

proense Digital Panel Meter

DPM2-P Series

Quick Start Guide

AUTOMATIONDIRECT.com

3505 HUTCHINSON ROAD
CUMMING, GA 30040-5860



Models:

DPM2-P-HL
DPM2-P-2R-HL

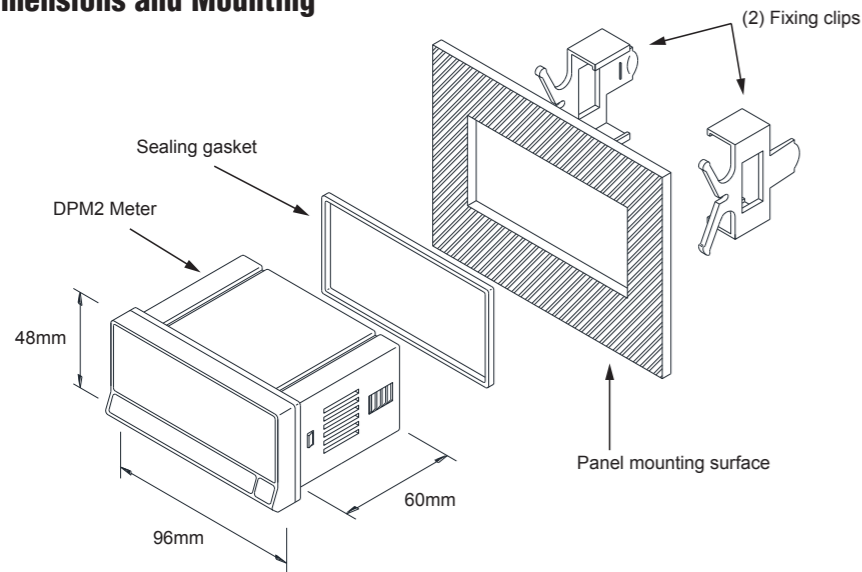


This Quick Start Guide provides basic information for configuring the ProSense DPM2-P series digital panel meters. For more specific information and advanced configuration instructions please visit www.AutomationDirect.com and download the free instruction manual for the DPM2-P series.

Features

- 96 x 48mm 1/8 DIN
- 4 digit (0 to 9999) red LED display
- Selectable decimal point
- Counter/Tachometer/Rate(Frequency) modes
 - AC voltage
 - Magnetic sensor
 - NAMUR sensor
 - NPN/PNP sensor
 - TTL/24V encoder
 - Switched contact
- AC or DC powered
- Optional (2) Form C SPDT relays
 - N.O. or N.C. operation
 - Activation on increasing or decreasing input signal
 - Hysteresis or time delay operation (tach and rate modes)
 - Pulsed or latch operation (counter mode)
- Minimum and maximum value memory (tach and rate modes)
- Totalizer display (counter mode)
- Total or selective configuration lock out

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	
Dimensions	96 x 48 x 60mm (1/8 DIN)
Panel Cutout	92 x 45mm (Max. panel thickness 10mm)
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.

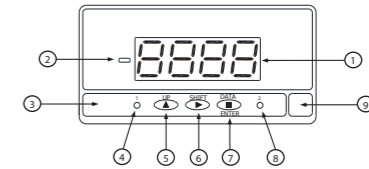
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WARNING! Electric shock danger

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 DPM2 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 DPM2.
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.

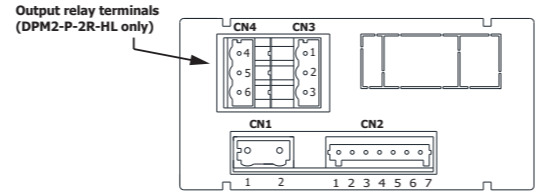
Programming Panel



Programming Panel			
#	Description	Run Mode	Programming Mode
1	4 digit display Red	Shows value according to configuration.	Shows steps and data during configuration.
2	Minus sign	Not used	Not used
3	Keyboard	---	---
4	Setpoint 1 LED	Illuminates when setpoint 1 turns active.	Illuminates when setpoint 1 turns active.
5	UP key	Main counter Reset (when pressed >3s)	Shows setpoint value. Increases value of active digit.
6	SHIFT key	Displays maximum and minimum stored values (tachometer mode only). After 3s of pressing, sets maximum and/or minimum memorized value to current display value (tachometer mode only). Shows sequentially totalizer value in two parts, 'H' and 'L' of 3 digits each (counter mode only). Totalizer RESET (when pressing more than 3s)	Shifts active digit to the next right digit. Shows sequential menu options.
7	DATA/ENTER key	Changes to PRO mode.	Validates selected data and parameters. Moves one step forward in configuration menu. Changes to RUN mode.
8	Setpoint 2 LED	Illuminates when Setpoint 2 turns active.	Illuminates when Setpoint 2 turns active.
9	Free space for units label	---	---

Wiring Terminals

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



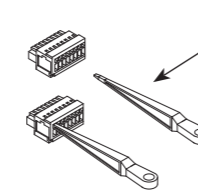
CN1	
AC Supply	DC Supply
1 Line	1 VDC
2 Neutral	2 VDC

Polarity insensitive for DC power

CN2	
Signal Input	
1	- IN (Common)
2	+ IN
3	+ EXC 8 VDC
4	+ EXC 24 VDC
5	RESET
6	Not used
7	IN HIGH (10-600 VAC)

Terminals			
Connector	CN1	CN2	CN3 & CN4
Wire cross section	0.08 to 2.5mm ² (28 to 12 AWG)	0.08 to 1.5mm ² (28 to 14 AWG)	0.08 to 2.5mm ² (28 to 12 AWG)
Strip length	8 to 9mm	6 to 7mm	8 to 9mm
Manufacturer	Wago 231-202/026-000	Wago 734-107	Wago 231-303/026-000
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 0.5 mm x 3.0 mm blade

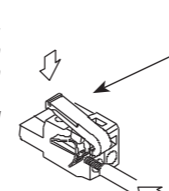
CN2 Terminals



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, CN3, CN4 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.



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 ≥0.25mm²

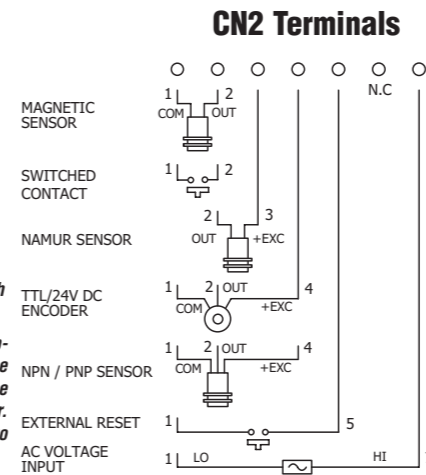
Before connecting signal wires, signal type and input range should be verified to be within the proper limits. Do not connect more than one input signal to the meter simultaneously.

(DPM2-P-2R-HL only)

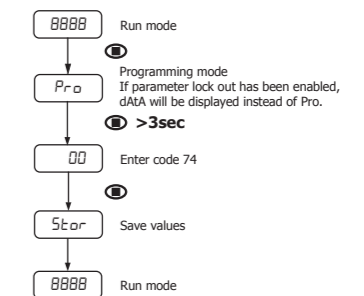
CN3		CN4	
Relay 1		Relay 2	
1	NO1	4	NO2
2	CM1	5	CM2
3	NC1	6	NC2

NO: Normally open contact.
CM: Common
NC: Normally closed contact.

Input Wiring Diagrams

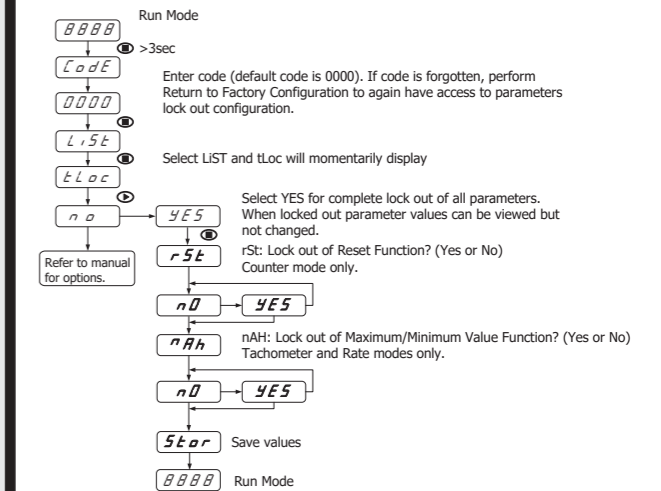


Return to Factory Configuration



Total Configuration Lock-out

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



Additional Help and Support

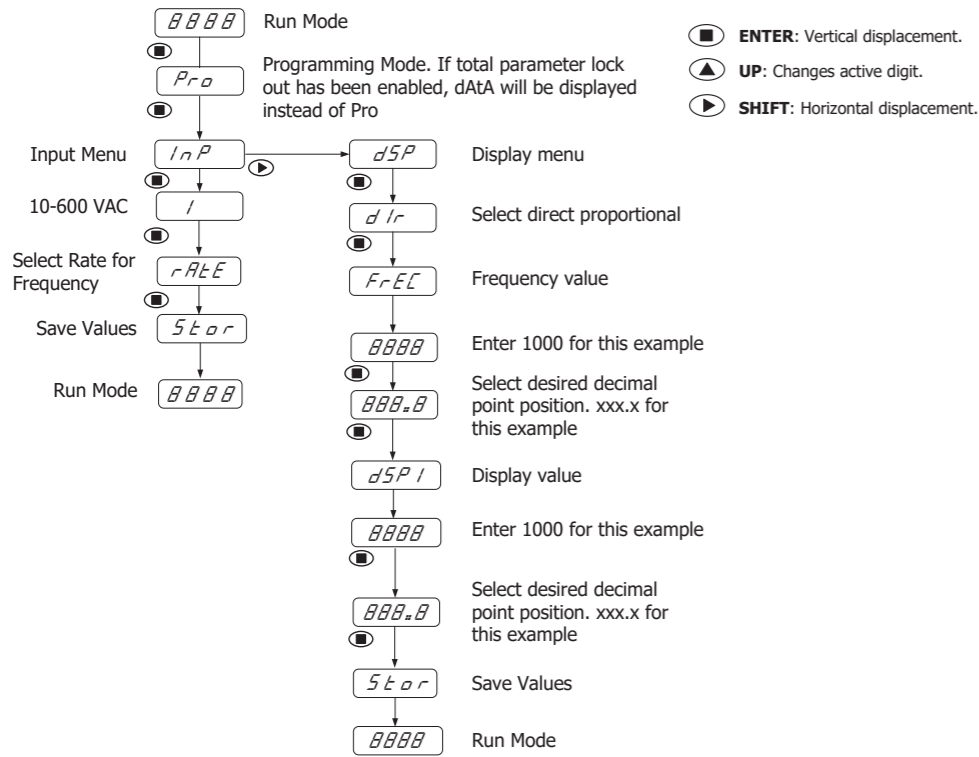
- For additional information on this product download the complete manual from www.AutomationDirect.com
- For additional technical support and questions, call our Technical Support team @ 1-800-633-0405 or 770-844-4200



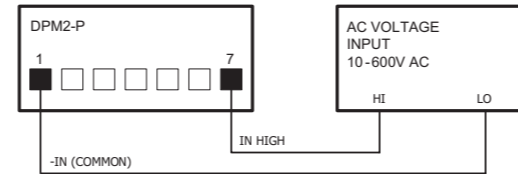
Model DPM2-P-HL Application:

10-600 VAC input, 0.0 to 100.0 Hz display

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



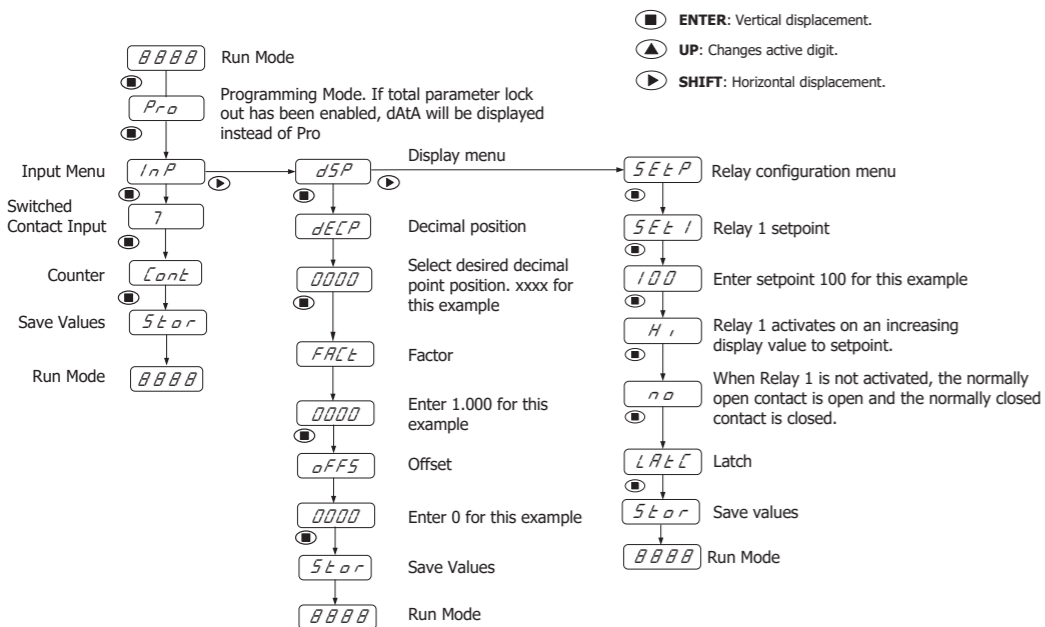
Wiring



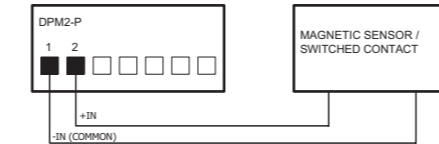
Model DPM2-P-2R-HL Example Application:

Counter with switched contact input, relay 1 set for N.O. operation, activates and latches on an increase to a display value of 100.

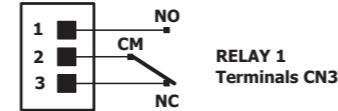
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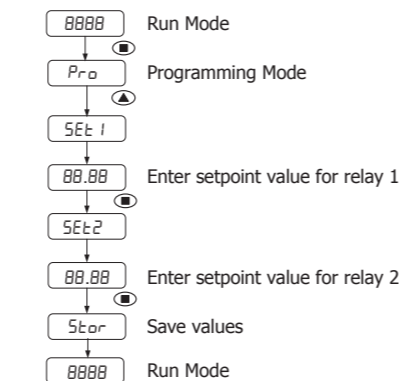
Wiring



Relay output wiring



Direct Access to Relay Setpoints (DPM2-P-2R-HL only)



Technical Specifications

Technical Specifications		
Signal Input	Maximum Frequency	7.5 kHz (counter mode) 25kHz (tachometer rpm or rate modes)
	Minimum Frequency (tachometer rpm or rate modes)	0.01 Hz
AC voltage Input*	Range	10 to 600 VAC
Magnetic Sensor Input	Sensitivity	Vin min. ≥ 100mV for f ≥ 1kHz
NAMUR Sensor	R _C	1kΩ
	I _{ON}	< 1mA DC
NPN/PNP Sensors Input	I _{OFF}	> 3mA DC
	R _C	1kΩ
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	3.9 kΩ
	Cutoff frequency (F _c)	20Hz
Accuracy at 23°C ±5°C (tachometer rpm or rate modes)	Accuracy	± (0.01% of reading +1digit)
	Temperature coefficient	50ppm / °C
	Warm-up time	5 minutes
Power Supply and Fuses	20-265VAC 50/60 Hz or 11-265VDC (Recommended fusing 3A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)	
Power Consumption	3W	
Sensor Excitations	8V @ 60mA ; 24V ± 3V @ 30mA	
Display	Range	0 to 9999
	Type	4 digit, 14mm (0.55")
	Totalizer (counter mode)	0 to 999999
	Decimal point	Configurable
	LEDs	Relay 1, Relay 2
	Display refresh rate (tachometer rpm or rate modes)	0.1 s to 9.9 s (configurable)
	Display/frequency overrange indication	"OUE"
	Relays, maximum and minimum value refresh	10 times per second
	OFFSET (counter mode)	Keypad
	RESET (counter and totalizer)	Keypad
	Remote RESET (counter)	Switched contact
	MAX./MIN. and MAX./MIN. RESET functions (tachometer rpm or rate modes)	Keypad
	Maximum switching current (resistive load)	8A
	Maximum switching power	2000VA / 192W
	Maximum switching voltage	400VAC / 125VDC
Relay (2R option)	Contact rating	8A @ 250VAC / 24VDC
	Contact resistance	≤ 100mΩ at 6 VDC @ 1A
	Contact type	SPDT
	Operate time	≤ 10ms
	Operating temperature	-10°C to +60°C (14°F to 140°F)
Environmental Conditions	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	

* Frequency measurement of AC voltage input limited to 400Hz.