be acknowledged using the **Enter** key before calibration will take effect.

3.7.5 Minimum Input Span

The minimum input span is the minimum difference between input 1 and input 2 signals required to complete the calibration or scaling of the meter. The minimum span is 0.10 mA.

If the minimum span is not maintained, the meter reverts to input 2, allowing the appropriate input signals to be applied.

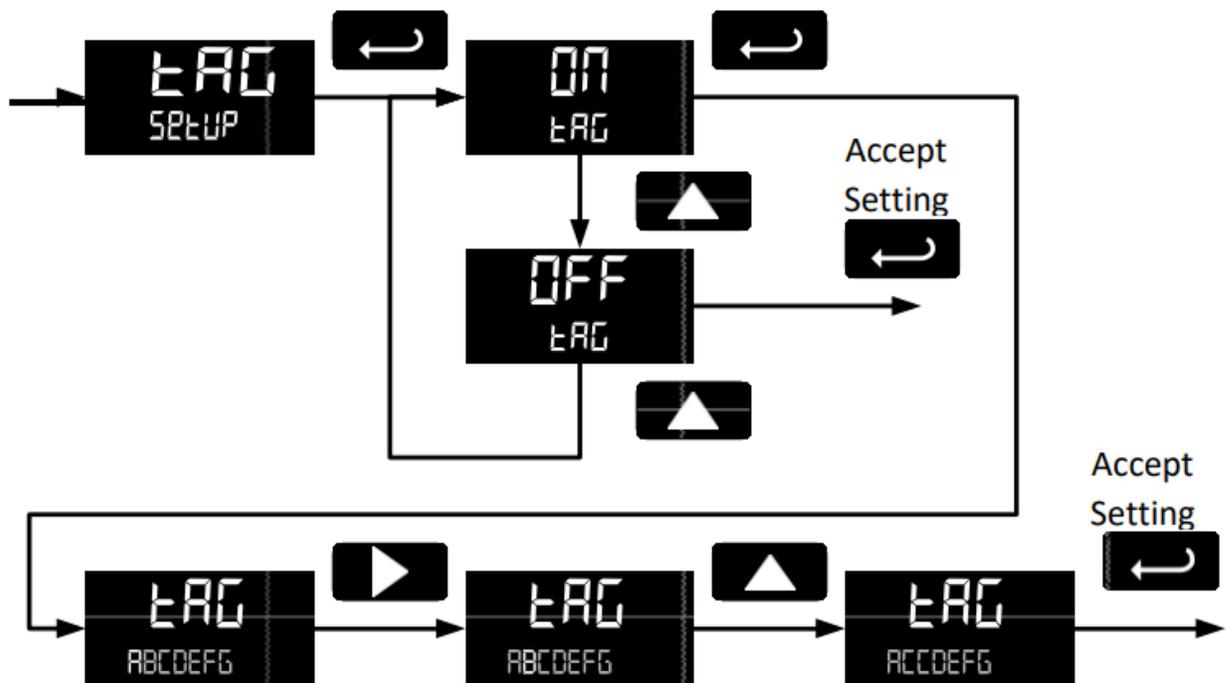
3.7.6 Re-Calibrating the Internal Calibration Reference (ICaL)

The Internal Calibration (ICAL) menu, located in the Advanced features menu, is used to recalibrate the internal calibration reference. Recalibration is recommended at least every twelve months. Refer to Internal Calibration (ICAL).

3.7.7 Setting the Tag Display (TAG)

The meter can be set to display a combination of seven alphanumeric characters for engineering units (e.g. GALLONS) or for identification (e.g. TANK 3). Press **Right** arrow to select next unit and **Up** arrow to increment unit. The unit being changed blinks.

Press the **Enter** button, at any time, to accept a setting or **Menu** button to exit without saving changes. Press and hold **Up** arrow to auto-scroll characters.



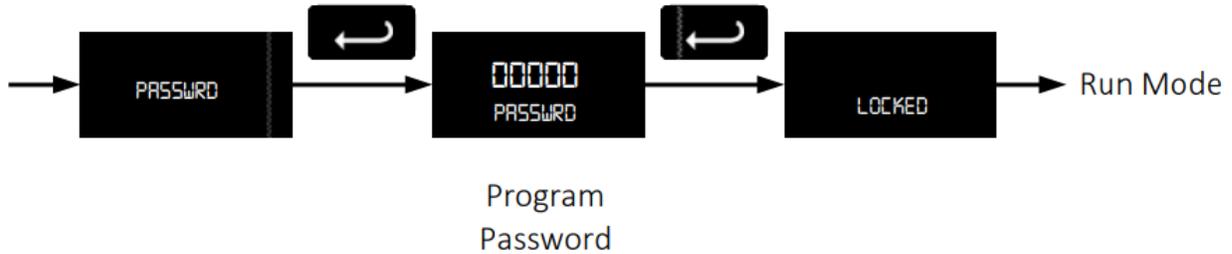
3.7.8 Setting Up the Password (PASSWRD)

The Password menu is used to program a five-digit password to prevent unauthorized changes to the programmed parameter settings. The lock symbol is displayed to indicate that settings are protected.

3.7.9 Locking the Meter

Enter the Password menu and program a five-digit password.

For instructions on how to program numeric values see Setting Numeric Values.



Record the password for future reference. If appropriate, it may be recorded in the space provided.

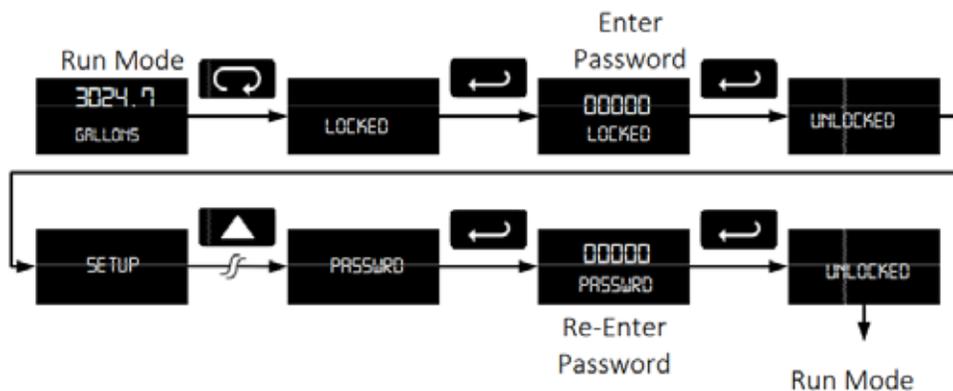
Model:	
Serial Number:	
Password:	- - - - -

3.7.10 Making Changes to a Password Protected Meter

If the meter is password protected, the meter will display the message **LOCKED** when the **Menu** button is pressed. Press the Enter button while the message is being displayed and enter the correct password to gain access to the menu. After exiting the programming mode, the meter returns to its password protected condition.

3.7.11 Disabling Password Protection

To disable the password protection, access the Password menu and enter the correct password twice, as shown below. The meter is now unprotected until a new password is entered.



If the correct six-digit password is entered, the meter displays the message UNLOCKD (unlocked) and the protection is disabled until a new password is programmed.

If the password entered is incorrect, the meter displays the message LOCKED for about two seconds, and then it returns to Run Mode. To try again, press Enter while the Locked message is displayed.

Did you forget the password?

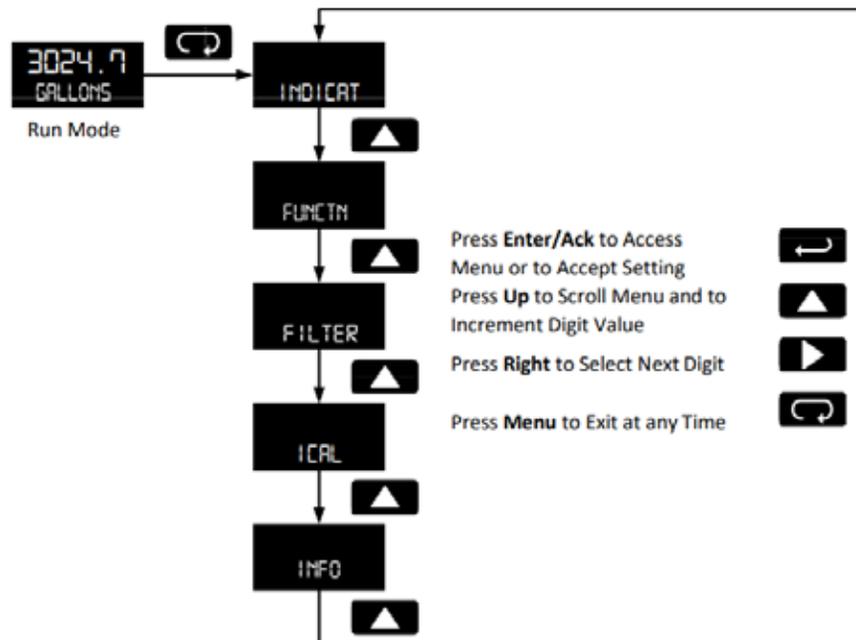
The password may be disabled by entering a master password. If you are authorized to make changes, enter the master password 50865 to unlock the meter.

3.8 Service Feature (SERVICE)

Select **SERVICE** from the main menu to temporarily disable the through-window buttons to prevent inadvertent use. Buttons will automatically resume operation after 60 seconds. The display blinks the message **SERVICE** during this period. This should be used when cleaning the window and when installing or removing the cover while power is applied (in a safe area only). The service menu is not shown when the through-window buttons are disabled using the slide switch located on the connector board.

3.9 Advanced Features Menu

To simplify the setup process, functions not needed for most applications are located in the Advanced features menu. Press and hold the MENU button for five seconds to access the Advanced features menu.



3.9.1 Advanced Features Menu & Display Messages

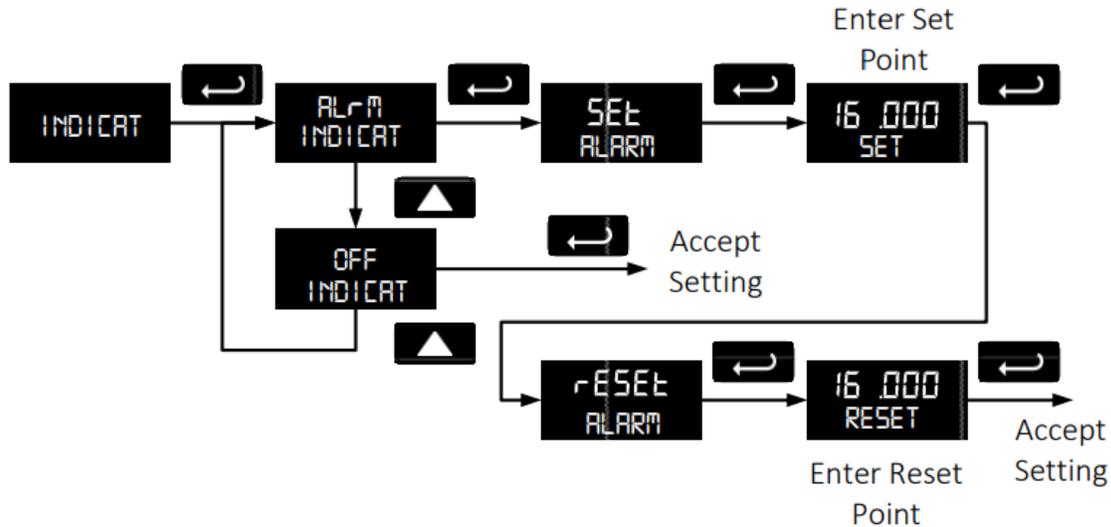
The following table shows the Advanced features menu functions and messages in the order they appear in the menu.

Display	Parameter	Action/Setting
INDICAT	<i>Indicate</i>	Enter Indication (Alarm) menu
OFF	<i>Off</i>	Disable alarm
ALARM	<i>Alarm</i>	Enter alarm indication menu
SET	<i>Set Point</i>	Program set point
RESET	<i>Reset Point</i>	Program reset point
Func	<i>Function</i>	Enter advanced function menu
LINEAR	<i>Linear</i>	Set linear scaling
SQUAR	<i>Square Root</i>	Set square root extraction
PROG E	<i>Programmable Exponent</i>	Set programmable exponent
CUTOFF	<i>Low-Flow Cutoff</i>	Set low-flow cutoff
FILTER	<i>Filter</i>	Set noise filter
OFF	<i>Filter Off</i>	Disable noise filter
LOW	<i>Filter Low</i>	Set noise filter to low setting
MED	<i>Filter Medium</i>	Set noise filter to medium setting
HIGH	<i>Filter High</i>	Set noise filter to high setting
ICAL	<i>Internal Calibration</i>	Enter internal reference calibration
INFO	<i>Meter Information</i>	Show software number and version, or reset to factory defaults
SW#	<i>Software</i>	Software number
VER	<i>Software Version</i>	Software version
RESET DEFAULTS?	<i>Reset Defaults</i>	Restore factory default parameter settings

For instructions on how to program numeric values see *Setting Numeric Values*.

3.9.2 Indication (INDICAT)

The Indication menu is used to enable and set up a high or low alarm indication on the screen. When alarm indication is enabled, the HI and LO symbols are used accompanied by a flashing display.



3.9.3 Alarm (ALARM)

- **High alarm trip point:** program setpoint above the reset point.
- **Low alarm trip point:** program setpoint below a reset point.
- Alarm Deadband is determined by the difference between set and reset points. Minimum Deadband is one display count. If set and reset points are programmed the same, the output will reset one count below-set point.

To acknowledge a rate or total alarm, press the Enter button once for acknowledging prompt and a second time to confirm.

3.9.4 Advanced Function Selection (FUNCTION)

The Advanced Function menu is used to select the advanced function to be applied to the input: linear, square root, programmable exponent, or round horizontal tank volume calculation. The multi-point linearization is part of the linear function selection.

Meters are set up at the factory for linear function with 2-point linearization. The linear function provides a display that is linear with respect to the input signal.

3.9.5 Multi-Point Linearization (**LnEAR**)

Up to 32 linearization points can be selected under the Linear function. The multi-point linearization can be used to linearize the display for non-linear signals such as those from level transmitters used to measure volume in odd-shaped tanks or to convert level to flow using weirs and flumes that require a complex exponent. These points are established via direct entry (**SCALE**) or with an external calibration signal (**CAL**).

3.9.6 Manual Entry (**SCALE**)

Manual entry of the linearization data is done once the number of points has been selected (**noPTS**). Input signal levels (**INP 1-32**) for up to 32 points, along with the desired/corresponding meter reading (**dSP 1-32**) should be entered for each linearization point.

3.9.7 External Calibration (**CAL**)

Linearization data can be entered using a known accurate signal source (**INP 1-32**) and then entering the desired/corresponding meter reading (**dSP 1-32**) for that in-put signal level.

Important Navigation Note:

After entering the last display value, the linearization entries must be saved (**SAVE?**) before they go into effect. You may move past this selection using the Up arrow key if you need to go back and correct an earlier entry. Once confident in the entries however, the user must navigate back to the Save menu screen (**SAVE?**) and press the Enter key to save the changes.

3.9.8 Square Root Linearization (**SQR**)

The square root function can be used to linearize the signal from a differential pressure transmitter and display flow rate in engineering units.

3.9.9 Low-Flow Cut-off (**CUTOFF**)

The low-flow cutoff feature allows the meter to be programmed so that the often-unsteady output from a differential pressure transmitter, at low flow rates, always displays zero on the meter. The default cutoff is zero to prevent negative readings, but this may be overridden to allow them. The cutoff value may be programmed from 0 to 99999. Below the cutoff value, the meter will display zero. Selecting either square root or programmable exponent will set the cutoff value to 0. Program the cutoff value to 0 to disable.

3.9.10 Input Signal Filter (**FILTER**)

The noise filter is available for unusually noisy signals that cause an unstable process variable display. The noise filter averages the input signal over a certain period. The filter level can be set to low (LO), medium (MED), high (HI), or off (OFF). The higher the filter setting, the longer the averaging time and so the longer the display may take to find its final value. The filter contains a noise filter bypass feature so that while small variations in the signal will be filtered out, large, abrupt changes to the input signal are displayed immediately.

3.9.11 Internal Calibration (ICAL)

There is **no need to recalibrate** the meter for milliamps when first received from the factory. The meter is **factory calibrated** for milliamps prior to shipment. The calibration equipment is certified to NIST standards.

The internal calibration allows the user to scale the meter without applying a signal. The use of a calibrated signal source is necessary to perform the internal calibration of the meter. Check calibration of the meter at least every 12 months.

Notes:

The signal source must have a full-scale accuracy of 0.002% or better between 4 and 20 mA in order to maintain the specified accuracy of the meter. Allow the meter to warm up for at least 15 minutes before performing the internal calibration procedure.

The *Internal Calibration menu* (ICAL) is part of the Advanced features menu. Press and hold the **MENU** button for 5 seconds to enter the Advanced features menu. Press the **Up**-arrow button to scroll to the Internal Calibration menu (ICAL) and press **Enter**.

The meter displays 4.000 mA. Apply a 4.000 mA signal and press **Enter**. The display flashes for a moment while the meter is accepting the signal.

After the signal is accepted, the meter displays 20.000 mA. Apply a 20.000 mA signal and press **Enter**. The display flashes for a moment while the meter is accepting the signal.

3.9.12 Error Message (SPAN ERROR)

An error message indicates that the calibration process was not successful. After the error message is displayed, the meter will revert to input 2 calibration settings. The error message might be caused by inadvertently leaving the signal at the previous level or not maintaining the minimum span. Press the Menu button to cancel the current calibration process if necessary.

3.9.13 Information (INFO)

The Information menu (INFO) is part of the Advanced features menu. It shows software identification number and version number. To determine the software version of a meter: Go to the Information menu (INFO) and press Enter button.

Continue pressing Enter to scroll through the software release number and software version.

Following the information display, the meter will exit the Advanced features menu and return to run mode.

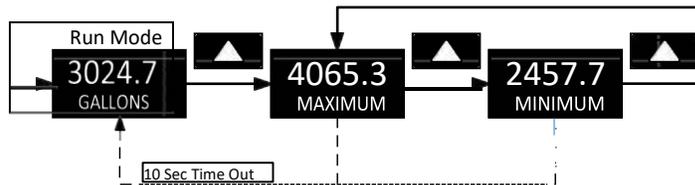
4 Operation

4.1 Front Panel Buttons Operation



4.2 Maximum & Minimum Readings (MAXIMUM & MINIMUM)

The maximum and minimum (peak & valley) readings reached by the process are stored in the meter since the last reset or power-up. The meter shows MAXIMUM or MINIMUM to differentiate between run mode and max/min display. Press Enter to remain in Max/Min display mode. If Enter is not pressed, the Max/Min display reading will time out after ten seconds. The meter will return to display the actual reading.



Press **Up** to Display and to Toggle Between Max & Min Press **Enter** to hold Max/Min Press **Right** to Reset Max/Min

Press **Menu** to Exit Max/Min



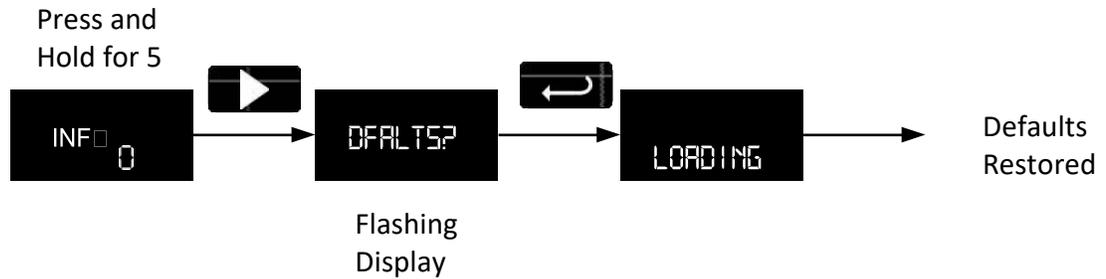
4.3 Reset Meter to Factory Defaults

When the parameters have been changed in a way that is difficult to determine what's happening, it might be better to start the setup process from the factory defaults. Instructions to load factory defaults:

Enter the **Advanced** features menu.

Press and hold **Reset** button when **INFO** is shown. Press **Enter** when **RESET DFALTS?** prompt is shown

Note: If Enter is not pressed within three seconds, the prompt will stop flashing return to showing **INFO**.



4.4 Factory Defaults & User Settings

The following table shows the factory setting for most of the programmable parameters on the meter. Next to the factory setting, the user may record the new setting for the particular application.

Model: _____ S/N: _____ Date: _____

Display	Parameter	Default Setting
Prog	Programming	Scale
INPt 1	Input 1	4.000 mA
dSPLe 1	Display 1	4.000
INPt 2	Input 2	20.00 mA
dSPLe 2	Display 2	20.000
DEC Pt	Decimal point	3 places
Tag	Tag	Off
PASSWRD	Password	00000 (unlocked)
Advanced Features		
INDICAT	Indicate	Off
Func	Function	Linear
CUTOFF	Cutoff	0 (disabled)
FILTER	Filter	Low

5 Troubleshooting

The rugged design and the user-friendly interface of the meter should make it unusual for the installer or operator to refer to this section of the manual. If the meter is not working as expected, refer to the recommendations below.

6 Quick User Interface Reference

6.1 Troubleshooting Tips

Symptom	Check/Action
No display or faint display	Check input signal connections. Perform hard reset by shorting S+ and S- terminals.
Rate display unsteady	Increase filter setting in Advanced menu.
Meter displays error message during calibration (Span error)	Check signal connections. Verify minimum input span requirements
Meter flashes 99999 or -9999	Check input signal is within the scaled range (99999 and -9999).
Display stuck displaying MAXIMUM or MINIMUM	Press Menu to exit Max/Min display readings.
Display response is too slow	Check filter setting to see if it can be lowered to LO or OFF.
If the display locks up or the meter does not respond at all	Perform hard reset by shorting S+ and S- terminals.
Backlight does not appear.	Backlight is intended for viewing assistance in dim lighting conditions. It may not be noticeable under good lighting conditions. Check connections are as shown in Figure 3
Other symptoms not described above	Call Technical Support for assistance.
Through-window buttons do not respond	Service menu was selected, or mechanical button was pushed. The through-window buttons will be re-enabled automatically 60 seconds after the last button push. If slide switch on connector board is in Lock position, switch to Unlock. Sunlight can interfere with the sensors. It is recommended to shield the window from sunlight while operating the buttons by standing so as to block direct sunlight.



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