

# proense Digital Panel Meter DPM3-P Series

## Quick Start Guide

AUTOMATIONDIRECT.COM

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CUMMING, GA 30040-5860

**Models:**  
DPM3-P-H      DPM3-P-L  
DPM3-P-A2R-H    DPM3-P-A2R-L

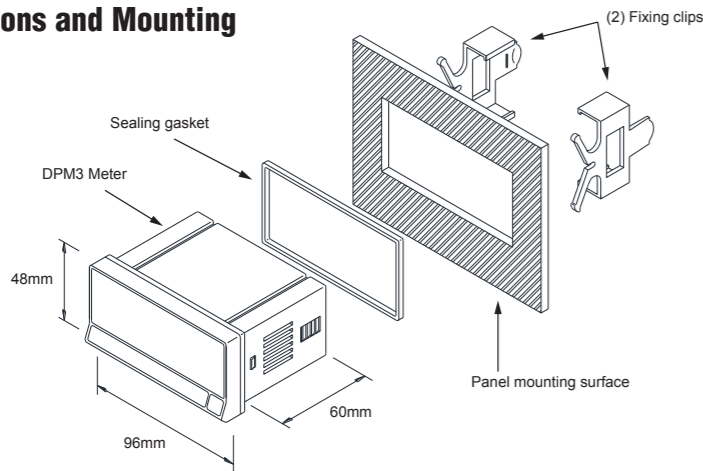


This Quick Start Guide provides basic information for configuring the ProSense DPM3-P series digital panel meters. For more specific information and advanced configuration instructions please visit [www.AutomationDirect.com](http://www.AutomationDirect.com) and download the free instruction manual for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

### Features

- 96 x 48mm 1/8 DIN
- 5 digit (-99999 to 99999) tri-color (red, green, amber) LED display
- Selectable decimal point
- Counter/Chronometer/Frequency/Tachometer (RPM/Rate/PWM) modes
  - AC voltage
  - Magnetic sensor
  - NAMUR sensor
  - NPN/PNP sensor
  - TTL/24V encoder
  - Switched contact
- AC or DC powered
- Optional 4-20mA analog output
- Optional (2) Form C SPDT
- Activation on increasing or decreasing input signal
- Hysteresis or time delay operation (frequency and tach modes)
- Pulsed or latch operation (counter and chronometer modes)
- Display color change on relay operation
- Total or selective configuration lock out
- Programmable functions include:
  - Minimum (valley) and maximum (peak) value memory
  - Minimum (valley) and maximum (peak) value reset
  - Start/Stop in chronometer mode or Stop in counter mode
- 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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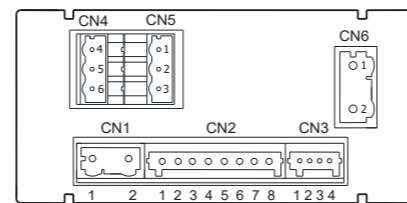


### WARNING! Electric shock danger

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	
Logic Functions	
1	Common
2	Input 1
3	Input 2
4	Input 3

CN2	
Electrical Inputs	
1	Not used
2	(+) 20V Excitation
3	(+) 8.2 V Excitation for NAMUR sensors
4	(-) Common excitation / signal
5	Signal B input
6	Signal A input
7	Not used
8	High voltage input (300VAC max.)

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

### 2 SPDT Relays (-A2R)

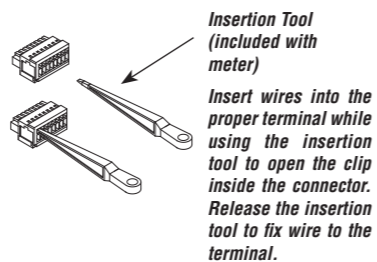
CN4	
Relay 2	
4	NO2
5	CM2
6	NC2

CN5	
Relay 1	
1	NO1
2	CM1
3	NC1

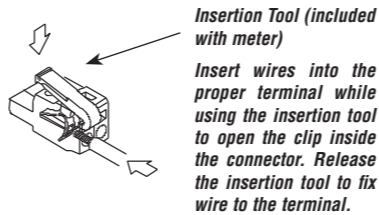
NO: Normally Open, CM: Common, NC: Normally Closed

Terminals					
Connector	CN1	CN2	CN3	CN4 & CN5	CN6
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 733-108	Wago 733-104	Wago 231-303/026-000	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

### CN2 and CN3 Terminals



### CN1, CN4, CN5 and CN6 Terminals



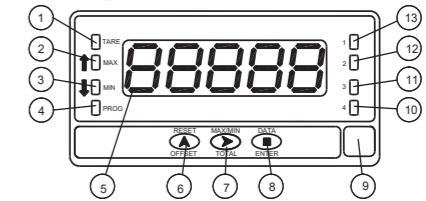
**Warning:** If this instrument is not installed and used in accordance with these instructions, the protection provided by it against hazards may be impaired. To meet the requirements of EN 610101-1 standard, where the unit is permanently connected to main supply, it is obligatory to install a circuit 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  $\geq 0.25\text{mm}^2$

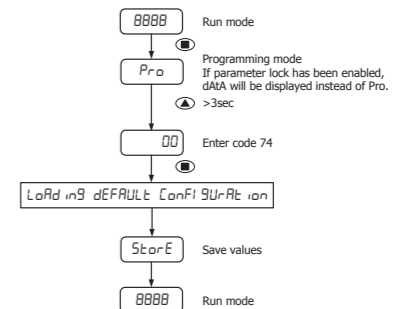
Before connecting signal wires, signal type and input range should be verified to be within the proper limits. Do not connect more than one input signal to the meter simultaneously.

### Display and Keypad



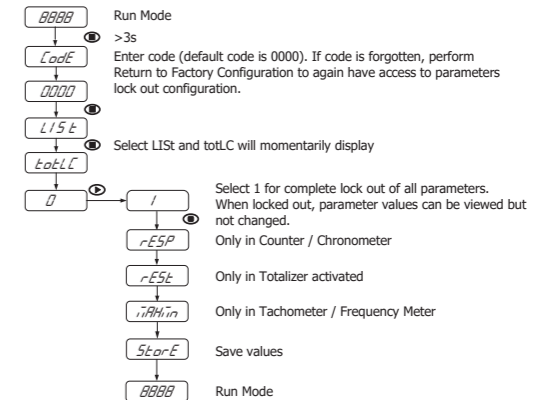
Programming Panel			
#	Description	Run Mode	Programming Mode
1	TARE	Indicates that there is an offset value programmed	---
2	MAX	Fixed indicates rotation sense or count polarity; Blinking indicates visualization of a Max value	Indicates rotation sense (polarity)
3	MIN	Fixed indicates rotation sense or count polarity; Blinking indicates visualization of a Min value	Indicates rotation sense (polarity)
4	PROG	---	Indicates programming mode
5	DISPLAY	Displays the input variable	Displays programming parameters
6	RESET/OFFSET KEY	In Tachometer mode reset of MAX/ MIN/ TOTAL (if present on display) In Counter mode Reset / OFFSET (starts measuring)	- To increase blinking digit value - Direct access to Setpoints value
7	MAX-MIN/TOTAL KEY	1 <sup>st</sup> push allows TOTALIZER visualization (if activated) 2 <sup>nd</sup> push allows Max visualization (only Tachometer) 3 <sup>rd</sup> push allows Min visualization (only Tachometer) Following push: back to current value.	To move blinking digit
8	ENTER KEY	To enter programming menu or to visualize parameters if programming is locked	- To step forward in programming menu - To validate programmed values - To exit programming menu
9	Free space for units label	---	---
10	LED Output 4	---	---
11	LED 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

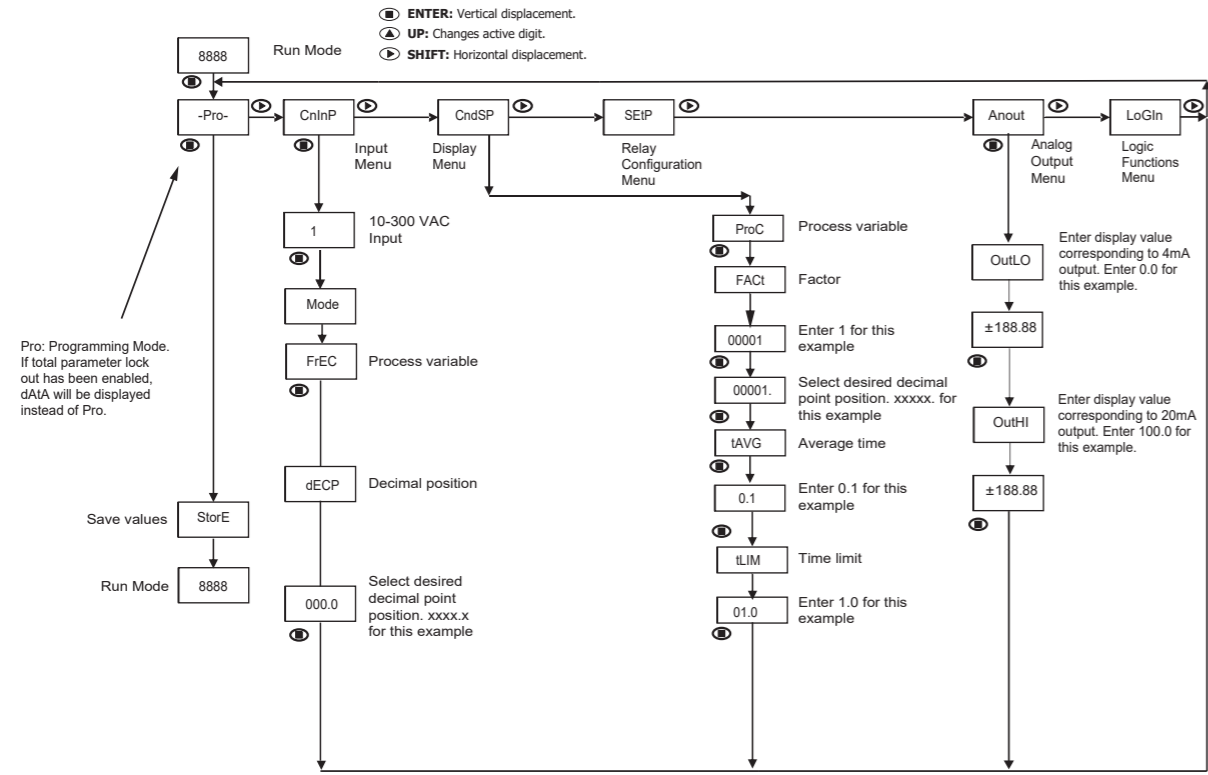
- For additional information on this product download the complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)
- For additional technical support and questions, call our Technical Support team @ 1-800-633-0405 or 770-844-4200



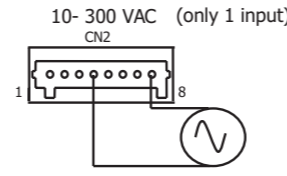
### Model DPM3-P-A2R-H Example Application:

10-300VAC input, 0.0 to 100.0 Hz display with a 4-20mA output scaled to match.

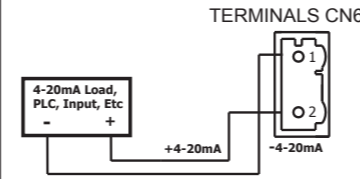
Note: For additional configuration information download the complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)



### Input Wiring:



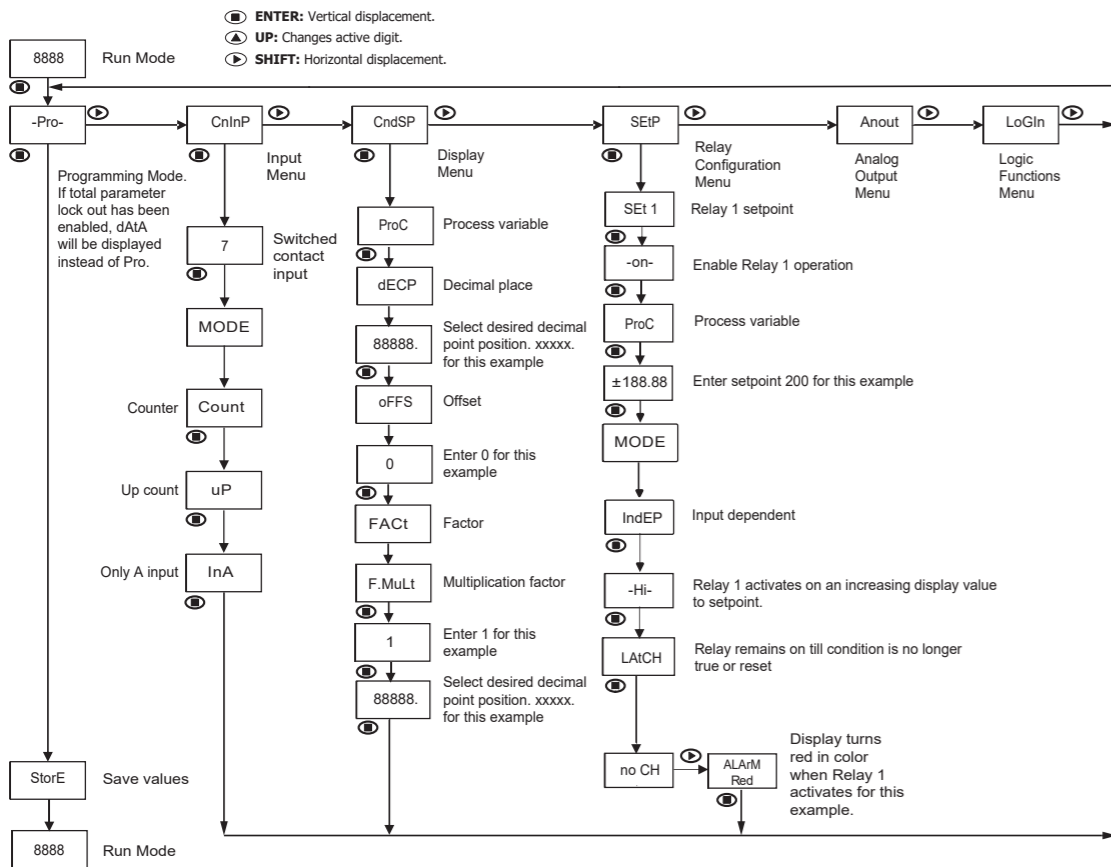
### Analog Output Wiring:



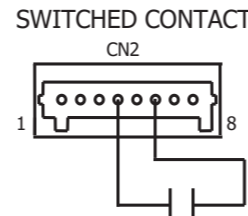
### Model DPM3-P-A2R-H Example Application:

Counter with switched contact input, relay 1 set for N.O. operation activates and latches on an increase to a display value of 200. Display turns red when relay activates.

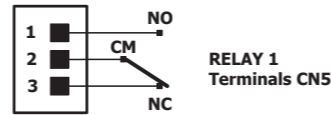
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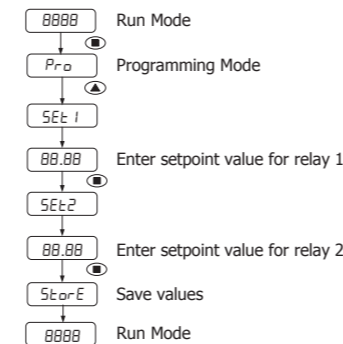
### Input Wiring



### Relay output wiring



### Direct Access to Relay Setpoints (-A2R models only)



### Technical Specifications

<b>Tachometer/Frequency Mode</b>	Maximum Frequency	20kHz (without totalizer) 8kHz (with totalizer) 1kHz (duty)
	Minimum Frequency	0.01 Hz
<b>Counter Mode</b>	Without totalizer	11kHz
	With totalizer	9kHz
<b>AC voltage Input</b>	Range	10 to 300 VAC
<b>Magnetic Sensor Input</b>	Sensitivity	Vin (AC) > 60mVpp for f < 1 kHz > 120 mVpp for f > 1 kHz
	Rc	3.3 kΩ
<b>NAMUR Sensor Input</b>	ION	< 1mA DC
	IOFF	> 3mA DC
<b>NPN/PNP Sensors Input</b>	Rc	3.3kΩ
	Logic level "0"	< 2.4 VDC
<b>TTL/24V Encoder Input</b>	Logic level "1"	> 2.6 VDC
	Logic level "0"	< 2.4 VDC
<b>Switched Contact Input</b>	Logic level "1"	> 2.6 VDC
	Vc	5V (internal)
<b>Accuracy at 23°C ±5°C</b>	Rc	3.9 kΩ
	Fc (auto selection of input type prog.)	20Hz with duty cycle 50% 10Hz with duty cycle 30%
	Frequency / Tachometer	0.005%
	Chronometer	0.01%
<b>Power Supply and Fuses</b>	Temperature coefficient	50ppm / °C
	Warm-up time	5 minutes
	-H High Voltage: -L Low Voltage:	85-265 VAC 50/60 Hz or 100-300 VDC, (recommended fusing 0.5A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent) 22-53 VAC 50/60 Hz or 10.5 - 70 VDC, (recommended fusing 2A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)
<b>Power Consumption</b>		5W, 8W for -A2R
<b>Sensor Excitations</b>		8.2 VDC @ 30mA ; 20VDC (not stabilized) @ 100mA
<b>Display</b>	Type	5 LED digits 14mm (0.55") (Programmable color Red, Green, Amber)
	LEDs	8, functions and outputs status
	Decimal Point	Programmable
	Positive overflow indication	OvEr
	Negative overflow indication	-OvEr
	Counter display limits	Process -99999 to 99999
	Totalizer	-9999999 to 99999999
	Chronometer ranges	4, from 999.99s to 99999h
	Frequency ranges	0.01 Hz to 20kHz/10kHz (totalizer)
	Tachometer range	0 to 99999 (rpm), programmable (rate)
	Scale factor	Counter/Tach, programmable from 0.0001 to 99999
	Display update rate	Counter/Chronometer, 100ms Frequency/tachometer, programmable 0.1 to 9.9 s
<b>Relays -A2R Only</b>	Maximum switching current (resistive load)	8A
	Maximum switching power	2000VA / 192W
	Maximum switching voltage	400VAC / 125VDC
	Contact rating	8A @ 250VAC / 24VDC
	Contact resistance	≤ 100mΩ at 6 VDC @ 1A
	Contact type	SPDT
<b>Analog Output -A2R Only</b>	Operate time	≤ 10ms
	Type	4-20 mA Sourcing
	Maximum load	≤500Ω
	Resolution	13 bits
	Accuracy	0.1%FS ±1 bit
	Response time	50ms
<b>Environmental Conditions</b>	Thermal drift	0.5µA / °C
	Operating temperature	-10°C to +60°C (14°F to 140°F)
	Storage temperature	-25°C to +80°C (-13°F to 176°F)
	Relative humidity (non-condensing)	<95% @ 40°C (104°F)
<b>Agency Approvals</b>	Maximum altitude	2000m
	Frontal protection degree	IP65
<b>Environmental Air</b>		No corrosive gases permitted
<b>Agency Approvals</b>		CE