

# proense Digital Panel Meter

## DPM1 Series

### Quick Start Guide

AUTOMATIONDIRECT.com

3505 HUTCHINSON ROAD  
CUMMING, GA 30040-5860



#### Models:

- DPM1-A-2R-H
- DPM1-A-2R-L
- DPM1-A-A2R-H
- DPM1-A-A2R-L

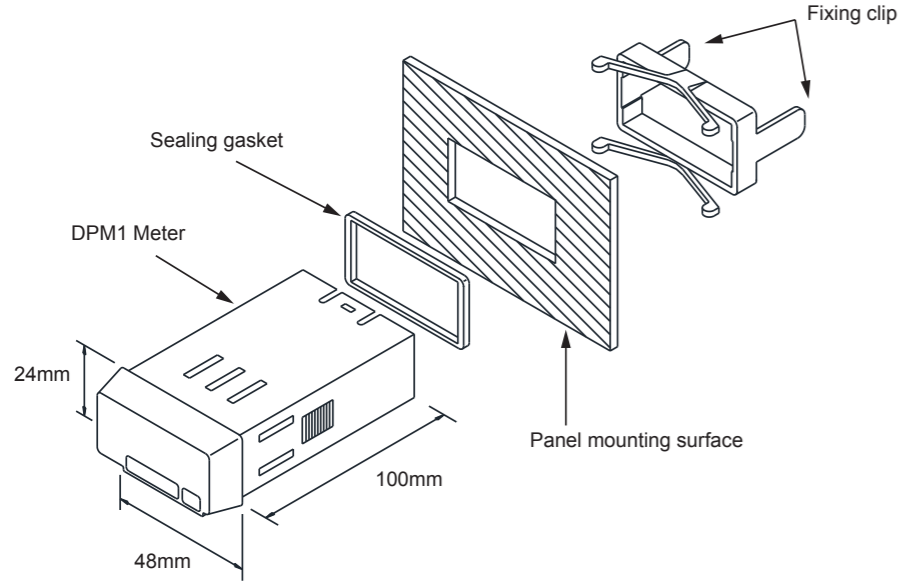


This Quick Start Guide provides basic information for configuring the ProSense DPM1 series digital panel meters. For more specific information and advanced configuration instructions please visit [www.AutomationDirect.com](http://www.AutomationDirect.com) and download the free instruction manual for the DPM1 series.

#### Features

- 48 x 24mm 1/32 DIN
- 4 digit (-1999 to 9999) red LED display
- Selectable decimal point
- Process ( $\pm 10V$ ,  $\pm 60V$ ,  $\pm 100mV$ ,  $\pm 20mA$ )
- AC or DC powered
- Sensor excitation voltage 20V
- (2) Form A SPST normally open relays
- Activation on increasing or decreasing input signal
- Hysteresis or time delay operation
- Optional 0/4-20mA analog output
- Total or selective configuration lock out
- Display scaling or process teaching modes
- Configuration for direct or reverse acting linear processes and up to 16 point non-linear processes
- Minimum and maximum value memory
- Tare function
- Filtering to minimize display bounce
- Display brightness adjustment

#### Dimensions and Mounting



Installation	
Dimensions	48 x 24 x 100mm (1/32 DIN)
Panel Cutout	45 x 22mm (Max. panel thickness 7mm)
Case Material	Polycarbonate UL 94 V-0

To install the instrument, prepare a 45mm x 22mm panel cut-out and slide the unit inwards making sure to place the sealing gasket between the front side panel and the front bezel.

While holding the unit in place, put the fixing clip around the case and slide it until it reaches the panel at the rear side.

Press slightly to fasten the clips to the latching slots on the case and get the unit fully assembled and close fitted to achieve a good seal.

To remove the instrument from the panel, pull the rear fixing clips latching tabs outwards until they are disengaged, then slide the fixing clips back over the case.



**WARNING:** To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call us at 1-800-633-0405 or 770-844-4200.

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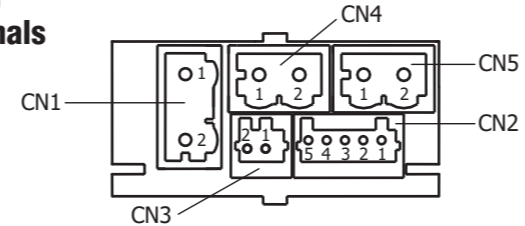


#### WARNING! Electric shock danger

1. Keep away from high-voltage and high-frequency environment during the installation to prevent interference. Avoid using the device in environments which contain: (a) dust or corrosive gas; (b) high humidity or high radiation; (c) shock or vibration
2. Make sure the input power is switched off when installing or uninstalling the DPM1 to prevent harm to personnel or equipment.
3. Before switching on the input power, check the signal connection, e.g. the input voltage and polarity. Voltage that is too high may cause damage to the DPM1.
4. Front cover should be cleaned only with a soft cloth soaked in neutral soap product. DO NOT USE SOLVENTS.
5. Outputs remain active in Programming Mode.

#### Wiring

##### Terminals



Note: For additional wiring information download complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)

Terminals					
Connector	CN1	CN2	CN3	CN4	CN5
Wire cross section	0.08 to 2.5mm <sup>2</sup> (28 to 12 AWG)	0.08 to 0.5mm <sup>2</sup> (28 to 20 AWG)	0.08 to 0.5mm <sup>2</sup> (28 to 20 AWG)	0.08 to 2.5mm <sup>2</sup> (28 to 12 AWG)	0.08 to 2.5mm <sup>2</sup> (28 to 12 AWG)
Strip length	8 to 9mm	5 to 6mm	5 to 6mm	8 to 9mm	8 to 9mm
Manufacturer	Wago 231-202/026-000	Wago 733-105	Wago 733-102	Wago 231-102/026-000	Wago 231-302/026-000
Cage clamp connection	Insertion tool or screwdriver with 0.5 mm x 3.0 mm blade	Insertion tool or screwdriver with 0.3 mm x 1.8 mm blade	Insertion tool or screwdriver with 0.3 mm x 1.8 mm blade	Insertion tool or screwdriver with 0.5 mm x 3.0 mm blade	Insertion tool or screwdriver with 0.5 mm x 3.0 mm blade

CN1	
AC Supply	DC Supply
1 Line	1 -VDC
2 Neutral	2 +VDC

CN2	
1	+60V / +10VDC
2	+20mA DC
3	+100mV
4	-IN / - Excitation
5	+Excitation (20V±5VDC @ 30mA)

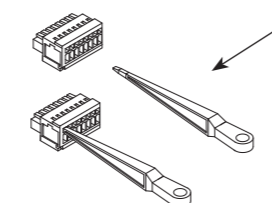
CN3*	
1	-0/4-20mA
2	+0/4-20mA

\* Analog output terminals (DPM1-A-A2R-H & DPM1-A-A2R-L only)

CN4	
Relay 1	
1	N.O. Contact
2	N.O. Contact

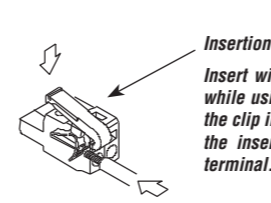
CN5	
Relay 2	
1	N.O. Contact
2	N.O. Contact

#### CN2 and CN3 Terminals



**Insertion Tool (included with meter)**  
Insert wires into the proper terminal while using the insertion tool to open the clip inside the connector. Release the insertion tool to fix wire to the terminal.

#### CN1, CN4 and CN5 Terminals



**Insertion Tool (included with meter)**  
Insert wires into the proper terminal while using the insertion tool to open the clip inside the connector. Release the insertion tool to fix wire to the terminal.

This instrument conforms with the following community directives: EMC 2004/108/CE and LVD 2006/95/CE. Refer to the instructions in this insert to preserve safety protections



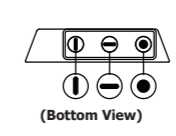
**Warning:** If this instrument is not installed and used in accordance with these instructions, the protection provided by it against hazards may be impaired. To meet the requirements of EN 61010-1 standard, where the unit is permanently connected to main supply, it is obligatory to install a circuit breaking device that is easily reachable by the operator and clearly marked as the disconnecting device.

To guarantee electromagnetic compatibility, the following guidelines should be followed:

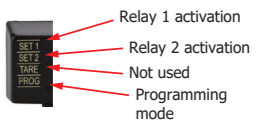
- Power supply wires should be separately routed from signal wires and never ran in the same conduit.
- Use shielded cable for signal wiring.
- Cable cross-section must be  $\geq 0.25mm^2$

Before connecting signal wires, signal type and input range should be verified to be within the proper limits. Do not connect more than one input signal to the meter simultaneously.

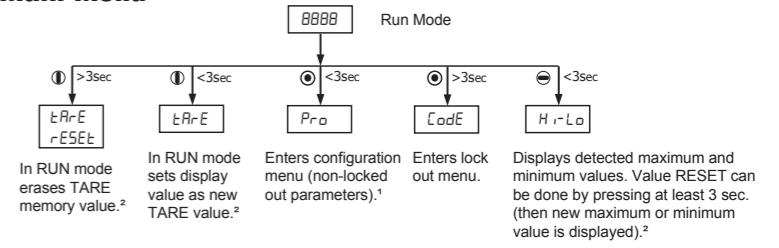
#### Programming Keys (Bottom View)



- **ENTER:** Enters configuration and validates data and parameters.
- **SHIFT:** Selects mode or shifts blinking digit in configuration.
- **UP:** Increases value of blinking digit in configuration mode.

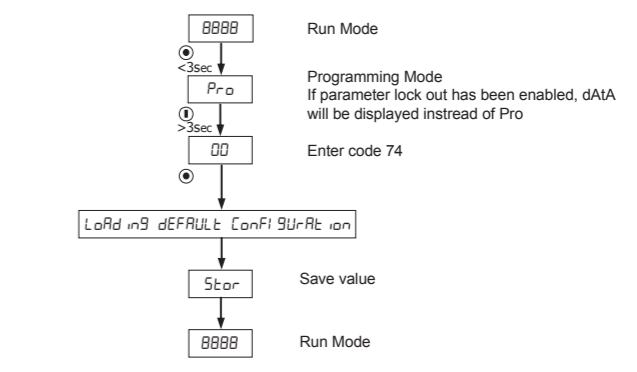


#### Main Menu



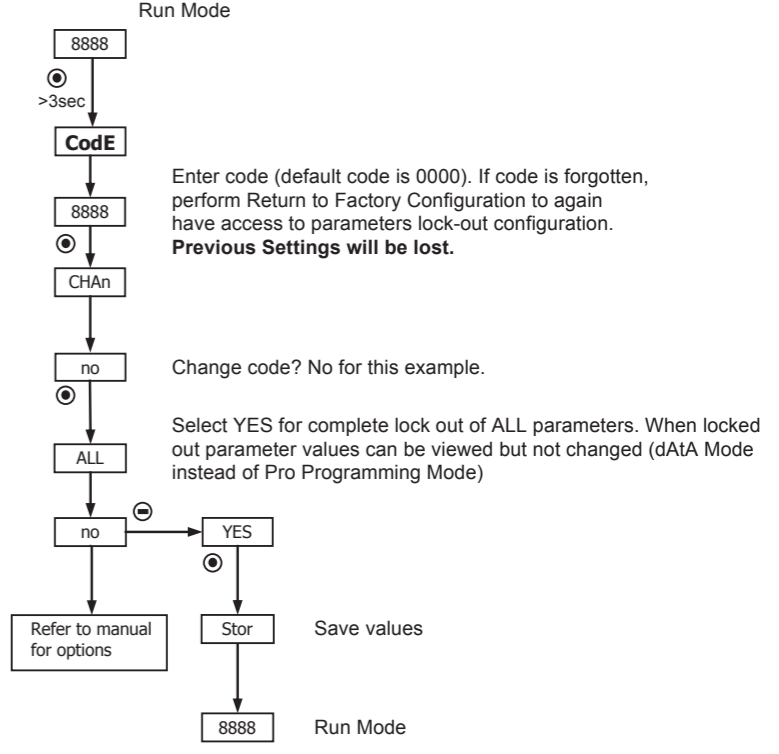
(¹) If parameter lock out has been enabled, dAtA will be displayed instead of Pro  
(²) Additional information provided later in this User Manual

#### Return to Factory Configuration



#### Total Configuration Lock-out

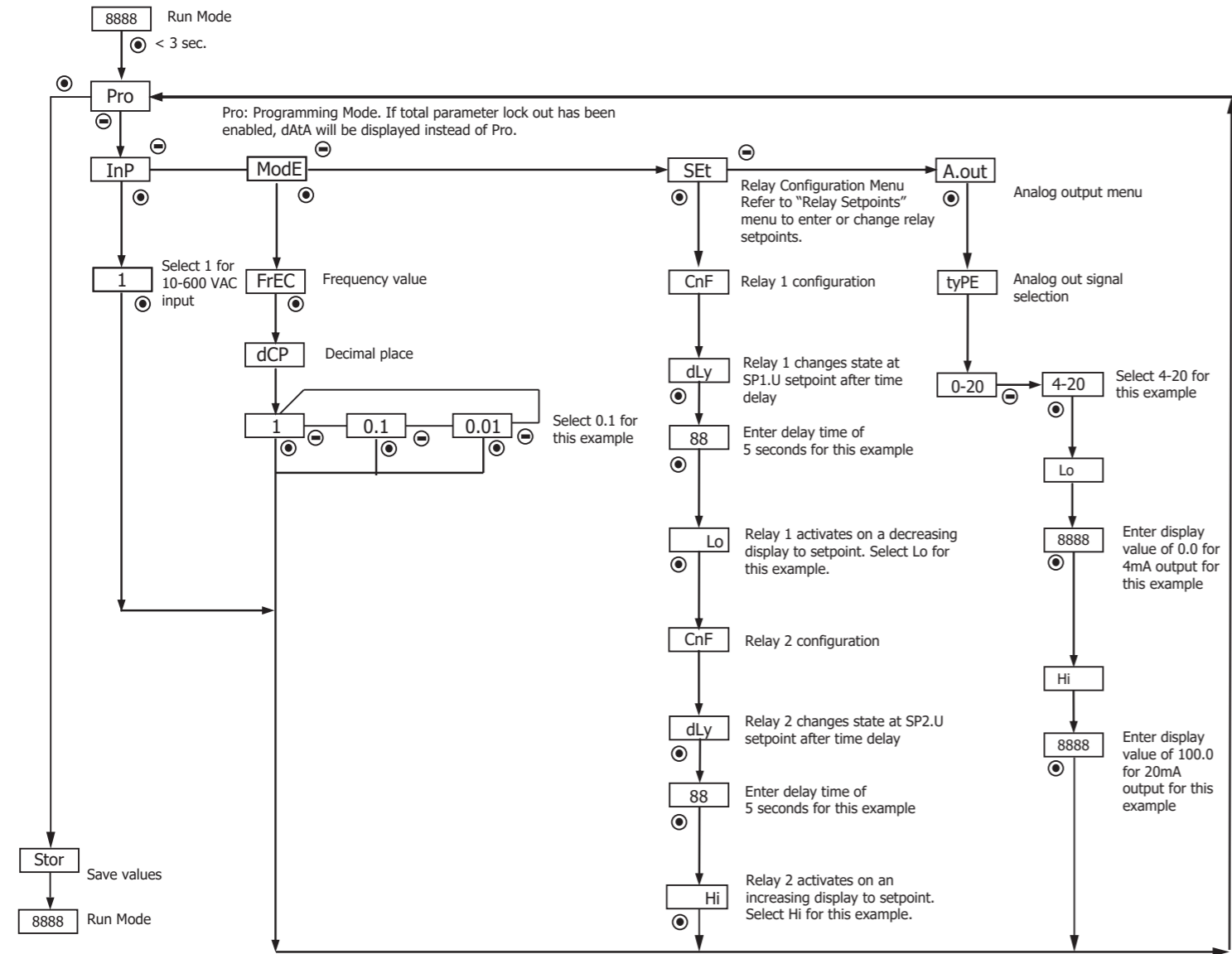
Note: For selective lock-out configuration download complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)



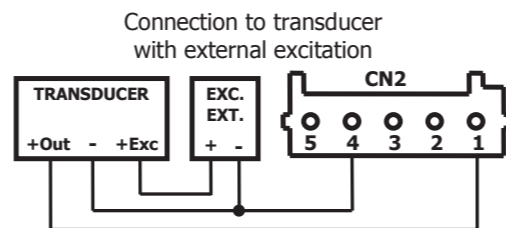
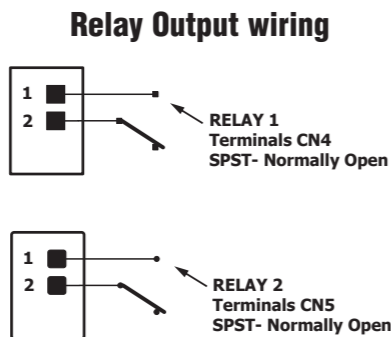
## Model DPM1-A-A2R-H Example Application :

0-10VDC input, 0.0 to 100.0 display, relay 1 set to activate on a decrease to a display value of 20.0 after a 5 sec. delay, relay 2 set to activate on a increase to a display value of 80.0 after a 5 sec. delay, analog output of 4-20mA over a display range of 0.0 to 100.0.

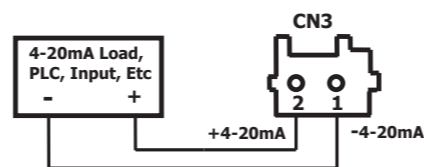
Note: For additional configuration information download complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)



### Wiring for 0-10V Transducer

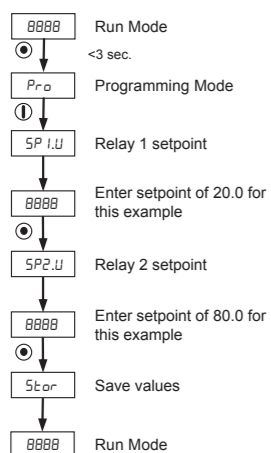


### Wiring for 4-20mA Analog Output



Note: For additional wiring information download complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)

### Relay Setpoints



Technical Specifications				
	Range	Resolution	Input Impedance	Accuracy
Input	±10V	1mV	1MΩ	±(0.1% rdg+3mV)
	±60V	3mV	1MΩ	±(0.1% rdg+18mV)
	±100mV	10μV	100MΩ	±(0.1% rdg+30μV)
	±20mA	1μA	12.1Ω	±(0.1% rdg+6μA)
Sensor Excitation	20V±5VDC @ 30mA			
Accuracy Conditions	Temperature coefficient	100ppm/°C		
	Warm-up time	15 minutes		
	Temperature	23°C±5°C		
Conversion	Technique	Sigma-Delta		
	Resolution	±15 bits		
	Conversion rate	25 times per second		
Display	Range	-1999 to +9999, selectable decimal point position		
	Type	4 digit 8mm (0.31"), red		
	LEDs	Relay 1, Relay 2, Tare, Programming Mode		
	Display refresh rate	5 times per second		
	Display / Input overrange indication	"- OUE", "OUE"		
Relays	2 Relays (Form A) SPST normally open	5A@250VAC / 30VDC		
Analog Output (0/4-20mA Sourcing) (Models DPM1-A-A2R-H & DPM1-A-A2R-L only)	Resolution	5.5μA		
	Accuracy	±(0.3% rdg+40μA)		
	Temperature coefficient	3μA/°C		
	Maximum load	≤500Ω		
Power Supply and Fuses	DPM1-A-2R-H, DPM1-A-A2R-H	85-265VAC 50/60Hz or 100-300VDC (Recommended fusing 0.2A/250V, DIN 41661)		
	DPM1-A-2R-L, DPM1-A-A2R-L	21-53VAC 50/60Hz or 13.5-70VDC (Recommended fusing 1.0A/250V, DIN 41661)		
Filter	Cutoff frequency	0.4Hz to 0.004Hz		
	Slope	20dB/Dec.		
Environmental Conditions	Operating temperature	-10°C to +60°C (14°F to 140°F)		
	Storage temperature	-25°C to +85°C (-13°F to 185°F)		
	Relative humidity (non condensing)	<95% @ 40°C (104°F)		
	Maximum altitude	2000m		
	Frontal protection degree	IP65		
Environmental Air	No corrosive gases permitted			
Agency Approvals	CE			

### Additional Help and Support

- For additional information on this product download the complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)
- For additional technical support and questions, call our Technical Support team @ 1-800-633-0405 or 770-844-4200
- Scan or click the QR link for configuration and programming videos for the ProSense DPM Series Panel Meters

