ProSense® Digital Panel Meter DPM2-E Series

Quick Start Guide

AUTOMATIONDIRECT.COM

3505 HUTCHINSON ROAD
CUMMING, GA 30040-5860

Models:

DPM2-
DPM2-E-2R-HL

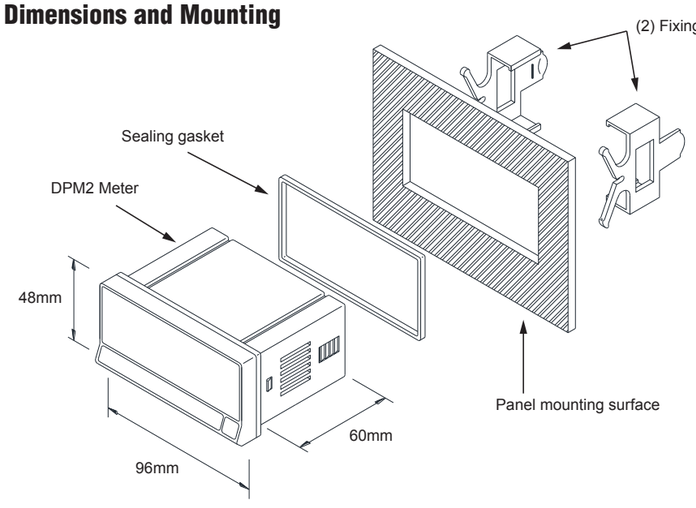
CE E-HL

This Quick Start Guide provides basic information for configuring the ProSense DPM2 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 series.

Features

- 96 x 48mm 1/8 DIN
- 4 digit (-9999 to 9999) red LED display
- Selectable decimal point
- AC/DC voltage input 600V, 200V, 20V
- AC/DC current input 1A, 5A, shunt 60mV, shunt 100 mV
- 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
- Display scaling or teaching modes
- Configuration for direct or reverse acting
- Minimum and maximum value memory
- 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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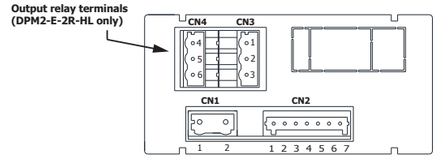
WARNING! Electric shock danger

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.

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	
1	- IN (Common)
2	+ IN 1A AC/DC
3	+ IN 5A AC/DC
4	+ IN SHUNT 60mV/100mV AC/DC
5	+ IN 20V AC/DC
6	+ IN 200V AC/DC
7	+ IN 600V AC/DC

Terminals			
Connector	**CN1**	**CN2**	**CN3 & CN4**
Wire cross section	0.08 to 2.5mm² (28 to 12 AWG)	0.08 to 1.5mm² (28 to 14 AWG)	0.08 to 2.5mm² (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

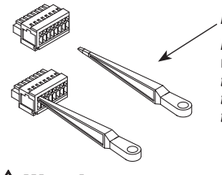
(DPM2-E-2R-HL only)

CN4 (Relay 2)	
4	NO2
5	CM2
6	NC2

CN3 (Relay 1)	
1	NO1
2	CM1
3	NC1

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

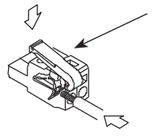
CN2 Terminals



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.

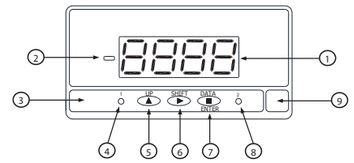
⚠Warning: If this instrument is not installed and used in accordance with these instructions, the protection provided by it against hazards may be impared. To meet the requirements of EN 610101-1 standard, where the unit is permanently connected to main supply, it is obligatory to install a circuit breaking 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 ≥0.25mm²

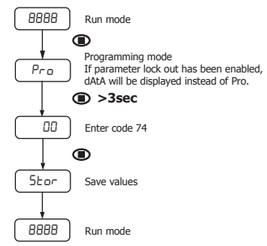
Before connecting signal wires, signal type and input range should be verified to be within the proper limits. Do not connect more than one input signal to the meter simultaneously.

Programming Panel



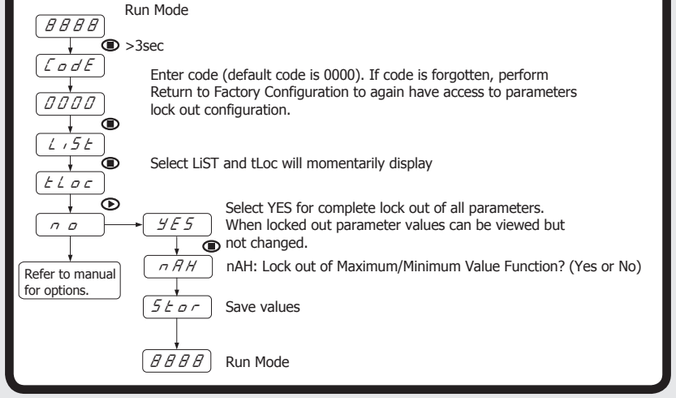
Programming Panel			
#	**Description**	**Run Mode**	**Programming Mode**
1	4 digit display Red	Shows value according to configuration.	Shows steps and data during configuration.
2	Minus sign	Illuminates for negative readings.	Illuminates for negative values.
3	Keyboard	---	---
4	Setpoint 1 LED	Illuminates when setpoint 1 turns active.	Illuminates when setpoint 1 turns active.
5	UP key	No application	Shows setpoint value. Increases value of active digit.
6	SHIFT key	Displays maximum and minimum stored values. After 3s of pressing, sets maximum and/or minimum memorized value to current display value.	Shifts active digit to the next right digit.
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	---	---

Return to Factory Configuration



Total Configuration Lock-out

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



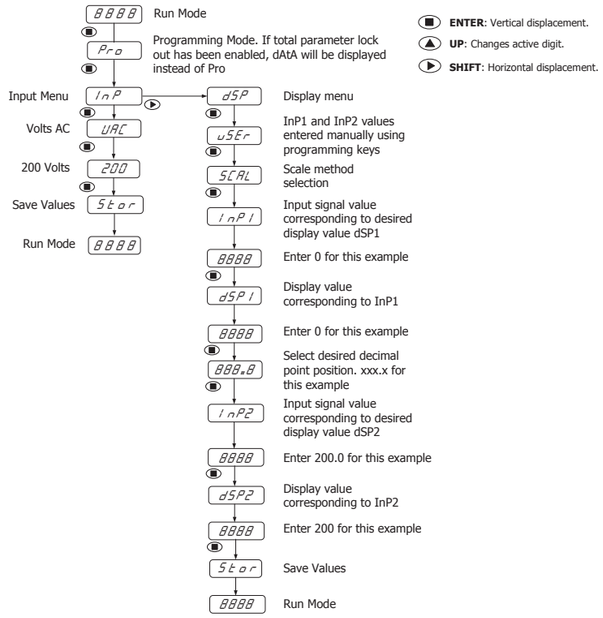
Additional Help and Support

- 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-E-HL Application:

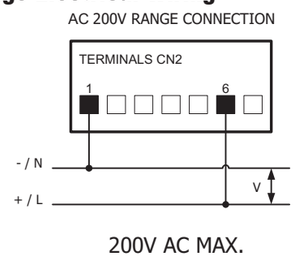
0-200V AC input with matching display range

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



ENTER: Vertical displacement.
UP: Changes active digit.
SHIFT: Horizontal displacement.

Voltage Electrical Wiring

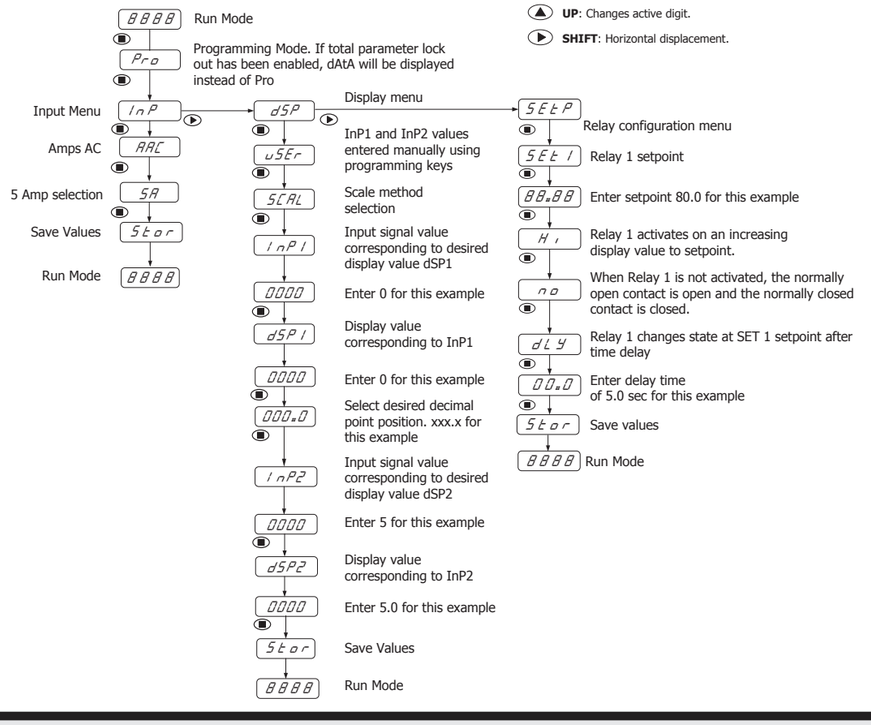


200V AC MAX.

Model DPM2-E-2RL-HL Example Application:

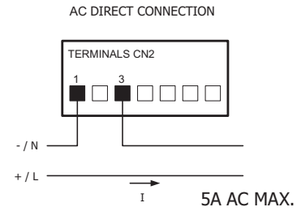
0-5A AC input, 0.0 to 5.0 display, relay 1 set for N.O. operation, activates on an increase to a display value of 3.0 after 5 sec. delay.

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



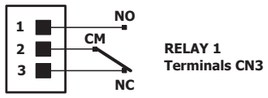
ENTER: Vertical displacement.
UP: Changes active digit.
SHIFT: Horizontal displacement.

Amperage Electrical Wiring

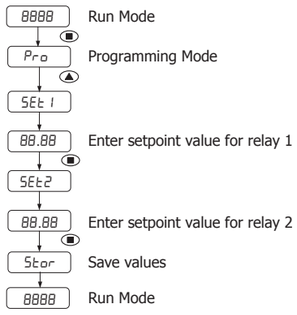


5A AC MAX.

Relay output wiring



Direct Access to Relay Setpoints (DPM2-E-2RL-HL only)



Technical Specifications

Input	*DC Voltage*	*AC Voltage*	*DC Current*	*AC Current*
Range….Input Impedance	±20V....100kΩ ±200V....1MΩ ±600V....3MΩ	0 to 20V....100kΩ 0 to 200V....1MΩ 0 to 600V....3MΩ	±1A....70mΩ ±5A....14mΩ Shunt ±60mV....2.5 kΩ Shunt ±100mV....2.5 kΩ	0 to 1A....70mΩ 0 to 5A....14mΩ Shunt 0 to 60mV....2.5 kΩ Shunt 0 to 100mV....2.5 kΩ
Input Frequency Range	–	45 Hz to 1 kHz sine wave	–	45 Hz to 1 kHz sine wave
Maximum Permanent Overload	±20V.....100V ±200V....600V ±600V...1000V	0 to 20V.....100V 0 to 200V....600V 0 to 600V...1000V	±1A....1.2 A ±5A....7A ±60mV....20V ±100mV....20V	0 to 1A....1.2 A 0 to 5A....7A 0 to 60mV....20V 0 to 100mV....20V
EMI max. Influence	±20V....±10mV ±200V....±100mV ±600V....±300mV	0 to 20V....±20mV 0 to 200V....±200mV 0 to 600V....±600mV	±1A.... ±500µA ±5A....±2.5mA Shunt 60mV....±30µV Shunt 100mV....±50µV	0 to 1A.... ±1mA 0 to 5A....±5mA Shunt 60mV....±60µV Shunt 100mV....±100µV
Resolution	±20V....1mV ±200V....10mV ±600V....25mV	0 to 20V....1mV 0 to 200V....10mV 0 to 600V....25mV	±1A....50µA ±5A....200µA Shunt ±60mV....5µV Shunt ±100mV....10µV	0 to 1A....50µA 0 to 5A....200µA Shunt 0 to 60mV....5µV Shunt 0 to 100mV....10µV
Accuracy	±20V....±(0.05%rdg + 25mV) ±200V....±(0.05%rdg + 250mV) ±600V....±(0.05%rdg + 0.7V)	0 to 20V....±(0.35%rdg + 30mV) 0 to 200V....±(0.25%rdg + 0.3V) 0 to 600V....±(0.1%rdg + 0.9V)	±1A....±(0.05%rdg + 1mA) ±5A....±(0.05%rdg + 6mA) Shunt ±60mV....±(0.05%rdg + 70µV) Shunt ±100mV....±(0.05%rdg + 120µV)	0 to 1A....±(0.1%rdg + 5mA) 0 to 5A....±(0.1%rdg + 20mA) Shunt 0 to 60mV....±(0.1%rdg + 300µV) Shunt 0 to 100mV....±(0.1%rdg + 300µV)
Accuracy Conditions	5 minutes warmup time 23°C +/-5°C ambient temperature 100 ppm/°C temperature coefficient (200 ppm/°C for AC Amp input)			
Conversion	Technique	Sigma-Delta		
	Resolution	±16 bits		
	Conversion rate	20 times per second		
Display	Range	-9999 to +9999, 4 Red LED digits 14mm, selectable decimal point position		
	LEDs	Relay 1, Relay 2 status		
	Display refresh rate	50ms		
	Display / Input overrange indication	"-OUE" , "OUE"		
Relays (DPM2-E-2RL-HL only)	(2) Relays, Form C SPDT	Nominal contact rating....8A at 250VAC / 24VDC Maximum switching current (resistive load)....8A Maximum switching power....2000VA / 192W Maximum switching voltage....400VAC / 125VDC Contact resistance....≤100mΩ at 6VDC @ 1A Contact type....SPDT Operate time....≤10ms		
Power Supply and Fuses	20-265VAC 50/60 Hz or 11-265VDC (Recommended fusing 3A/250V, DIN 41661)			
Power Consumption	3W			
Filter	Cutoff frequency (-3dB)	7.3Hz to 0.2Hz		
	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 Approval	CE			