REDLION®

Model PAXLA - PAX® Lite DC Volt/Current/Process Meter

- 5 DIGIT, 0.56" HIGH RED LED DISPLAY
- PROGRAMMABLE SCALING AND DECIMAL POINTS
- PROGRAMMABLE USER INPUT
- DUAL 5 AMP FORM C RELAY
- UNIVERSALLY POWERED
- NEMA 4X/IP65 SEALED FRONT BEZEL
- OPTIONAL CUSTOM UNIT OVERLAY W/ BACKLIGHT
- MINIMUM AND MAXIMUM DISPLAY CAPTURE

C **UL** US LISTED
E179259
PROCESS CONTROL EQUIPMENT

For Model No. PAXLA0U0 Only
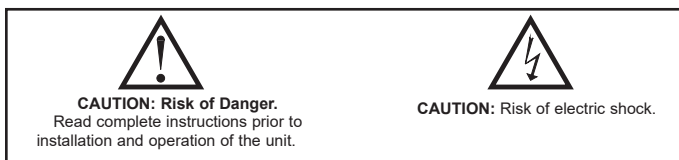
UK CA   CE

GENERAL DESCRIPTION

The PAXLA is a versatile meter available as a DC volt, current, or process meter with scaling and dual Form C relay outputs. The meter is programmed through the front panel buttons and the use of jumpers. The RST button can also function as a front panel display reset.

Once the front panel programming is complete, the buttons can be disabled by a user input setting. The meter has been specifically designed for harsh industrial environments. With a NEMA 4X/IP65 sealed bezel and extensive testing to meet CE requirements, the meter provides a tough yet reliable application solution.

SAFETY SUMMARY

All safety related regulations, local codes as well as instructions that appear in this document or on equipment must be observed to ensure personal safety and to prevent damage to either the device or equipment connected to it.

Do not use these products to replace proper safety interlocking. No software-based device (or any other solid-state device) should ever be designed to be responsible for the maintenance of personnel safety or consequential equipment not equipped with safeguards. Red Lion disclaims any responsibility for damages, either direct or consequential, that result from the use of this equipment in a manner not consistent with these specifications.

⚠ **CAUTION: Risk of Danger.** Read complete instructions prior to installation and operation of the unit.	⚡ **CAUTION:** Risk of electric shock.

ORDERING INFORMATION

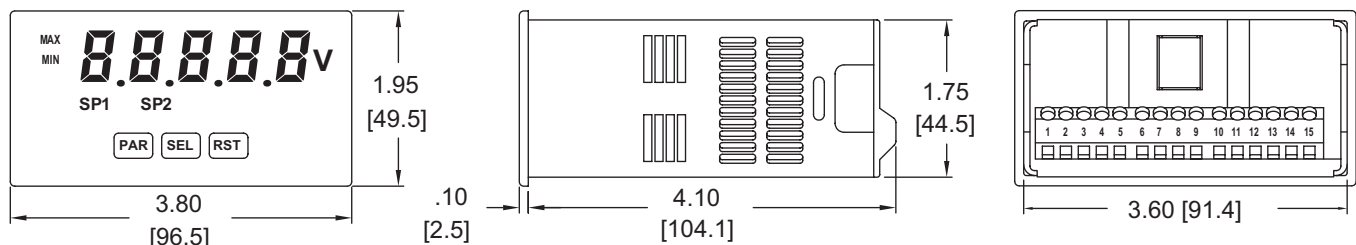| MODEL NO.	DESCRIPTION	PART NUMBER
PAXLA	Volt/Current/Process Meter with Dual Relay Output	PAXLA000
	UL Listed Volt/Current/Process Meter with Dual Relay Output	PAXLA0U0
PAXLBK	Unit Label Kit Accessory	PAXLBK10

SPECIFICATIONS

1. **DISPLAY**: 5 digit, 0.56" (14.2 mm) intensity adjustable Red LED (-19999 to 99999)
2. **POWER REQUIREMENTS**:
   AC POWER: 50 to 250 VAC 50/60 Hz, 12 VA
      Isolation: 2300 Vrms for 1 min. to all inputs and outputs
   DC POWER: 21.6 to 250 VDC, 6 W
   DC Out: +24 VDC @ 100 mA if input voltage is greater than 50 VAC/VDC
      +24 VDC @ 50 mA if input voltage is less than 50 VDC
3. **INPUT RANGES**: Jumper Selectable
   The ranges listed are for only positive or only negative signals. They do not span both polarities. Negative only signals can be measured; however, they cannot be scaled using the applied or key-in input signal methods.

D.C. Voltages: 200 mV, 2 V, 20 V, 200 V, 10 V

INPUT RANGE	ACCURACY @ 23 °C LESS THAN 85% RH	INPUT IMPEDANCE	MAX INPUT SIGNAL	RESOLUTION	TEMP. COEFFICIENT
200 mV	0.1% of span	1.033 MΩ	75 VDC	10 µV	70 ppm /°C
2 V	0.1% of span	1.033 MΩ	75 VDC	0.1 mV	70 ppm /°C
10 V	0.1% of span	1.033 MΩ	250 VDC	1 mV	70 ppm /°C
20 V	0.1% of span	1.033 MΩ	250 VDC	1 mV	70 ppm /°C
200 V	0.1% of span	1.033 MΩ	250 VDC	10 mV	70 ppm /°C

DIMENSIONS In inches [mm]

MAX MIN **8.8.8.8.8**v   SP1 SP2   PAR SEL RST

1.95 [49.5]   3.80 [96.5]   .10 [2.5]   4.10 [104.1]   1.75 [44.5]   3.60 [91.4]

D.C. Currents: 200 µA, 2 mA, 20 mA, 200 mA

INPUT RANGE	ACCURACY @ 23 °C LESS THAN 85% RH	INPUT IMPEDANCE	MAX INPUT SIGNAL	RESOLUTION	TEMP. COEFFICIENT
200 µA	0.1% of span	1.111 KΩ	15 mA	10 nA	70 ppm /°C
2 mA	0.1% of span	111 Ω	50 mA	0.1 µA	70 ppm /°C
20 mA	0.1% of span	11 Ω	150 mA	1 µA	70 ppm /°C
200 mA	0.1% of span	1 Ω	500 mA	10 µA	70 ppm /°C

D.C. Process: 4 to 20 mA, 1 to 5 VDC, 0/1 to 10 VDC

INPUT RANGE	SELECT RANGE
4 - 20 mA	Use the 20 mA range
1 - 5 VDC	Use the 10V range
1 - 10 VDC	Use the 10V range

4. **OVERRANGE/UNDERRANGE INDICATION:**
   Input Overrange Indication: "*OLOL*".
   Input Underrange Indication: "*ULUL*".
   Display Overrange/Underrange Indication: ".…."/"-.…."
5. **A/D CONVERTER:** 16 bit resolution
6. **UPDATE RATES**:
   A/D conversion rate: 20 readings/sec.
   Display update: 500 msec min.
7. **USER INPUT**:
   User Input: Software selectable pull-up (24.7 KΩ) or pull-down resistor (20 KΩ) that determines active high or active low input logic.
   Trigger levels: V_{IL} = 1.0 V max; V_{IH} = 2.4 V min; V_{MAX} = 28 VDC
   Response Time: 5 msec typ.; 100 msec debounce (activation and release)
8. **MEMORY**: Nonvolatile E^{2}PROM retains all programming parameters when power is removed.
9. **OUTPUT**:
   Type: Dual FORM-C relay
   Isolation To Sensor & User Input Commons: 1400 Vrms for 1 min.
   Working Voltage: 150 Vrms

Contact Rating: 5 amps @ 120/240 VAC or 28 VDC (resistive load), 1/8 H.P. @ 120 VAC (inductive load)
Life Expectancy: 100,000 minimum operations
Response Time:
   Turn On Time: 4 msec max.
   Turn Off Time: 4 msec max.
10. **ENVIRONMENTAL CONDITIONS**:
   Operating temperature: 0 to 50 °C
   Storage temperature: -40 to 70 °C
   Operating and storage humidity: 0 to 85% max. RH (non-condensing)
   Vibration to IEC 68-2-6: Operational 5 to 150 Hz, 2 g.
   Shock to IEC 68-2-27: Operational 30 g (10 g relay).
   Altitude: Up to 2,000 meters
11. **CONNECTIONS**: High compression cage-clamp terminal block
   Wire Strip Length: 0.3" (7.5 mm)
   Wire Gage: 30-14 AWG copper wire
   Torque: 4.5 inch-lbs (0.51 N-m) max.
12. **CONSTRUCTION**: This unit is rated for NEMA 4X/IP65 outdoor use. IP20 Touch safe. Installation Category II, Pollution Degree 2. One piece bezel/case. Flame resistant. Synthetic rubber keypad. Panel gasket and mounting clip included.
13. **CERTIFICATIONS AND COMPLIANCES:**
   CE Approved
      EN 61326-1 Immunity to Industrial Locations
      Emission CISPR 11 Class A
   Safety requirements for electrical equipment for measurement, control, and laboratory use:
      EN 61010-1: General Requirements
   RoHS Compliant
   UL Listed: File #E179259 **For Model No. PAXLA0U0 Only**
   Type 4X Enclosure rating (Face only)
   IP65 Enclosure rating (Face only)
   IP20 Enclosure rating (Rear of unit)
14. **WEIGHT**: 10.4 oz. (295 g)

1.0 INSTALLING THE METER

INSTALLATION

The PAX meets NEMA 4X/IP65 requirements when properly installed. The unit is intended to be mounted into an enclosed panel. Prepare the panel cutout to the dimensions shown. Remove the panel latch from the unit. Slide the panel gasket over the rear of the unit to the back of the bezel. The unit should be installed fully assembled. Insert the unit into the panel cutout.
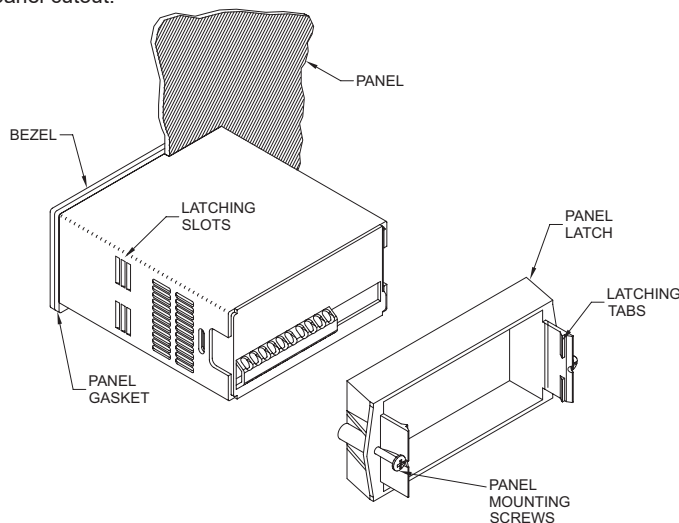

While holding the unit in place, push the panel latch over the rear of the unit so that the tabs of the panel latch engage in the slots on the case. The panel latch should be engaged in the farthest forward slot possible. To achieve a proper seal, tighten the latch screws evenly until the unit is snug in the panel (Torque to approximately 7 in-lbs [79N-cm]). Do not over-tighten the screws.

INSTALLATION ENVIRONMENT

The unit should be installed in a location that does not exceed the maximum operating temperature and provides good air circulation. Placing the unit near devices that generate excessive heat should be avoided.

The bezel should be cleaned only with a soft cloth and neutral soap product. Do NOT use solvents. Continuous exposure to direct sunlight may accelerate the aging process of the bezel.

Do not use tools of any kind (screwdrivers, pens, pencils, etc.) to operate the keypad of the unit.

PANEL CUT-OUT

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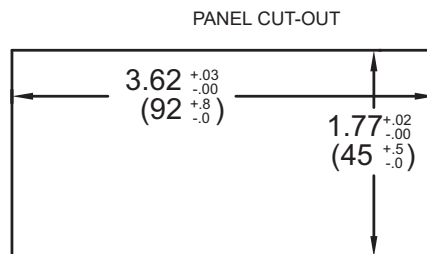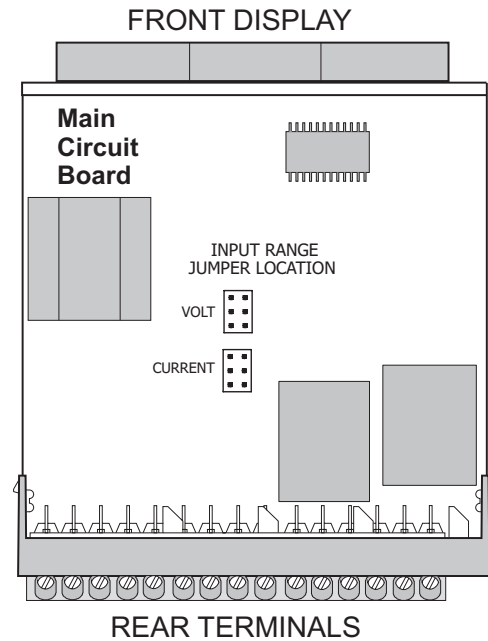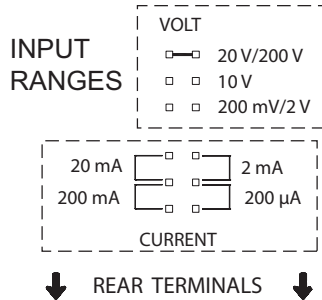
2.0 SETTING THE JUMPERS

INPUT RANGE JUMPER

This jumper is used to select the proper input range. The input range selected in programming must match the jumper setting. Select a range that is high enough to accommodate the maximum signal input to avoid overloads.

To access the jumpers, remove the meter base from the case by firmly squeezing and pulling back on the side rear finger tabs. This should lower the latch below the case slot (which is located just in front of the finger tabs). It is recommended to release the latch on one side, then start on the other side latch.

⚠ **Warning:** Exposed line voltage exists on the circuit boards. Remove all power to the meter and load circuits before accessing inside of the meter.

FRONT DISPLAY

Main Circuit Board

INPUT RANGE
JUMPER LOCATION

VOLT

CURRENT

REAR TERMINALS

INPUT RANGES

VOLT
- 20 V/200 V
- 10 V
- 200 mV/2 V

| 20 mA | | | 2 mA |
| 200 mA | | | 200 μA |

CURRENT

⬇ REAR TERMINALS ⬇

3.0 WIRING THE METER

WIRING OVERVIEW

Electrical connections are made via screw-clamp terminals located on the back of the meter. All conductors should conform to the meter's voltage and current ratings. All cabling should conform to appropriate standards of good installation, local codes and regulations. It is recommended that the power supplied to the meter (DC or AC) be protected by a fuse or circuit breaker.

When wiring the meter, compare the numbers embossed on the back of the meter case against those shown in wiring drawings for proper wire position. Strip the wire, leaving approximately 0.3" (7.5 mm) bare lead exposed (stranded wires should be tinned with solder.) Insert the lead under the correct screw-clamp terminal and tighten until the wire is secure. (Pull wire to verify tightness.)
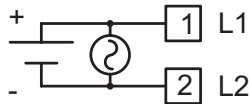
EMC INSTALLATION GUIDELINES

Visit http://www.redlion.net/emi for more information on EMI guidelines, Safety and CE issues as they relate to Red Lion products.

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3.1 POWER WIRING

Power
Terminal 1: VAC/DC +
Terminal 2: VAC/DC -

```
    +          ┌──┐
    ───┐       │ 1│ L1
       (∿)     ├──┤
    ───┘       │ 2│ L2
    -          └──┘
```

DC Out Power
Terminal 3: + 24 VDC
    OUT
Terminal 4: Common

```
┌──┐
│ 3│  + EXC
├──┤
│ 4│  COMM
└──┘
```
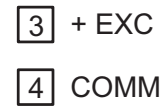
3.2 USER INPUT WIRING

Terminal 8: User Input
Terminal 9: User Comm

Sinking Logic

```
    ┌─o╱o─┐ ┌──┐
    │      │ 8│ USER
    │      ├──┤
    └──────│ 9│ USER COM
           └──┘
```

Sourcing Logic

```
 +  ┌─o╱o─┐ ┌──┐
    │      │ 8│ USER
 -  │      ├──┤
    └──────│ 9│ USER COMM
           └──┘
```
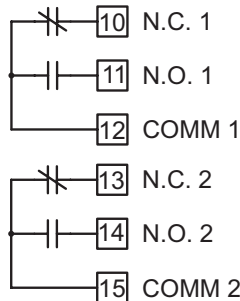
3.3 SETPOINT (OUTPUT) WIRING

Terminal 10: NC 1
Terminal 11: NO 1
Terminal 12: Relay 1 Common
Terminal 13: NC 2
Terminal 14: NO 2
Terminal 15: Relay 2 Common

```
     ┌─╫─┐┌──┐
     │   ││10│ N.C. 1
     │   │├──┤
     │ ─┤├─│11│ N.O. 1
     │   │├──┤
     └───│12│ COMM 1
         └──┘
     ┌─╫─┐┌──┐
     │   ││13│ N.C. 2
     │   │├──┤
     │ ─┤├─│14│ N.O. 2
     │   │├──┤
     └───│15│ COMM 2
         └──┘
```

3.4 INPUT SIGNAL WIRING

⚡ **CAUTION:** Analog common is NOT isolated from user input common. In order to preserve the safety of the meter application, the Analog and DC power common must be suitably isolated from hazardous live earth referenced voltage; or input common must be at protective earth ground potential. If not, hazardous voltage may be present at the User Input and Input Common terminals. Appropriate considerations must then be given to the potential of the input common with respect to earth ground. Always connect the analog signal common to terminal 7.
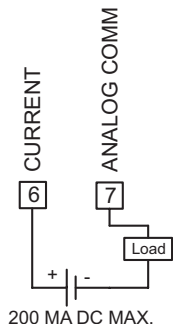
Voltage Signal (self powered)
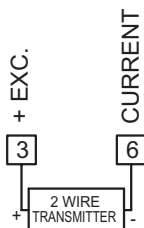Terminal 5: +VDC
Terminal 7: -VDC

```
VOLT      ANALOG COMM
┌──┐       ┌──┐
│ 5│       │ 7│
└──┘       └──┘
  │  +    -  │
200 VDC MAX.
```
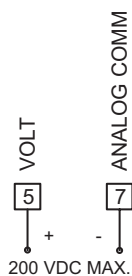
Current Signal (self powered)
Terminal 6: +ADC
Terminal 7: -ADC

```
CURRENT   ANALOG COMM
┌──┐       ┌──┐
│ 6│       │ 7│
└──┘       └──┘
              Load
    + ─┤├─ -
200 MA DC MAX.
```

Current Signal (2 wire requiring excitation)
Terminal 3: +EXC
Terminal 6: +ADC

```
+ EXC.     CURRENT
┌──┐       ┌──┐
│ 3│       │ 6│
└──┘       └──┘
  + 2 WIRE
    TRANSMITTER -
```
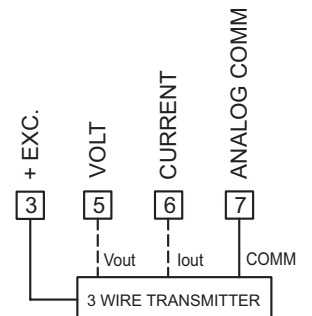
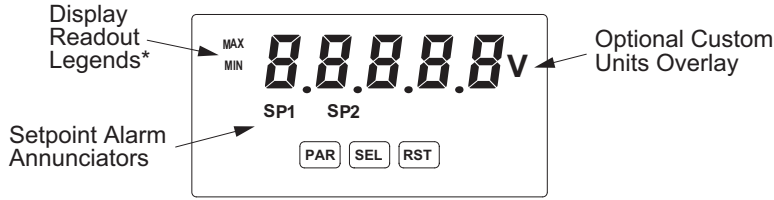**Current Signal (3 wire requiring excitation)**
Terminal 6: +ADC (signal)
Terminal 7: -ADC (common)
Terminal 3: +EXC

Voltage Signal (3 wire requiring excitation)
Terminal 5: +VDC (signal)
Terminal 7: -VDC (common)
Terminal 3: +EXC

```
+ EXC.  VOLT  CURRENT  ANALOG COMM
┌──┐   ┌──┐  ┌──┐      ┌──┐
│ 3│   │ 5│  │ 6│      │ 7│
└──┘   └──┘  └──┘      └──┘
        Vout   Iout    COMM
       3 WIRE TRANSMITTER
```

4.0 REVIEWING THE FRONT BUTTONS AND DISPLAY

Display Readout Legends*

Optional Custom Units Overlay

Setpoint Alarm Annunciators

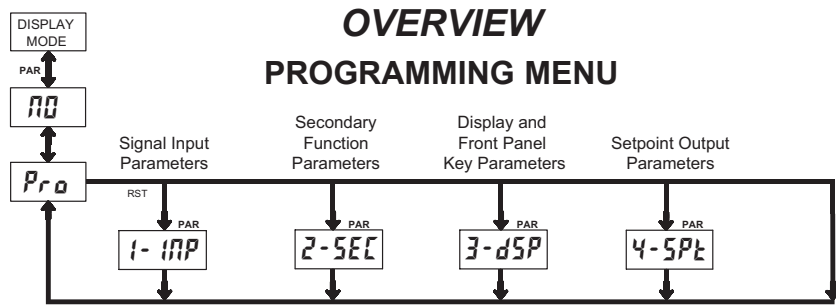| BUTTON	DISPLAY MODE OPERATION	PROGRAMMING MODE OPERATION
PAR	Access Programming Mode	Store selected parameter and index to next parameter
SEL	Index display through selected displays	Advance through selection list/select digit position in parameter value
RST	Resets display	Increment selected digit of parameter value

OPERATING MODE DISPLAY DESIGNATORS

MAX - Maximum display capture value
MIN - Minimum display capture value

"SP1" - Below the display indicates setpoint 1 output activated.
"SP2" - Below the display indicates setpoint 2 output activated.

Pressing the **SEL** button toggles the meter through the selected displays. If display scroll is enabled, the display will toggle automatically every four seconds between the enabled display values.

5.0 PROGRAMMING THE METER

OVERVIEW
PROGRAMMING MENU

DISPLAY MODE

PAR

NO

Pro

RST

Signal Input Parameters	Secondary Function Parameters	Display and Front Panel Key Parameters	Setpoint Output Parameters
PAR	PAR	PAR	PAR
1- INP	*2-SEC*	*3-dSP*	*4-SPt*

PROGRAMMING MODE ENTRY (PAR BUTTON)

It is recommended all programming changes be made off line, or before installation. The meter normally operates in the Display Mode. No parameters can be programmed in this mode. The Programming Mode is entered by pressing the **PAR** button. If it is not accessible, then it is locked by either a security code or a hardware lock.

MODULE ENTRY (SEL & PAR BUTTONS)

The Programming Menu is organized into four modules. These modules group together parameters that are related in function. The display will alternate between *Pro* and the present module. The **SEL** button is used to select the desired module. The displayed module is entered by pressing the **PAR** button.

MODULE MENU (PAR BUTTON)

Each module has a separate module menu (which is shown at the start of each module discussion). The **PAR** button is pressed to advance to a particular parameter to be changed, without changing the programming of preceding parameters. After completing a module, the display will return to *Pro NO*. Programming may continue by accessing additional modules.

SELECTION / VALUE ENTRY

For each parameter, the display alternates between the present parameter and the selections/value for that parameter. The **SEL** and **RST** buttons are used to move through the selections/values for that parameter. Pressing the **PAR** button, stores and activates the displayed selection/ value. This also advances the meter to the next parameter.

For numeric values, the value is displayed with one digit flashing (initially the right most digit). Pressing the **RST** button increments the digit by one or the user can hold the **RST** button and the digit will automatically

scroll. The **SEL** button will select the next digit to the left. Pressing the **PAR** button will enter the value and move to the next parameter.

PROGRAMMING MODE EXIT (PAR BUTTON)

The Programming Mode is exited by pressing the **PAR** button with *Pro NO* displayed. This will commit any stored parameter changes to memory and return the meter to the Display Mode. (If power loss occurs before returning to the Display Mode, verify recent parameter changes.)
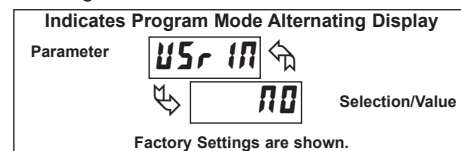
PROGRAMMING TIPS

It is recommended to start with Module 1 and proceed through each module in sequence. When programming is complete, it is recommended to record the parameter programming and lock out parameter programming with the user input or programming security code.
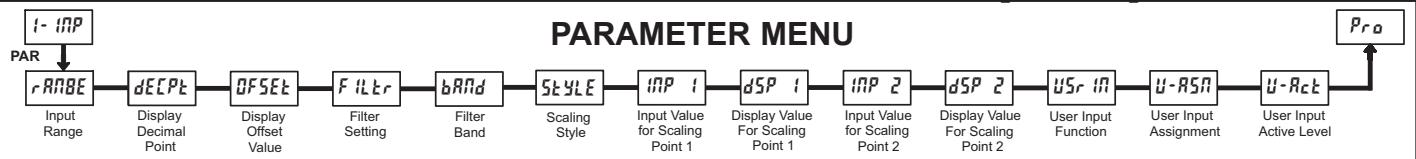
FACTORY SETTINGS

Factory Settings may be completely restored in Module 2. This is useful when encountering programming problems.

ALTERNATING SELECTION DISPLAY

In the explanation of the modules, the following dual display with arrows will appear. This is used to illustrate the display alternating between the parameter on top and the parameter's Factory Setting on the bottom. In most cases, selections and values for the parameter will be listed on the right.

Indicates Program Mode Alternating Display

Parameter   *USr IN*

NO   Selection/Value

Factory Settings are shown.

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5.1 MODULE 1 - SIGNAL INPUT PARAMETERS (1- INP)

PARAMETER MENU

| 1- INP | | | | | | | | | | | | | Pro |

PAR

r RNGE	dECPt	OFSEt	F ILtr	bRNd	StYLE	INP 1	dSP 1	INP 2	dSP 2	USr IN	U-RSN	U-Act
Input Range	Display Decimal Point	Display Offset Value	Filter Setting	Filter Band	Scaling Style	Input Value for Scaling Point 1	Display Value For Scaling Point 1	Input Value for Scaling Point 2	Display Value For Scaling Point 2	User Input Function	User Input Assignment	User Input Active Level

INPUT RANGE

r RNGE
200u

SELECTION	RANGE RESOLUTION	SELECTION	RANGE RESOLUTION
200uA	200.00 µA	0.02A	20.000 mA
0.002A	2.0000 mA	0.2A	200.00 mA
0.2u	200.00 mV	20u	20.000 V
2u	2.0000 V	200u	200.00 V
10u	10.000 V		

Select the input range that corresponds to the external signal. This selection should be high enough to avoid input signal overload but low enough for the desired input resolution. This selection and the position of the Input Range Jumper must match.

DISPLAY DECIMAL POINT

dECPt
0.00

0   0.0   0.00   0.000   0.0000

Select the decimal point location for the Input, MIN and MAX displays. This selection also affects the *dSP 1* and *dSP2* parameters and setpoint values and offset value..

DISPLAY OFFSET VALUE

OFSEt
0.00

- 19999 to 19999

The display can be corrected with an offset value. This can be used to compensate for signal variations or sensor errors. This value is automatically updated after a Zero Display to show how far the display is offset. A value of zero will remove the effects of offset. The decimal point follows the *dECPt* selection.

FILTER SETTING

F ILtr
1
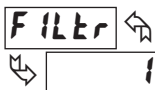
0   1   2   3

If the displayed value is difficult to read due to small process variations or noise, increased levels of filtering will help to stabilize the display. Software filtering effectively combines a fraction of the current input reading with a fraction of the previous displayed reading to generate the new display.

Filter values represent no filtering (0), up to heavy filtering (3). A value of 1 for the filter uses 1/4 of the new input and 3/4 of the previous display to generate the new display. A filter value of 2 uses 1/8 new and 7/8 previous. A filter value of 3 uses 1/16 new and 15/16 previous.

FILTER BAND

bRNd
10

0 to 199 display units

The filter will adapt to variations in the input signal. When the variation exceeds the input filter band value, the filter disengages. When the variation becomes less than the band value, the filter engages again. This allows for a stable readout, but permits the display to settle rapidly after a large process change. The value of the band is in display units, independent of the Display Decimal Point position. A band setting of '0' keeps the filter permanently engaged at the filter level selected above.

SCALING STYLE
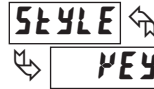
StYLE
KEY

KEY   RPLY

If Input Values and corresponding Display Values are known, the Key-in (*KEY*) scaling style can be used. This allows scaling without the presence or changing of the input signal. If Input Values have to be derived from the actual input signal source or simulator, the Apply (*RPLY*) scaling style must be used.

INPUT VALUE FOR SCALING POINT 1

INP 1
0.00

0 to 29999

For Key-in (*KEY*) style, enter the first Input Value using the front panel buttons. (The Input Range selection sets the decimal location for the Input Value).

For Apply (*RPLY*) style, the meter shows the previously stored Input Value. To retain this value, press the **SEL** button to advance to the next parameter. To change the Input Value, press the **RST** button and apply the input signal to the meter. Adjust the signal source externally until the desired Input Value appears. Press the **SEL** button to enter the value being displayed.
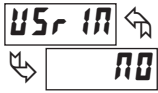
DISPLAY VALUE FOR SCALING POINT 1

dSP 1
0.00

- 19999 to 99999

Enter the first Display Value by using the front panel buttons. This is the same for *KEY* and *RPLY* scaling styles. The decimal point follows the *dECPt* selection.

INPUT VALUE FOR SCALING POINT 2

INP 2
100.00

0 to 29999

For Key-in (*KEY*) style, enter the known second Input Value using the front panel buttons.

For Apply (*RPLY*) style, the meter shows the previously stored Input Value for Scaling Point 2. To retain this value, press the **SEL** button to advance to the next parameter. To change the Input Value, press the **RST** button and apply the input signal to the meter. Adjust the signal source externally until the desired Input Value appears. Press the **SEL** button to enter the value being displayed.

DISPLAY VALUE FOR SCALING POINT 2

dSP 2
100.00

- 19999 to 99999

Enter the second Display Value by using the front panel buttons. This is the same for *KEY* and *RPLY* scaling styles. The decimal point follows the *dECPt* selection.

General Notes on Scaling

1. When using the Apply (*RPLY*) scaling style, input values for scaling points must be confined to the range limits shown.
2. The same Input Value should not correspond to more than one Display Value. (Example: 20 mA can not equal 0 and 20.)
3. For input levels beyond the programmed Input Values, the meter extends the Display Value by calculating the slope from the two coordinate pairs (*INP 1* / *dSP 1* & *INP2* / *dSP2*).

USER INPUT FUNCTION

U5r 1N

NO

DISPLAY	MODE	DESCRIPTION
NO	No Function	User Input disabled.
P-Loc	Program Mode Lock-out	See Programming Mode Access chart (Module 3).
2Er0	Zero Input (Edge triggered)	The Input Display Value will zero (tare) causing Display Offset Value to change by the difference in values. This function overrides **3-D5P 2Er0** state. This function will be performed regardless if the Input Display is being shown. This function will not reset latched outputs. It may reset auto outputs based on the alarm value.
rE5Et	Reset (Edge triggered)	Resets the User Input Assignment value(s) in **U-A5N** to the present Input Display Value.
d-HLd	Display Hold	Holds the assigned display, but all other meter functions continue as long as activated (maintained action).
d-5EL	Display Select (Edge Triggered)	Advance once for each activation.
d-LEU	Display Intensity Level (Edge Triggered)	Increase intensity one level for each activation.
r5t-1	Setpoint 1 Reset	Immediately resets Latched or Auto Output 1 (2). Latch delay will reset once outside the alarm area. This is regardless of REN-YES (Output Reset with Display Reset) setting. Because this function is only momentary, it will not prevent outputs from activating when the value enters the alarm area.
r5t-2	Setpoint 2 Reset	
r5t12	Setpoint 1 and 2 Reset (Edge Triggered)	
U-A5N	User Input Assignment	Select the Display Value(s) to which the User Input Functions of Reset, Display Hold or Print with Reset is assigned. The **H1**, **LO**, and **H1-LO** selections will reset that display regardless if that display is being shown. The **d5P** assignment will only reset the display being shown. The Input Display Value can only be reset, with **d5P** assignment, when **2Er0** is **YES** in **3-d5P** and the Display Value is being shown. Outputs programmed for REN-YES (Output Reset with Display Reset) can be reset by **d5P** assignment only when viewing the Display Value, regardless of **3-D5P 2Er0** setting. Immediately resets Latched or Auto Output 1 (2). Latch delay will reset once outside the alarm area.

USER INPUT ASSIGNMENT
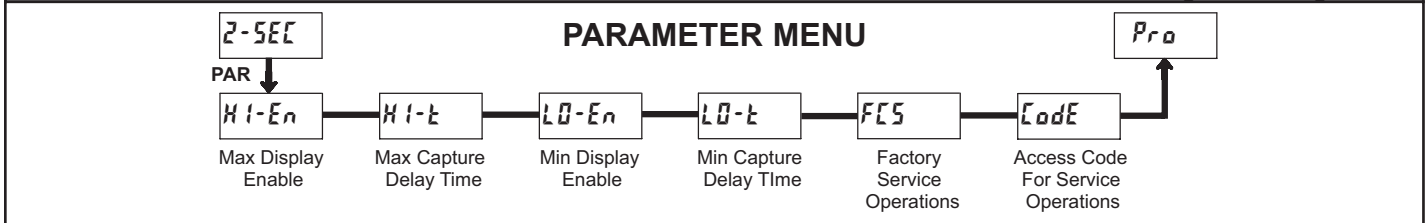
U-A5N

d5P

H1   H1-LO

LO   d5P
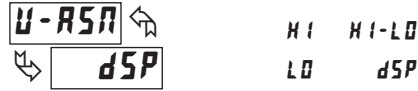
Select the value(s) to which the User Input Function is assigned. The User Input Assignment only applies if a selection of reset or display hold is selected in the User Input Function menu.
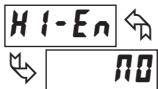
USER INPUT ACTIVE LEVEL

U-Act

LO

H1   LO

Select whether the user input is configured as active low or active high.

5.2 MODULE 2 - SECONDARY FUNCTION PARAMETERS (2-5EC)

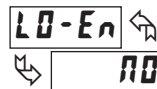**2-5EC**   PARAMETER MENU   **Pro**

PAR ↓

H1-En — **H1-t** — **LO-En** — **LO-t** — **FCS** — **CodE**

| Max Display Enable | Max Capture Delay Time | Min Display Enable | Min Capture Delay TIme | Factory Service Operations | Access Code For Service Operations |

MAX DISPLAY ENABLE

H1-En

NO

NO   YES

Enables the Maximum Display Capture capability.

MIN DISPLAY ENABLE

LO-En

NO

NO   YES

Enables the Minimum Display Capture capability.

MAX CAPTURE DELAY TIME

H1-t

2.0
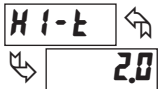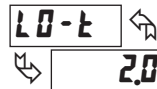
0.0 to 999.9 sec.

When the Input Display is above the present MAX value for the entered delay time, the meter will capture that display value as the new MAX reading. A delay time helps to avoid false captures of sudden short spikes.

### MIN CAPTURE DELAY TIME

LO-t

2.0

0.0 to 999.9 sec.

When the Input Display is below the present MIN value for the entered delay time, the meter will capture that display value as the new MIN reading. A delay time helps to avoid false captures of sudden short spikes.

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FACTORY SERVICE OPERATIONS

`FCS` ⇧
⇩ `NO`   `NO`   `YES`

Select `YES` to perform any of the Factory Service Operations shown below.

RESTORE FACTORY DEFAULT SETTINGS
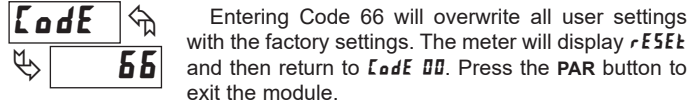
`CodE` ⇧
⇩ `66`

Entering Code 66 will overwrite all user settings with the factory settings. The meter will display `rESEt` and then return to `CodE 00`. Press the **PAR** button to exit the module.

VIEW MODEL AND VERSION DISPLAY
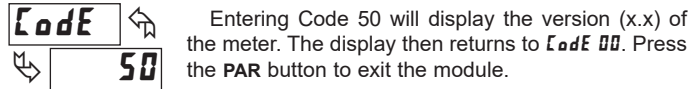
`CodE` ⇧
⇩ `50`

Entering Code 50 will display the version (x.x) of the meter. The display then returns to `CodE 00`. Press the **PAR** button to exit the module.

CALIBRATION

`CodE` ⇧
⇩ `48`
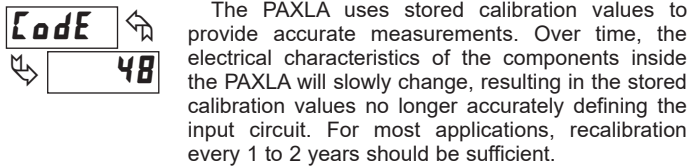
The PAXLA uses stored calibration values to provide accurate measurements. Over time, the electrical characteristics of the components inside the PAXLA will slowly change, resulting in the stored calibration values no longer accurately defining the input circuit. For most applications, recalibration every 1 to 2 years should be sufficient.

Calibration of the PAXLA involves a calibration which should only be performed by individuals experienced in calibrating electronic equipment. Allow 30 minute warm up before performing any calibration related procedure. The following procedures should be performed at an ambient temperature of 15 to 35 °C (59 to 95 °F).

CAUTION: The accuracy of the calibration equipment will directly affect the accuracy of the PAXLA.
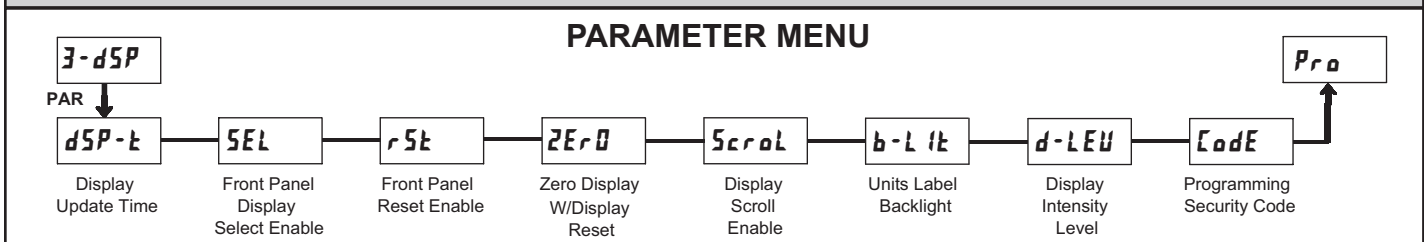
Current Calibration

1. Connect the negative lead of a precision DC current source with an accuracy of 0.01% or better to the COMM terminal. Leave the positive lead of the DC current source unconnected.
2. With the display at `CodE 48`, press the **PAR** button. Unit will display `CAL NO`.
3. Press the **RST** button to select the range to be calibrated.
4. Press the **PAR** button. Display reads `0.0A`.
5. With the positive lead of the DC current source unconnected, press **PAR**. Display reads `CALC` for about 8 seconds.
6. When the display reads the selected range, connect the positive lead of the DC current source to the current input and apply full-scale input signal for the range. (*Note: For 200 mA range, apply 100 mA as indicated on the display.*) Press **PAR**. Display reads `CALC` for about 8 seconds.
7. Repeat steps 3 through 6 for each input range to be calibrated. When display reads `CAL NO`, press the **PAR** button to exit calibration.
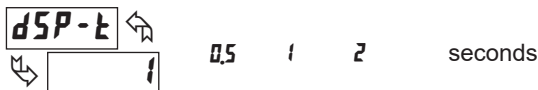
Voltage Calibration

1. Connect a precision DC voltage source with an accuracy of 0.01% or better to the volt input and COMM terminals of the PAXLA. Set the output of the voltage source to zero.
2. With the display at `CodE 48`, press the **PAR** button. Unit will display `CAL NO`.
3. Press the **RST** button to select the range to be calibrated.
4. Press the **PAR** button. Display reads `0.0v`.
5. With the voltage source set to zero (or a dead short applied to the input), press **PAR**. Display reads `CALC` for about 8 seconds.
6. When the display reads the selected range, apply full-scale input signal for the range. (*Note: For 200V range, apply 100V as indicated on the display.*) Press **PAR**. Display reads `CALC` for about 8 seconds.
7. Repeat steps 3 through 6 for each input range to be calibrated. When display reads `CAL NO`, press the **PAR** button to exit calibration.

5.3 MODULE 3 - DISPLAY AND FRONT PANEL BUTTON PARAMETERS (`3-dSP`)

PARAMETER MENU

`3-dSP`

PAR ↓

`dSP-t` — `SEL` — `rSt` — `ZErO` — `Scrol` — `b-Lit` — `d-LEV` — `CodE` → `Pro`

| Display Update Time | Front Panel Display Select Enable | Front Panel Reset Enable | Zero Display W/Display Reset | Display Scroll Enable | Units Label Backlight | Display Intensity Level | Programming Security Code |

DISPLAY UPDATE TIME

`dSP-t` ⇧
⇩ `1`   0.5   1   2   seconds

This parameter sets the display update time in seconds.

FRONT PANEL DISPLAY SELECT ENABLE (SEL)

`SEL` ⇧
⇩ `YES`   `YES`   `NO`

The `YES` selection allows the **SEL** button to toggle through the enabled displays.

FRONT PANEL RESET ENABLE (RST)

`rSt` ⇧
⇩ `dSP`   `NO`   `LO`   `dSP`
`HI`   `HI-LO`

The `HI`, `LO`, and `HI-LO` selections will reset that display regardless if that display is being shown. The `dSP` assignment will only reset the display being shown. The Input Display Value can only be reset, with `dSP` assignment, when `ZErO` is `YES` in `3-dSP`. Outputs programmed for REN-YES (Output Reset with Display Reset) can be reset by `dSP` assignment when viewing the Input Display Value, regardless of `3-dSP` `ZErO` setting. Immediately resets Latched or Auto Output 1 (2). Latch delay will reset once outside the alarm area. Because this function is only momentary, it will not prevent outputs from activating when the value enters the alarm area.

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ZERO DISPLAY WITH DISPLAY RESET

`2Er0` ⇖
⇗ `N0`   `YES`   `N0`

This parameter enables the **RST** button or user input to zero the input display value, causing the display reading to be offset.

Note: For this parameter to operate, the **RST** button or User Input Assignment (`U-ASN`) must be set to `dSP` with the Input Display Value displayed.

DISPLAY SCROLL ENABLE

`Scrol` ⇖
⇗ `N0`   `YES`   `N0`

The `YES` selection allows the display to automatically scroll through the enabled displays. The scroll rate is every 4 seconds. This parameter only appears when the MAX or MIN displays are enabled.

UNITS LABEL BACKLIGHT*

`b-Lit` ⇖
⇗ `OFF`   `ON`   `OFF`

The Units Label Kit Accessory contains a sheet of custom unit overlays which can be installed in to the meter's bezel display assembly. The backlight for these custom units is activated by this parameter.

DISPLAY INTENSITY LEVEL

`d-LEU` ⇖
⇗ `3`   `1` to `5`

Enter the desired Display Intensity Level (1-5). The display will actively dim or brighten as levels are changed.

PROGRAMMING SECURITY CODE

`CodE` ⇖
⇗ `000`   `000` to `999`

The Security Code determines the programming mode and the accessibility of programming parameters. This code can be used along with the Program Mode Lock-out (`P-Loc`) in the User Input Function parameter (Module 1).
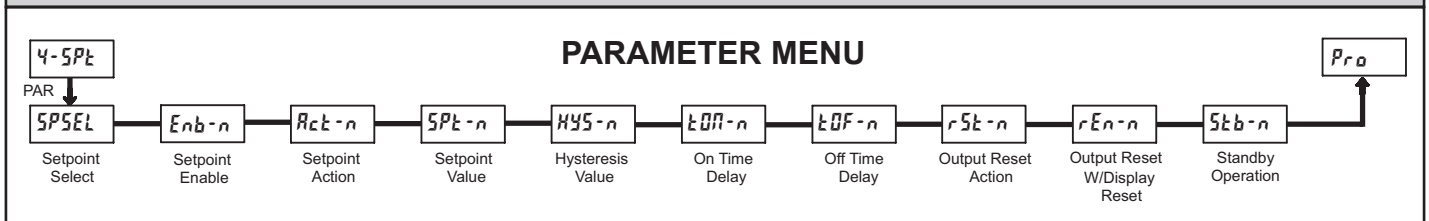
Two programming modes are available. Full Programming mode allows all parameters to be viewed and modified. Quick Programming mode permits only the Setpoint values to be modified, but allows direct access to these values without having to enter Full Programming mode.

Programming a Security Code other than 0, requires this code to be entered at the `CodE` prompt in order to access Full Programming mode. Depending on the code value, Quick Programming may be accessible before the `CodE` prompt appears (see chart).

USER INPUT FUNCTION	USER INPUT STATE	SECURITY CODE	MODE WHEN "PAR" BUTTON IS PRESSED	FULL PROGRAMMING MODE ACCESS
not `P-Loc`	_____	0	Full Programming	Immediate Access
		1-99	Quick Programming	After Quick Programming with correct code entry at `CodE` prompt *
		100-999	`CodE` prompt	With correct code entry at `CodE` prompt *
`P-Loc`	Active	0	Programming Lock	No Access
		1-99	Quick Programming	No Access
		100-999	`CodE` prompt	With correct code entry at `CodE` prompt *
	Not Active	0-999	Full Programming	Immediate Access

Entering Code 222 allows access regardless of security code.

5.4   MODULE 4 - SETPOINT OUTPUT PARAMETERS (`4-SPt`)

PARAMETER MENU

`4-SPt` → PAR ↓

`SPSEL` — `Enb-n` — `Act-n` — `SPt-n` — `HYS-n` — `tON-n` — `tOF-n` — `rSt-n` — `rEn-n` — `Stb-n` → `Pro`

| Setpoint Select | Setpoint Enable | Setpoint Action | Setpoint Value | Hysteresis Value | On Time Delay | Off Time Delay | Output Reset Action | Output Reset W/Display Reset | Standby Operation |

SETPOINT SELECT

`SPSEL` ⇖
⇗ `N0`   `N0`   `SP-1`   `SP-2`

Enter the setpoint (output) to be programmed. The `n` in the following parameters will reflect the chosen setpoint number. After the chosen setpoint is completely programmed, the display will return to `SPSEL`. Repeat steps for each setpoint to be programmed. Select `N0` to exit the module.
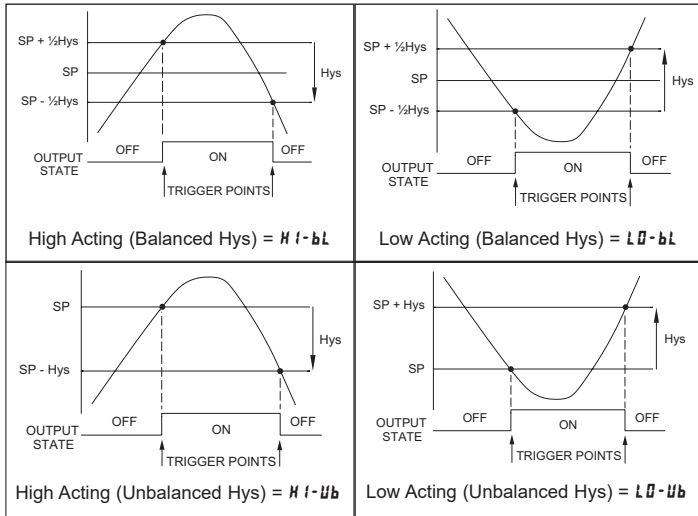
SETPOINT ENABLE

`Enb-n` ⇖
⇗ `N0`   `YES`   `N0`

Select `YES` to enable Setpoint `n` and access the setup parameters. If `N0` is selected, the unit returns to `SPSEL` and Setpoint `n` is disabled.

SETPOINT ACTION

`Act-n` ⇖
⇗ `HI-Ub`   `HI-bL`   `LO-bL`   `HI-Ub`   `LO-Ub`
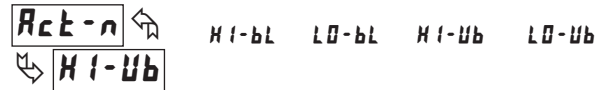
Enter the action for the selected setpoint (output). See Setpoint Output Figures for a visual detail of each action.

`HI-bL` = High Acting, with balanced hysteresis
`LO-bL` = Low Acting, with balanced hysteresis
`HI-Ub` = High Acting, with unbalanced hysteresis
`LO-Ub` = Low Acting, with unbalanced hysteresis

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High Acting (Balanced Hys) = $HI\text{-}bL$

Low Acting (Balanced Hys) = $LO\text{-}bL$

High Acting (Unbalanced Hys) = $HI\text{-}Ub$

Low Acting (Unbalanced Hys) = $LO\text{-}Ub$

SETPOINT VALUE

$SPt\text{-}n$

10.000

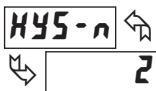$\text{-}19999$ to 99999

Enter the desired setpoint value. The decimal point position for the setpoint and hysteresis values follow the selection set in Module 1.

HYSTERESIS VALUE

$HYS\text{-}n$

2

1 to 59999

Enter desired hysteresis value. See Setpoint Output Figures for visual explanation of how setpoint output actions (balanced and unbalanced) are affected by the hysteresis. When the setpoint is a control output, usually balanced hysteresis is used. For alarm applications, usually unbalanced hysteresis is used. For unbalanced hysteresis modes, the hysteresis functions on the low side for high acting setpoints and functions on the high side for low acting setpoints.

Note: Hysteresis eliminates output chatter at the switch point, while time delay can be used to prevent false triggering during process transient events.

ON TIME DELAY

$tON\text{-}n$

0.0

0.0 to 599.9 Sec

Enter the time value in seconds that the output is delayed from turning on after the trigger point is reached. A value of 0.0 allows the meter to update the output status per the response time listed in the Specifications.
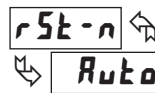
OFF TIME DELAY

$tOF\text{-}n$

0.0
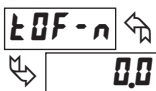
0.0 to 599.9 Sec

Enter the time value in seconds that the output is delayed from turning off after the trigger point is reached. A value of 0.0 allows the meter to update the output status per the response time listed in the Specifications.

OUTPUT RESET ACTION

$rSt\text{-}n$ $Auto$ $LAtCH$ $L\text{-}dLY$

$Auto$

Enter the reset action of the output. See figure for details.

$Auto$ = Automatic action; This action allows the output to automatically reset off at the trigger points per the Setpoint Action shown in Setpoint Output Figures. The "on" output may be manually reset (off) immediately by the front panel **RST** button or user input. The output remains off until the trigger point is crossed again.

$LAtCH$ = Latch with immediate reset action; This action latches the output on at the trigger point per the Setpoint Action shown in Setpoint Output Figures. Latch means that the output can only be turned off by the front panel **RST** button or user input manual reset, or meter power cycle. When the user input or **RST** button is activated (momentary action), the corresponding "on" output is reset immediately and remains off until the trigger point is crossed again. (Previously latched on alarms will be off if power up Display Value is outside the alarm on range.)

$L\text{-}dLY$ = Latch with delay reset action; This action latches the output on at the trigger point per the Setpoint Action shown in Setpoint Output Figures. Latch means that the output can only be turned off by the front panel **RST** button or user input manual reset, or meter power cycle. When the user input or **RST** button is activated (momentary action), the meter delays the event until the corresponding "on" output crosses the trigger off point. (Previously latched on alarms will be off if power up Display Value is outside the alarm on range.)

Setpoint Output Reset Actions

OUTPUT RESET WITH DISPLAY RESET

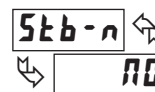$rEn\text{-}n$ NO YES
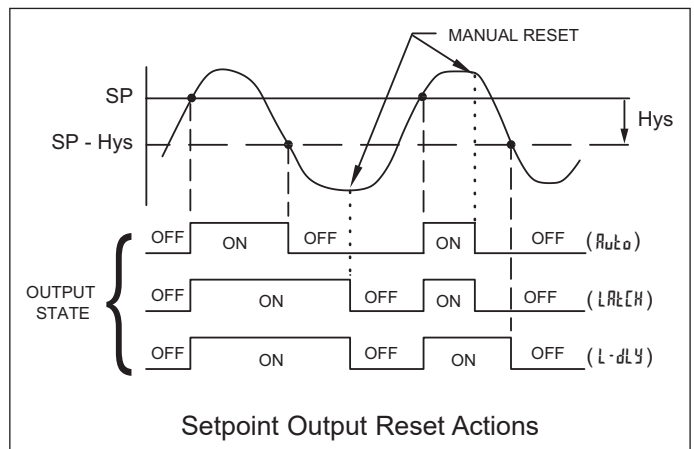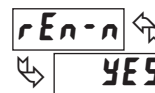
YES

This parameter enables the **RST** button or user input to reset the output when the display is reset.

Note: For this parameter to operate, the **RST** button or User Input Assignment ($U\text{-}ASn$) must be set to dSP with the Input Display Value displayed. If these conditions are not met, the output will not reset with a manual reset.

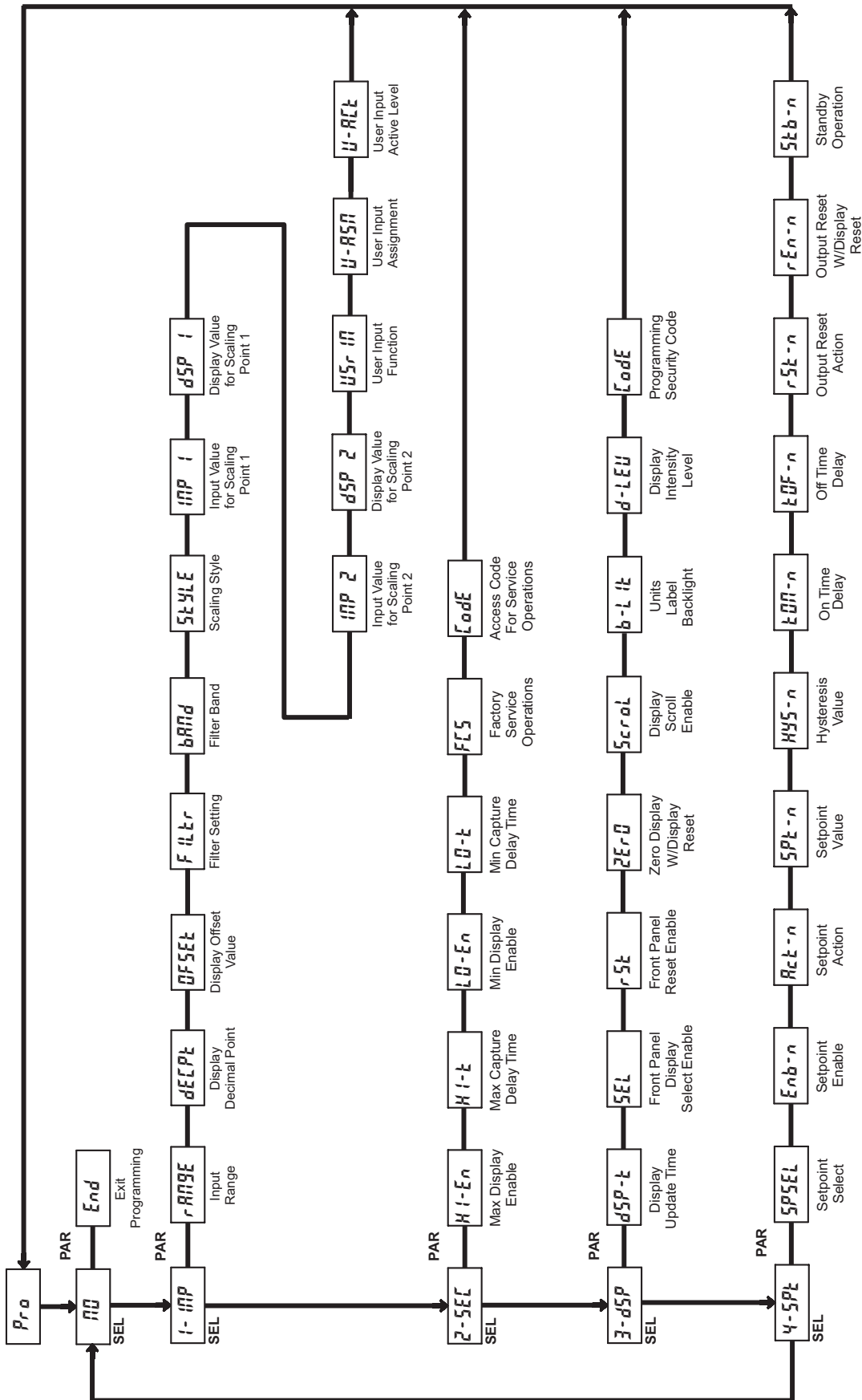## STANDBY OPERATION

$Stb\text{-}n$ NO YES

NO

When YES, the output is disabled (after a power up) until the trigger point is crossed. Once the output is on, the output operates normally per the Setpoint Action and Output Reset Action.

PAXLA PROGRAMMING QUICK OVERVIEW

Press **PAR** key to enter Programming Mode.

Pro

No

PAR — **End** — Exit Programming

SEL

1-INP — Input Range

PAR:
- **rANGE** — Input Range
- **dECPt** — Display Decimal Point
- **OFSEt** — Display Offset Value
- **FiLtr** — Filter Setting
- **bANd** — Filter Band
- **StYLE** — Scaling Style
- **INP 1** — Input Value for Scaling Point 1
- **dSP 1** — Display Value for Scaling Point 1
- **INP 2** — Input Value for Scaling Point 2
- **dSP 2** — Display Value for Scaling Point 2
- **USr IN** — User Input Function
- **U-ASN** — User Input Assignment
- **U-ACt** — User Input Active Level

SEL

2-SEC —

PAR:
- **Hi-En** — Max Display Enable
- **Hi-t** — Max Capture Delay Time
- **LO-En** — Min Display Enable
- **LO-t** — Min Capture Delay Time
- **FCS** — Factory Service Operations
- **CodE** — Access Code For Service Operations

SEL

3-dSP —

PAR:
- **dSP-t** — Display Update Time
- **SEL** — Front Panel Display Select Enable
- **rSt** — Front Panel Reset Enable
- **ZEro** — Zero Display W/Display Reset
- **Scrol** — Display Scroll Enable
- **b-LIt** — Units Label Backlight
- **d-LEU** — Display Intensity Level
- **CodE** — Programming Security Code

SEL

4-SPt —

PAR:
- **SPSEL** — Setpoint Select
- **Enb-n** — Setpoint Enable
- **Act-n** — Setpoint Action
- **SPt-n** — Setpoint Value
- **HYS-n** — Hysteresis Value
- **tON-n** — On Time Delay
- **tOF-n** — Off Time Delay
- **rSt-n** — Output Reset Action
- **rEn-n** — Output Reset W/Display Reset
- **Stb-n** — Standby Operation

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