

proense Digital Panel Meter DPM1-P Series

Quick Start Guide

AUTOMATIONDIRECT.com

3505 HUTCHINSON ROAD
CUMMING, GA 30040-5860

Models:

DPM1-P-A2R-H
DPM1-P-A2R-L

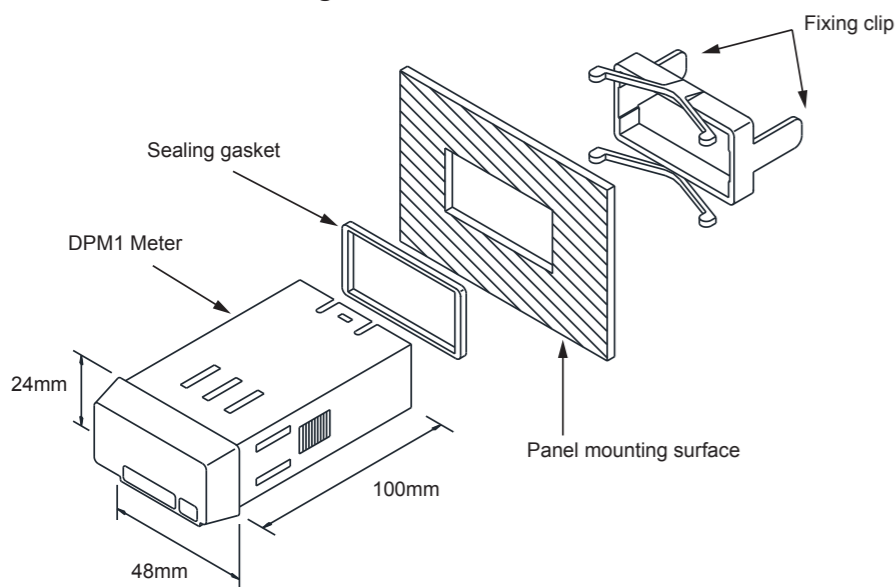


This Quick Start Guide provides basic information for configuring the ProSense DPM1-P series digital panel meters. For more specific information and advanced configuration instructions please visit www.AutomationDirect.com and download the free instruction manual for the DPM1-P series.

Features

- 48 x 24mm 1/32 DIN
- 4 digit (0 to 9999) red LED display
- Selectable decimal point
- Frequency/Tachometer/Rate/PWM Modes
- AC voltage
- Magnetic sensor
- NAMUR sensor
- NPN/PNP sensor
- TTL/24V encoder
- Switched contact
- AC or DC powered
- Sensor excitation voltage
- (2) Form A SPST normally open relays
- Activation on increasing or decreasing input signal
- Hysteresis or time delay operation
- 0/4-20mA analog output
- Total or selective configuration lock out
- Minimum and maximum value memory
- Display brightness adjustment

Dimensions and Mounting



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.

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



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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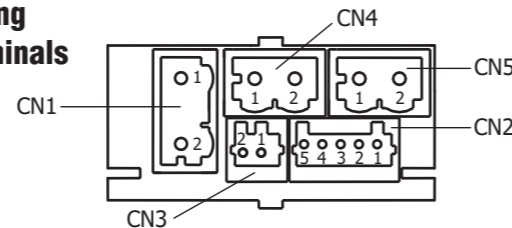


WARNING! Electric shock danger

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

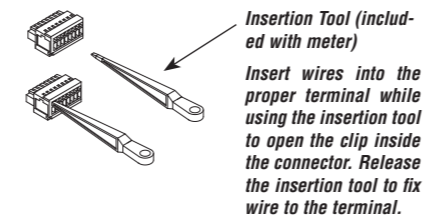
Terminals



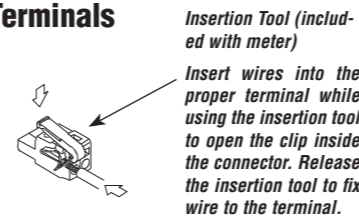
Note: For additional wiring information download complete manual from www.AutomationDirect.com

Connector	CN1	CN2	CN3	CN4	CN5
Wire cross section	0.08 to 2.5mm ² (28 to 12 AWG)	0.08 to 0.5mm ² (28 to 20 AWG)	0.08 to 0.5mm ² (28 to 20 AWG)	0.08 to 2.5mm ² (28 to 12 AWG)	0.08 to 2.5mm ² (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

CN2 and CN3 Terminals



CN1, CN4 and CN5 Terminals



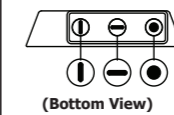
Warning: If this instrument is not installed and used in accordance with these instructions, the protection provided by it against hazards may be impaired. To meet the requirements of EN 61010-1 standard, where the unit is permanently connected to main supply, it is obligatory to install a circuit breaking 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 $\geq 0.25\text{mm}^2$

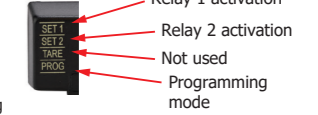
Before connecting signal wires, signal type and input range should be verified to be within the proper limits. Do not connect more than one input signal to the meter simultaneously.

Programming Keys (Bottom View)

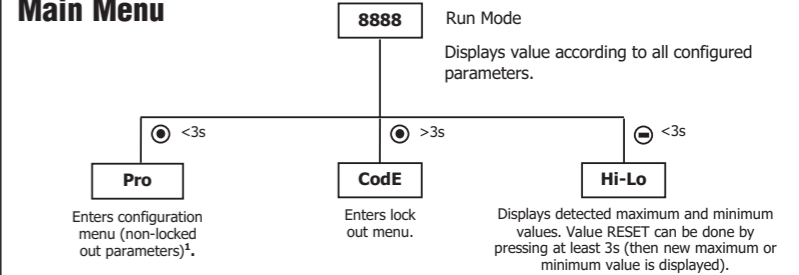


- **ENTER:** Enters configuration and validates data and parameters.
- **SHIFT:** Selects mode or shifts blinking digit in configuration.
- Ⓜ **UP:** Increases value of blinking digit in configuration mode.

Indicators

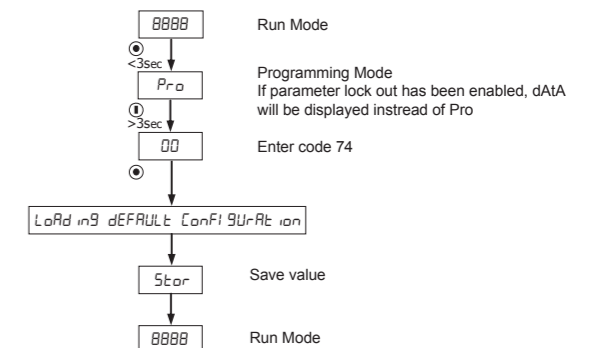


Main Menu



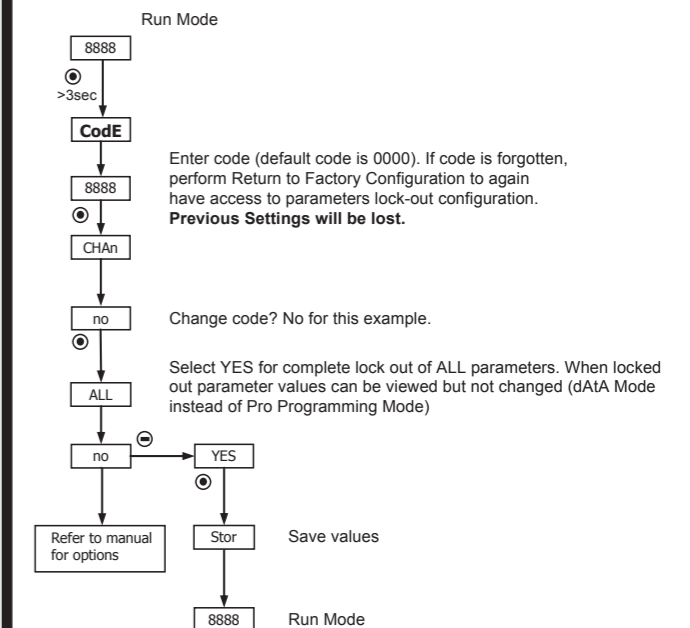
(1) If all parameters are locked out, display shows **dAtA**.

Return to Factory Configuration



Total Configuration Lock-out

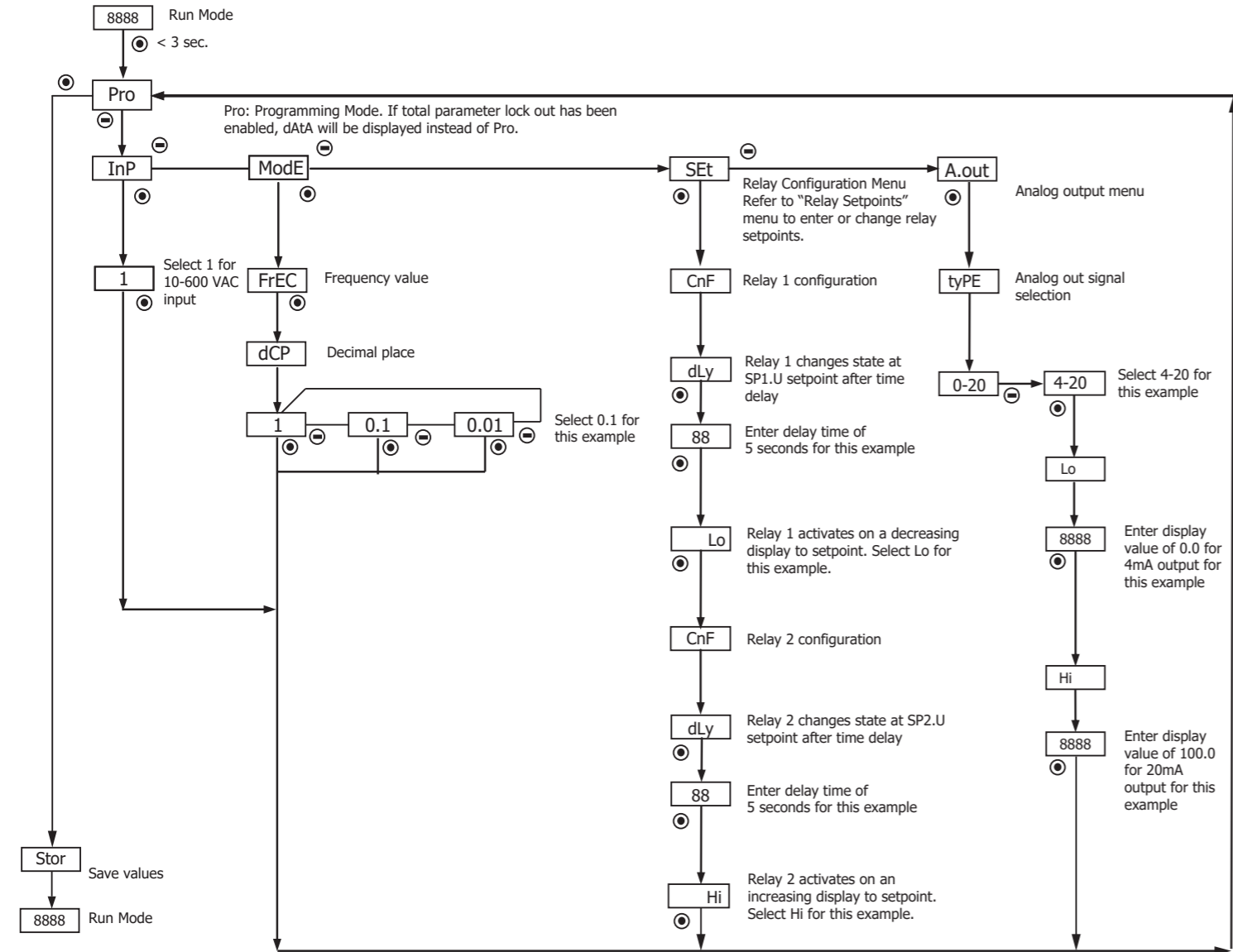
Note: For selective lock-out configuration download complete manual from www.AutomationDirect.com



Model DPM1-P-A2R-H Example Application :

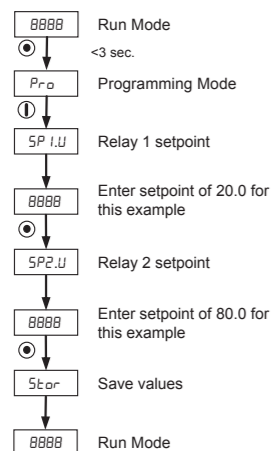
10-600VAC input, 0.0 to 100.0 Hz display, relay 1 set to activate on a decrease to a display value of 20.0 after a 5 sec. delay, relay 2 set to activate on an increase to a display value of 80.0 after a 5 sec. delay, analog output of 4-20mA over a display range of 0.0 to 100.0.

Note: For additional configuration information download complete manual from www.AutomationDirect.com

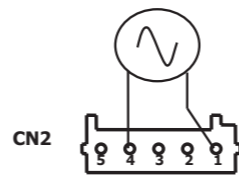
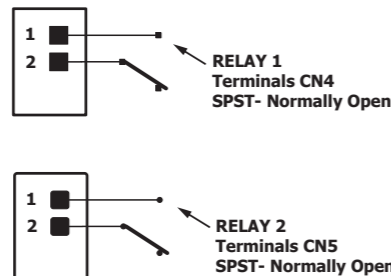


10-600 VAC Input Wiring

Relay Setpoints



Relay Output wiring



Note: For additional wiring information download complete manual from www.AutomationDirect.com

Technical Specifications

Signal Input	Maximum Frequency	12kHz (tachometer rpm or rate modes) 9999Hz (frequency mode) 100Hz (duty/PWM mode)
	Minimum Frequency (all modes)	0.01Hz
AC Voltage Input	Range	10 to 600 VAC
Magnetic Sensor Input	Sensitivity	Vin min. ≥ 30mV for f ≤ 60Hz Vin min. > 300mV for f ≥ 6kHz
NAMUR Sensor Input	R _C	1.5kΩ
	I _{ON}	< 1mA DC
	I _{OFF}	> 3mA DC
NPN/PNP/PWM Sensors Input	R _C	3.9kΩ (NPN) ; 1.5kΩ (PNP)
	Logic level "0"	< 2.4 VDC
TTL/24V Encoder Input	Logic level "0"	< 2.4 VDC
	Logic level "1"	> 2.6 VDC
Switched Contact Input	V _C	5V (internal)
	R _C	3.9kΩ
	F _C	20Hz (Ton, Toff > 25ms)
Accuracy at 23°C ±5°C	Maximum error	± (0.01% of reading +1digit)
	Temperature coefficient	50ppm / °C
	Warm-up time	5 minutes
Power Supply and Fuses	DPM1-P-A2R-H	85-265VAC 50/60Hz or 100-300VDC (Recommended fusing, 0.2A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)
	DPM1-P-A2R-L	21-53VAC 50/60Hz or 13.5-70VDC (Recommended fusing, 1A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)
Power Consumption		5W
Stabilized Excitations		5V@60mA ; 8V@60mA and 12V@60mA (Menu selectable)
Display	Range	0 to 9999
	Type	4-digit 8mm (0.31"), red
	Decimal point	Configurable
	LEDs	4, for functions and outputs
	Display refresh rate	4 times per second
	Input overrange indication	"OUE" or "0" flashing
	Display overrange indication	"OUE"
	Relays, maximum and minimum value refresh	10 times per second
Relays	2 Relays (Form A) SPST normally open	5A @ 250VAC / 30VDC
	Resolution	5.5µA
Analog Output (0/4-20mA)	Accuracy	±(0.3% of reading +40µA)
	EMI Max. influence	±0.25mA
	Temperature coefficient	3µA/°C
	Maximum load	≤500Ω
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
- 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

