

# ProceX



**PPI**

The Perfection Experts

## Process Indicator with Alarms



User Manual

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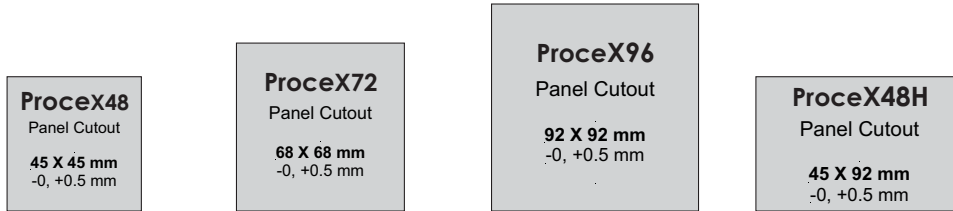
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## Section 1 PANEL MOUNTING & ELECTRICAL CONNECTIONS

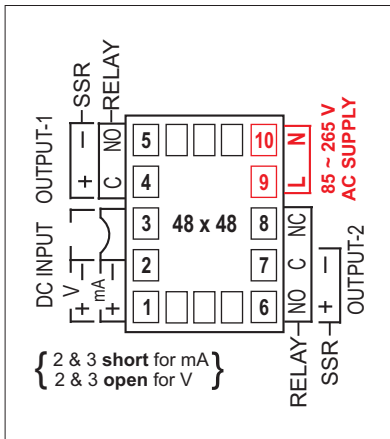
### PANEL CUTOUTS

**Figure 1.1**

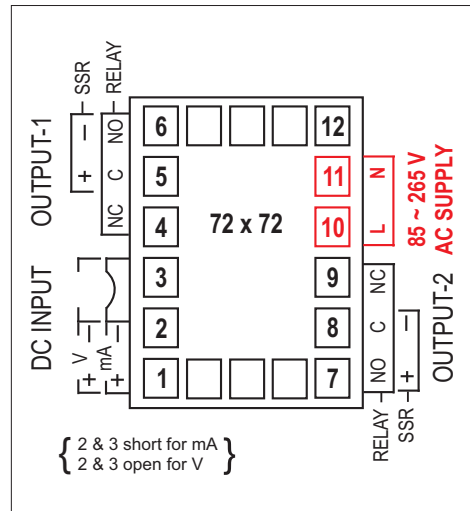


### ELECTRICAL CONNECTIONS

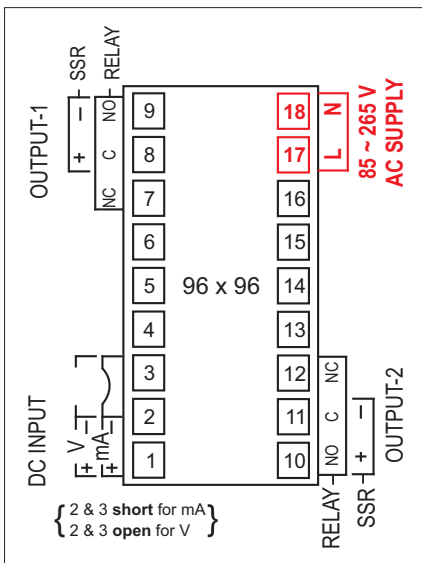
**Figure 1.2(a)**



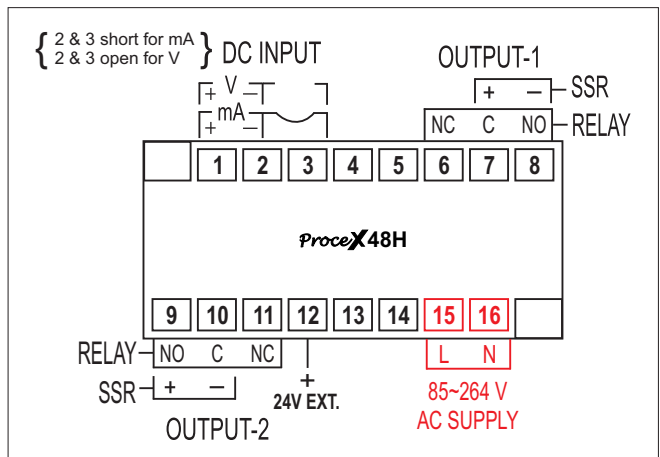
**Figure 1.2(b)**



**Figure 1.2(c)**



**Figure 1.2(d)**



**DC Input**

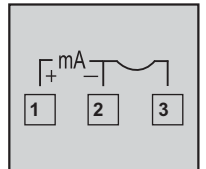
- Procex48** : (Terminal No. - 1, 2 & 3)
- Procex72** : (Terminal No. - 1, 2 & 3)
- Procex96** : (Terminal No. - 1, 2 & 3)
- Procex48H** : (Terminal No. - 1, 2 & 3)

**DC Linear Current (mA)**

Connect the signal (+) and common (-) wires to terminals 1 and 2, respectively. Also short terminals 2 & 3. Refer **Figure 1.3(a)**.

Use a shielded twisted pair with the shield grounded at the signal source for connecting mA source.

**Figure 1.3(a)**

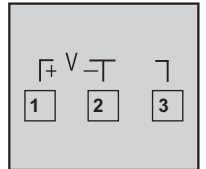


**DC Linear V**

Connect the signal (+) and common (-) wires to terminals 1 and 2, respectively. Leave terminal 3 unconnected. Refer **Figure 1.3(b)**.

Use a shielded twisted pair with the shield grounded at the signal source for connecting mA source.

**Figure 1.3(b)**

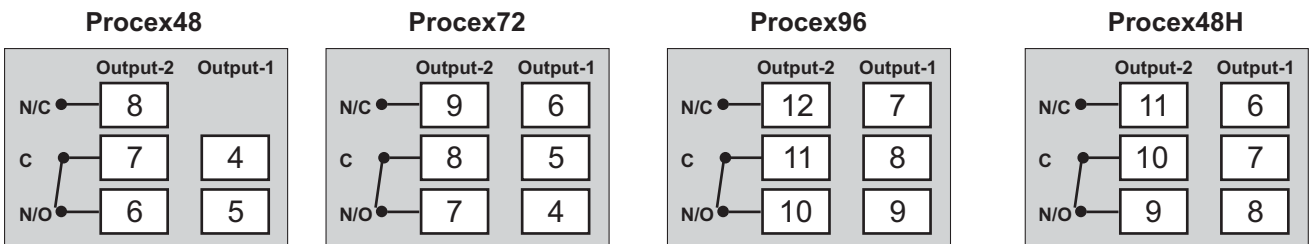


**OUTPUTS**

The indicator is supplied with either Relay contacts or SSR Drive Voltage outputs.

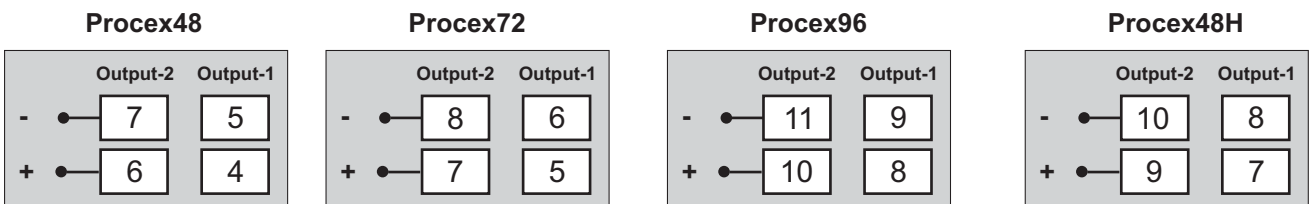
The Terminals for Relay and SSR output (for all 4 models) are shown in the Figures 1.4 (a) & 1.4 (b), respectively.

**Figure 1.4(a) : Relay**



N/O (Normally Open), C (Common), N/C (Normally Closed) contacts are potential-free and are rated 10A/240 VAC (resistive load).

**Figure 1.4(b) : SSR**

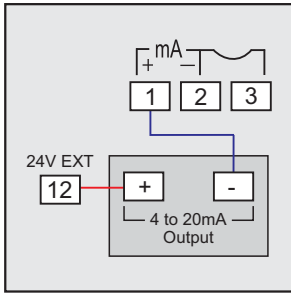


Connect Terminal marked (+) to positive SSR Terminal and Terminal marked (-) to negative SSR Terminal.

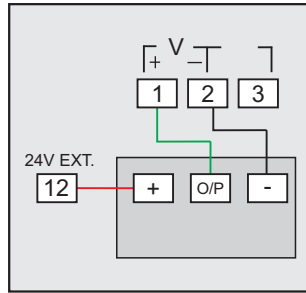
**DC EXCITATION VOLTAGE**

The model **Procex48H** is optionally supplied with 24 VDC @ 40 mA power source. This is primarily meant for exciting 2-wire or 4-wire Current / Voltage transmitters.

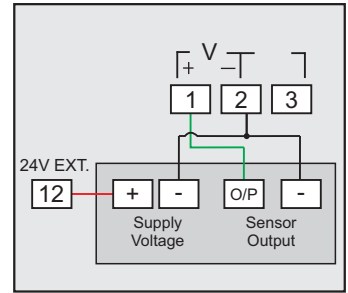
The following figures illustrate connection examples for 2-wire current transmitter and 3-wire / 4-wire voltage transmitters.



2-wire Current Transmitter



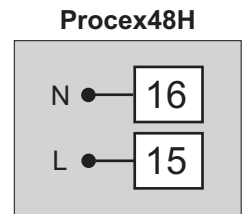
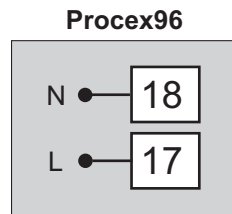
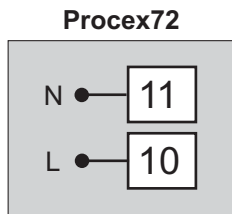
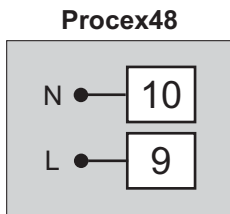
3-wire Voltage Transmitter



4-wire Voltage Transmitter

**POWER SUPPLY**

Figure 1.5



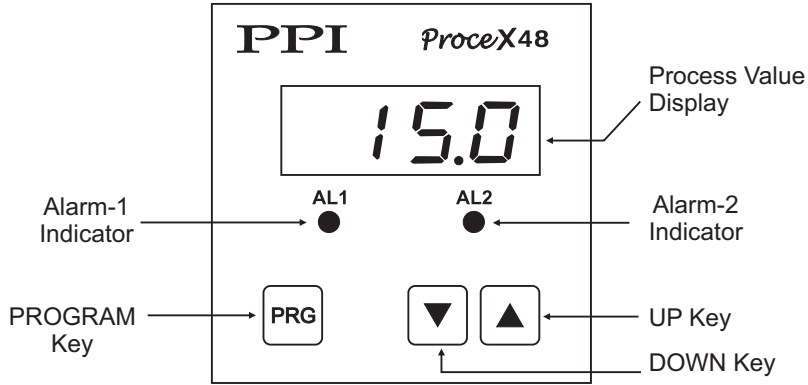
The indicator accepts single phase, 50/60 Hz Line Voltage ranging from 85 to 264 VAC. Use well-insulated copper conductor wire of the size not smaller than 0.5 mm<sup>2</sup>. Connect Line Voltage as shown in Figure 1.5.



Section 2  
FRONT PANEL AND OPERATION

PROCEX48 / PROCEX72 / PROCEX96

Figure 2.1(a)



PROCEX48H

Figure 2.1(b)

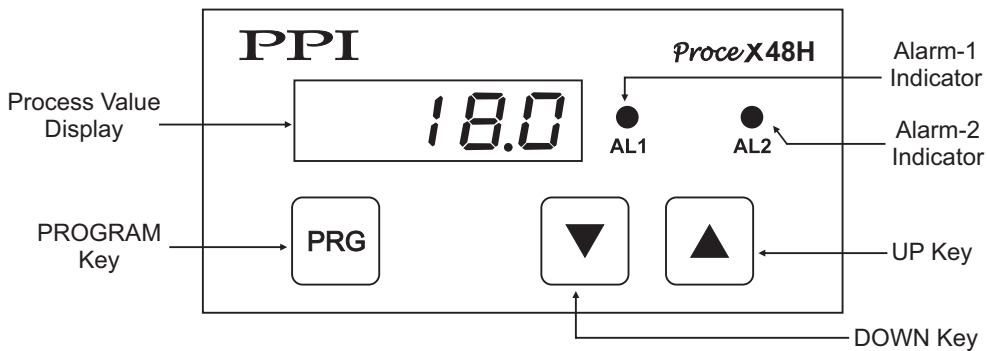


Table 2.1  
KEY DEFINITIONS

Symbol	Key	Function
	PROGRAM MODE	Keep pressed for approximately 5 seconds to enter / exit Set-up mode.
	DOWN	Press to decrease the parameter value. Pressing once decreases the value by one count; holding the key pressed speeds up the change.
	UP	Press to increase the parameter value. Pressing once increases the value by one count; holding the key pressed speeds up the change.



MAIN MODE DISPLAY

Upon switching on the power to the Indicator, all displays and indicators are lit on for approximately 3 seconds. This is followed by the indication of the Indicator model name P r o c e for approximately 1 second. The Indicator now enters MAIN Mode wherein the display shows the PV proportional to the Input DC signal within user set Range Low and Range High Limits.

**PV ERROR INDICATION**

In case of PV Error the following messages are flashed.

**Table 2.2**

Message	PV Error Type
	Over-range (PV above Max. Range)
	Under-range (PV below Min. Range)



### Section 3 PARAMETER SETTINGS

The Indicator offers various parameters for setting-up the configuration and operation modes. Each parameter has a unique name and a settable value. For example, the parameter 'Input Type' is identified by its name InPt and has the settable values '0-20mA/ 4-20mA/ 0-5V/ 0-10V'.

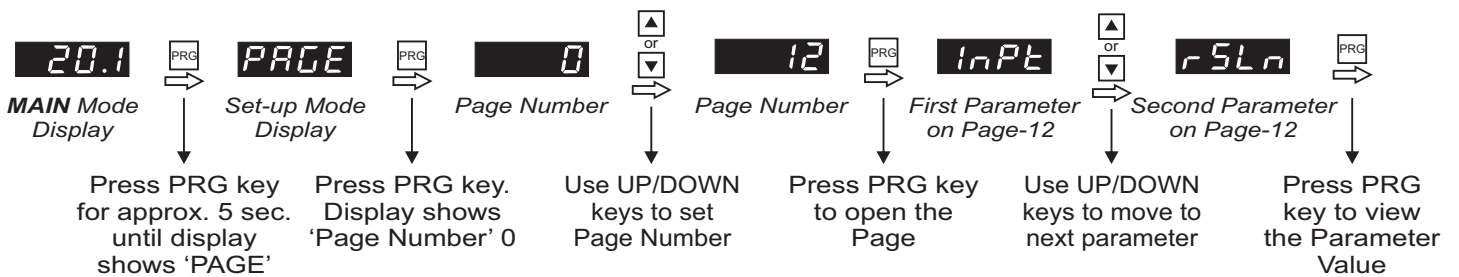
Further, the parameters are organized under different groups. Each group of parameters is called PAGE. Each page is assigned a unique number for its identification and access. The various pages along with their parameters are described later.

Follow the steps below for setting / changing any parameter value.

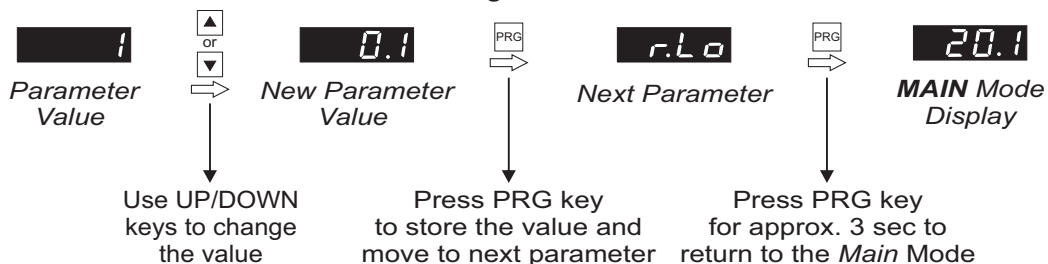
1. Keep PRG key pressed (approximately 5 seconds) until display shows PAGE ( PAGE ). Release the key.
2. Press PRG key again. Display shows page number 0.
3. Press PRG key if page 0 is the desired page number (operator page) or use UP / DOWN keys to set the desired page number and then press PRG key. The display now shows the name for the first parameter in the page.
4. Use UP / DOWN keys to select the desired parameter name.
5. Press PRG key. The display now shows the value for the selected parameter.
6. Use UP / DOWN keys to change the parameter value.
7. Press PRG key to save the new value. The display shows the name for the next parameter in the list.
8. Repeat steps 4 to 7 for any other parameter settings, if required.
9. For returning to Main Mode, keep PRG key pressed (approximately 3 seconds) until the display starts showing PV.

The following figures step-wise show an example of changing the value for the parameter 'Resolution' from '1' to '0.1'. The parameter 'Resolution' is available on PAGE-12 and is second in the list. Notice that from MAIN Mode the appropriate page number is selected first and then the desired parameter name is selected for changing the value. Finally, PRG key is used to return back to MAIN Mode.

**Figure 3.1**



**Figure 3.2**





**Table 3.1**  
**PAGE - 0 : OPERATOR PARAMETERS**

Parameter Description	Settings
<p><b>ALARM-1 SETPOINT</b> <span style="float:right">A1.5P</span></p> <p>Available only if selected 'Alarm-1 type' is either 'Process High' or 'Process Low'. This parameter value sets the Upper (Process High) or Lower (Process Low) Alarm Limit.</p>	<p>-1999 to 9999 (with selected Resolution)</p>
<p><b>ALARM-2 SETPOINT</b> <span style="float:right">A2.5P</span></p> <p>Available only if selected 'Alarm-2 type' is either 'Process High' or 'Process Low'. This parameter value sets the Upper (Process High) or Lower (Process Low) Alarm Limit.</p>	<p>-1999 to 9999 (with selected Resolution)</p>

**Table 3.2**  
**PAGE - 1 : PV MIN / MAX PARAMETERS**

Parameter Description	Settings
<p><b>MAXIMUM PROCESS VALUE</b> <span style="float:right">Hi</span></p> <p>This gives the maximum PV recorded since Power-up or last reset</p>	<p>View Only</p>
<p><b>MINIMUM PROCESS VALUE</b> <span style="float:right">Lo</span></p> <p>This gives the minimum PV recorded since Power-up or last reset.</p>	<p>View Only</p>
<p><b>RESET PV MONITOR</b> <span style="float:right">rst</span></p> <p>This command resets Maximum value and Minimum value to the instantaneous Process Value.</p>	<p><span style="border: 1px solid black; padding: 2px;">no</span> No <span style="border: 1px solid black; padding: 2px;">yes</span> Yes</p>

**Table 3.3**  
**PAGE - 12 : INPUT CONFIGURATION PARAMETERS**

Parameter Description	Settings
<p><b>INPUT TYPE</b> <span style="float:right">InPt</span></p> <p>The Indicator is factory calibrated for DC Voltage (0-5V / 0-10V) and DC Current (0-20mA / 4-20mA). Select the appropriate input type as per the type of Input Signal.</p> <p><i>Note :</i> For DC Voltage Input, keep Terminals 2 &amp; 3 open. For DC Current Input, keep terminals 2 &amp; 3 shorted.</p>	<p><b>Controller Version :</b></p> <p><span style="border: 1px solid black; padding: 2px;">0-20</span> 0 - 20 mA <span style="border: 1px solid black; padding: 2px;">4-20</span> 4 - 20 mA <span style="border: 1px solid black; padding: 2px;">0-5</span> 0 - 5 V <span style="border: 1px solid black; padding: 2px;">0-10</span> 0 - 10 V</p>
<p><b>RESOLUTION</b> <span style="float:right">r5Ln</span></p> <p>Decimal Point for the displayed value.</p>	<p><span style="border: 1px solid black; padding: 2px;">1</span> 1 <span style="border: 1px solid black; padding: 2px;">0.1</span> 0.1 <span style="border: 1px solid black; padding: 2px;">0.01</span> 0.01 <span style="border: 1px solid black; padding: 2px;">0.001</span> 0.001</p>

Parameter Description	Settings
<b>DC RANGE LOW AND DC RANGE HIGH</b> Set Range High as the value corresponding to Maximum input signal level and Range Low as the value corresponding to Minimum input signal level.	-1999 to 9999 (with selected Resolution)
<b>OFFSET FOR PV</b> Zero offset for measured PV. Displayed PV = Actual PV + Offset	-1999 to 9999 (with selected Resolution)

Table 3.4

PAGE - 11 : ALARM PARAMETERS

Parameter Description	Settings
<b>ALARM-1 TYPE</b> Type for Alarm-1.	noneE None P_Lo Process Low P_hI Process High
<b>ALARM-1 HYSTERESIS</b> Differential (dead) band between the ON and OFF alarm states. Keep it large enough to avoid frequent switching.	1 to 999 (with selected Resolution)
<b>ALARM-1 LOGIC</b> Normal : The alarm-1 output remains ON under alarm conditions; OFF otherwise. Reverse : The alarm-1 output remains OFF under alarm conditions; ON otherwise.	norā Normal rEu Reverse
<b>ALARM-1 INHIBIT</b> Yes : The alarm-1 is suppressed during start-up alarm conditions. No : The alarm-1 is not suppressed during start-up alarm conditions.	no No YES Yes
<b>ALARM-2 TYPE</b> Type for Alarm-2.	noneE None P_Lo Process Low P_hI Process High
<b>ALARM-2 HYSTERESIS</b> Same as Alarm-1 Hysteresis.	1 to 999 (with selected Resolution)
<b>ALARM-2 LOGIC</b> Same as Alarm-1 Logic.	norā Normal rEu Reverse
<b>ALARM-2 INHIBIT</b> Same as Alarm-1 Inhibit.	no No YES Yes



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