

# proense Digital Panel Meter DPM3 Series

## Quick Start Guide

AUTOMATIONDIRECT.COM

3505 HUTCHINSON ROAD  
CUMMING, GA 30040-5860

- Models:**
- DPM3-AT-H
  - DPM3-AT-2R-H
  - DPM3-AT-4R-H
  - DPM3-AT-A-H
  - DPM3-AT-A2R-H
  - DPM3-AT-L
  - DPM3-AT-2R-L
  - DPM3-AT-4R-L
  - DPM3-AT-A-L
  - DPM3-AT-A2R-L

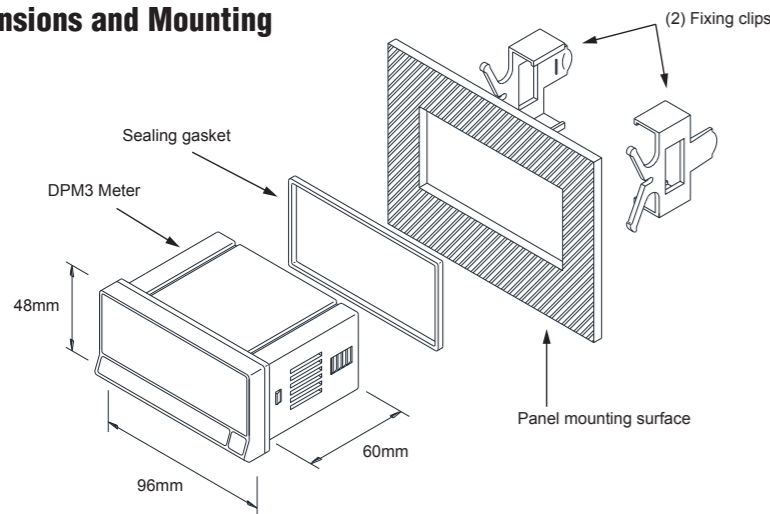


This Quick Start Guide provides basic information for configuring the ProSense DPM3 series digital panel meters. For more specific information and advanced configuration instructions please visit [www.AutomationDirect.com](http://www.AutomationDirect.com) and download the free instruction manual for the DPM3 series.

### Features

- 96 x 48mm 1/8 DIN
- 5 digit (-19999 to 39999) tri-color (red, green, amber) LED display
- Selectable decimal point
- Process ( $\pm 10V$ ,  $\pm 20mA$ )
- Temperature (RTD: Pt100, TC: J, K, T, N, Resolution: 1°F, 0.1°F, 1°C, 0.1°C)
- Potentiometer
- Load cell ( $\pm 15mV$ ,  $\pm 30mV$ ,  $\pm 150mV$ )
- AC or DC powered
- Sensor excitation voltage 24V and 10V
- Display scaling or process teaching modes
- Optional +20mA analog output
- Optional (2) Form C SPDT or (4) Form A SPST relays
- Activation on increasing or decreasing input signal
- Hysteresis or time delay operation
- Display color change on relay operation
- Configuration for direct or reverse acting linear processes and up to 11 point non-linear processes
- Total or selective configuration lock out
- Programmable functions include:
  - Minimum and maximum value memory
  - Minimum and maximum value reset
  - Tare
  - Hold
- Filtering to minimize display bounce
- Display brightness adjustment

### Dimensions and Mounting



To install the instrument, prepare a 92mm x 45mm 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 clips on both sides of the case and slide them through the guide tracks until they reach 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.

Installation	
<b>Dimensions</b>	96 x 48 x 60mm (1/8 DIN)
<b>Panel Cutout</b>	92 x 45mm (Max. panel thickness 10mm)
<b>Case Material</b>	Polycarbonate UL 94 V-0



**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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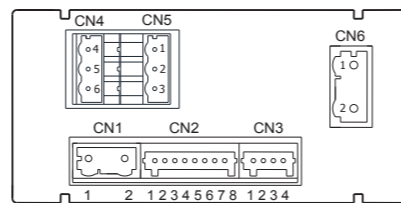


### WARNING! Electric shock danger

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 DPM3 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 DPM3.
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)



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

**Polarity insensitive for DC power**

CN3	
1	Common
2	Tare
3	Tare reset
4	Hold

CN2			
Input Signal / Excitation			
Process	Temperature	Load Cell	
1 -EXC24V	---	-EXC10	
2 +EXC24V	---	---	
3 ---	---	+EXC10	
4 ---	Pt100 A	---	
5 +mA	---	---	
6 +V	---	---	
7 ---	Pt100 B	+TC	+mV
8 -V / -mA (COM)	Pt100 B	-TC	-mV (COM)

### 2 SPDT Relays (-2R)

CN4 (Relay 2)	
4	NO2
5	CM2
6	NC2

CN5 (Relay 1)	
1	NO1
2	CM1
3	NC1

### 4 SPST Relays (-4R)

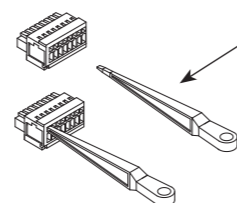
CN4	
4	NO4
5	Unused
6	CM (All)

CN5	
1	NO1
2	NO2
3	NO3

NO: Normally open, CM: Common, NC: Normally closed

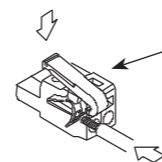
CN6	
Analog Output	
1	(-) 4-20mA
2	(+) 4-20mA

### 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, CN5 and CN6 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

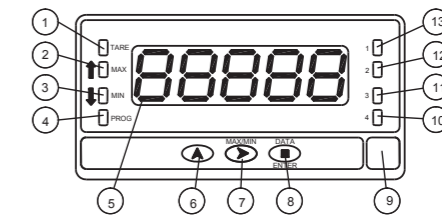
**Warning:** If this instrument is not installed and used in accordance with these instructions, the protection provided by it against hazards may be impaired. To meet the requirements of EN 61010-1 standard, where the unit is permanently connected to main supply, it is obligatory to install a circuit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

To guarantee electromagnetic compatibility, the following guidelines should 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  $\geq 0.25mm^2$

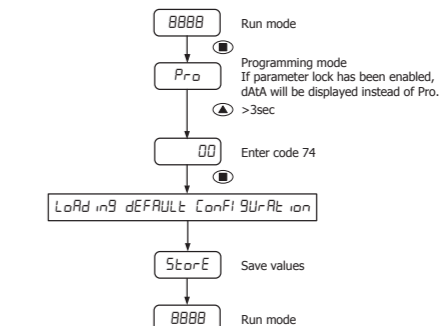
Before connecting signal wires, signal type and input range should be verified to be within the proper limits. Do not connect more than one input signal to the meter simultaneously.

### Programming Panel Keys



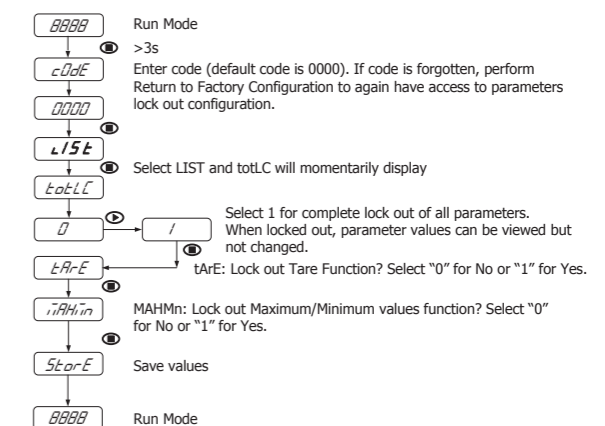
Programming Panel			
#	Description	Run Mode	Programming Mode
1	TARE	Indicates tare in the memory	---
2	MAX	Indicates peak displayed	---
3	MIN	Indicates valley displayed	---
4	PROG	---	Indicates programming mode
5	DISPLAY	Displays the input variable	Displays programming parameters
6	UP/TARE KEY	Takes on the display value as tare	Increments the value of the flashing digit
7	SHIFT/MAX/MIN KEY	Recalls Max/Min values	Moves to the right
8	ENTER KEY	Enters in PROG mode. Displays data	Accepts data. Advances program
9	Free space for units label	---	---
10	LED Output 4	Activation Output 4	Programming output 4
11	LED Output 3	Activation Output 3	Programming output 3
12	LED Output 2	Activation Output 2	Programming output 2
13	LED Output 1	Activation Output 1	Programming output 1

### 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)



### Additional Help and Support

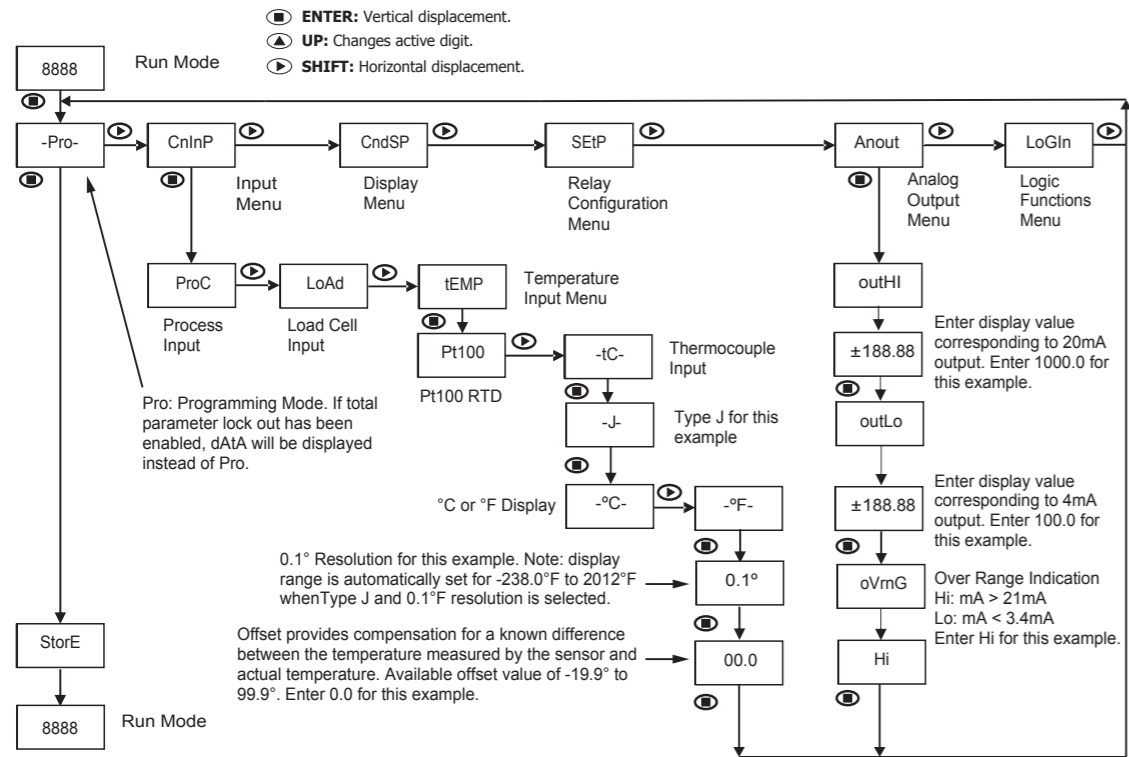
- For additional information on this product download the complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)
- For additional technical support and questions, call our Technical Support team @ 1-800-633-0405 or 770-844-4200
- A QR link to configuration and programming videos is located on the back of this document.



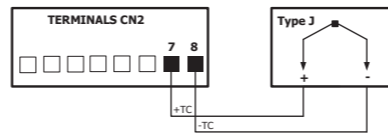
### Model DPM3-AT-A-H Example Application:

Type J thermocouple input with 0.1°F resolution, fixed display range of -238.0°F to 2012.0°F and 4-20mA output over temperature range of 100.0 to 1000.0°F.

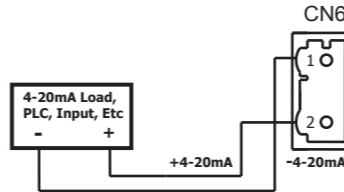
Note: For additional configuration information download the complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)



### Thermocouple Wiring:



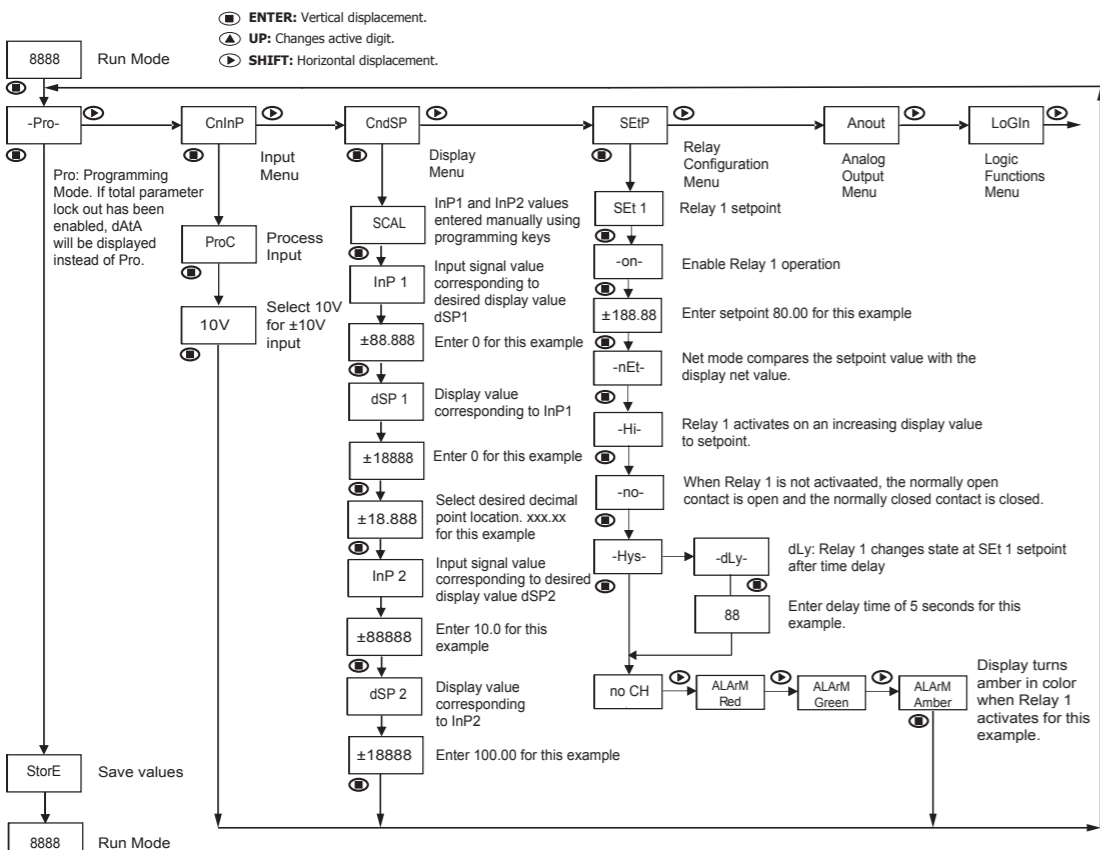
### Analog Output Wiring:



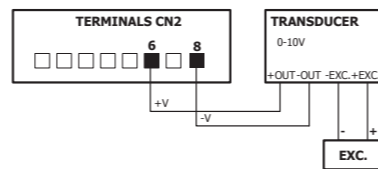
### Model DPM3-AT-2R Example Application:

0-10VDC input, 0.0 to 100.00 display, relay 1 set for N.O. operation activates on an increase to a display value of 80.00 after a 5 sec. delay. Display to turn amber when relay activates.

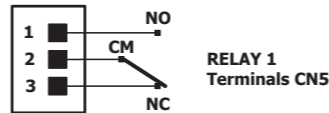
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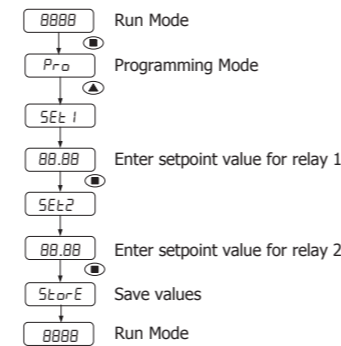
### 4-wire with external excitation



### Relay output wiring



### Direct Access to Relay Setpoints (-2R or -4R models only)



### Technical Specifications

Process	Range	Input Impedance	Accuracy	Resolution	
Sensor Excitation	±10VDC	1MΩ	±(0.1% rdg + 1 digit)	1mV	
	±20mA DC	15Ω	±(0.1% rdg + 1 digit)	1μA	
Potentiometer	200Ω minimum	1MΩ	±(0.1% rdg + 1 digit)	0.005%	
Load Cell	±15mV, ±30mV, ±150mV	100MΩ	±(0.1% rdg + 1 digit)	1μV	
RTD					
Fixed display range / resolution		Pt100 (3-Wire)			
Accuracy		±(0.2% rdg+0.6°C) / 0.1°C ±(0.2% rdg+1°C) / 1°C ±(0.2% rdg+1°F) / 0.1°F ±(0.2% rdg+2°F) / 1°F			
Pt100 sensor excitation		<1mA DC			
Max lead resistance		40Ω / cable (balanced)			
Temperature	Thermocouple		J	K	
	Fixed display range / resolution		-150.0°C to 1100.0°C / 0.1°C -150°C to 1100°C / 1°C -238.0°F to 2012.0°F / 0.1°F -238°F to 2012°F / 1°F	-150.0°C to 1200.0°C / 0.1°C -150°C to 1200°C / 1°C -238.0°F to 2192.0°F / 0.1°F -238°F to 2192°F / 1°F	-200.0°C to 400.0°C / 0.1°C -200°C to 400°C / 1°C -328.0°F to 752.0°F / 0.1°F -328°F to 752°F / 1°F
	Accuracy		±(0.4% rdg+0.6°C) / 0.1°C ±(0.4% rdg+1°C) / 1°C ±(0.4% rdg+1°F) / 0.1°F ±(0.4% rdg+2°F) / 1°F	±(0.4% rdg+0.6°C) / 0.1°C ±(0.4% rdg+1°C) / 1°C ±(0.4% rdg+1°F) / 0.1°F ±(0.4% rdg+2°F) / 1°F	±(0.4% rdg+0.6°C) / 0.1°C ±(0.4% rdg+1°C) / 1°C ±(0.4% rdg+1°F) / 0.1°F ±(0.4% rdg+2°F) / 1°F
	Cold junction compensation range		-10°C to 60°C (14°F to 140°F)		
	Offset programmable		-19.9° / +99.9°		
Conversion	Technique		Sigma-Delta		
	Resolution		±15 bits		
	Conversion rate		20 times per second		
Accuracy Conditions	Temperature coefficient		100 ppm/°C		
	Warm-up time		10 minutes		
	Temperature		23°C±5°C		
Display	Range		-19999 / +39999, 5 LED digits 14mm (Programmable color Red, Green, Amber)		
	LEDs		8, functions and outputs status		
	Display refresh rate		20 times per second		
Relays	Process / Load cell		20 times per second		
	Pt100		20 times per second		
	TC		10 times per second		
Display / Input overrange indication		"oUeR", "oUEr"			
Relays	-2R: (2) Form C SPDT		-4R: (4) Form A SPST Normally Open with shared common		
	Nominal contact rating.....8A at 250VAC / 24VDC		Nominal contact rating.....5A at 250VAC / 30 VDC		
Maximum switching current (resistive load).....8A		Maximum switching current (resistive load).....5A			
Maximum switching power.....2000VA / 192W		Maximum switching power.....1250VA / 150W			
Maximum switching voltage.....400VAC / 125VDC		Maximum switching voltage.....250VAC / 30VDC			
Contact resistance.....<100mΩ at 6VDC at 1A		Contact resistance.....<100mΩ at 6VDC at 1A			
Operate time.....<10ms		Operate time.....<10ms			
Analog Output -A & -A2R Only	Type		4-20 mA Sourcing		
	Maximum load		≤500Ω		
Resolution		13 bits			
Accuracy		0.1%FS ±1 bit			
Response time		10ms			
Thermal drift		0.5μA / °C			
Power Supply and Fuses	-H High Voltage:		85-265 VAC 50/60 Hz (100-300 VDC), (recommended fusing 0.5A/250V, DIN 41661)		
	-L Low Voltage:		22-53 VAC 50/60 Hz (10.5 - 70 VDC), (recommended fusing 2A/250V, DIN 41661)		
Power Consumption		5W without options, 8W max.			
Filter	Cutoff frequency		4Hz to 0.05Hz		
	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			

### Video Link

Scan or click the QR code for a series of Configuration and Programming videos for the ProSense DMP Series Panel Meters

