Digital Panel Meter
DPM1-P Series

Instructions

AUTOMATIONDIRECT.com

3505 HUTCHINSON ROAD
CUMMING, GA 30040-5860

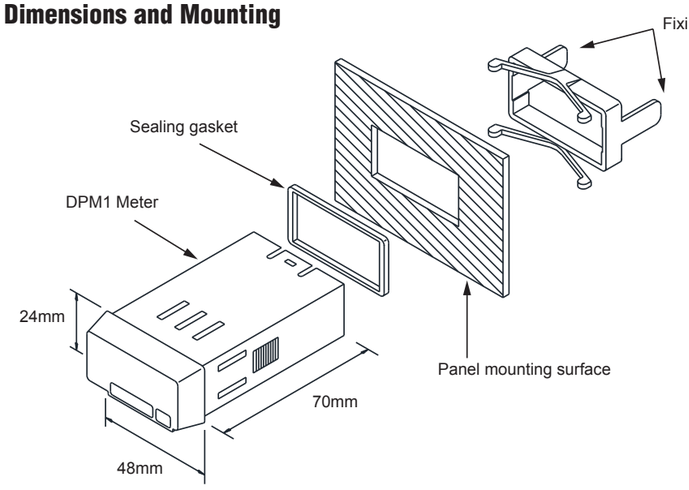
Models:
DPM1-P-H
DPM1-P-L

CE

Features

- 48 x 24mm 1/32 DIN
- 4 digit (0 to 9999) red LED display
- Frequency/Tachometer/Rate Modes
  - AC voltage
  - Magnetic sensor
  - NAMUR sensor
  - NPN/PNP sensor
  - TTL/24V encoder
  - Switched contact
- Selectable decimal point
- AC or DC powered
- Sensor excitation voltage
- Direct or reverse scaling in Rate mode
- Total configuration lock out

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 case and slide it until it reaches the panel at the rear side.

Press slightly to fasten the clip 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 clip latching tabs outwards until they are disengaged, then slide the fixing clip back over the case.

Installation	
Dimensions	48 x 24 x 70mm (1/32 DIN)
Panel Cutout	45 x 22mm (Max. panel thickness 7mm)
Case Material	Polycarbonate UL 94 V-0

Additional Help and Support

- For additional technical support and questions, call our Technical Support team @ 1-800-633-0405 or 770-844-4200

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Instructions: DPM1-P-H, DPM1-P-L

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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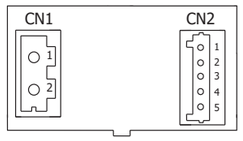
WARNING! Electric shock danger

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.

Wiring Terminals

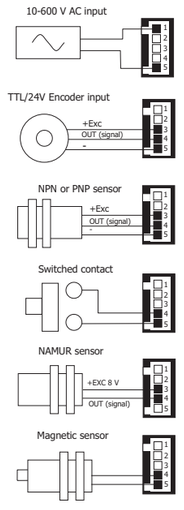


Terminals		
Connector	**CN1**	**CN2**
Wire cross section	0.08 to 2.5mm² (28 to 12 AWG)	0.08 to 0.5mm² (28 to 20 AWG)
Strip length	8 to 9mm	5 to 6mm
Manufacturer	Wago 231-202/026-000	Wago 733-105
Cage clamp connection	Insertion tool or screwdriver with 0.5 mm x 3.0 mm blade	Insertion tool or screwdriver with 0.3 mm x 1.8 mm blade

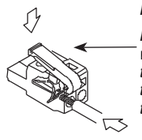
CN1			
AC Supply		**DC Supply**	
1	Phase	1	-VDC
2	Neutral	2	+VDC

CN2	
Signal Input	
1	+ IN (10-600V) AC
2	Not used
3	+ Excitation
4	+ IN (pulses)
5	- IN (common)

Input Wiring Diagrams



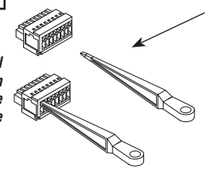
CN1 Terminals



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.

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.

⚠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.

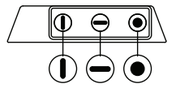
To guarantee electromagnetic compatibility, the following guidelines should be followed:

- 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 ≥0.25mm²

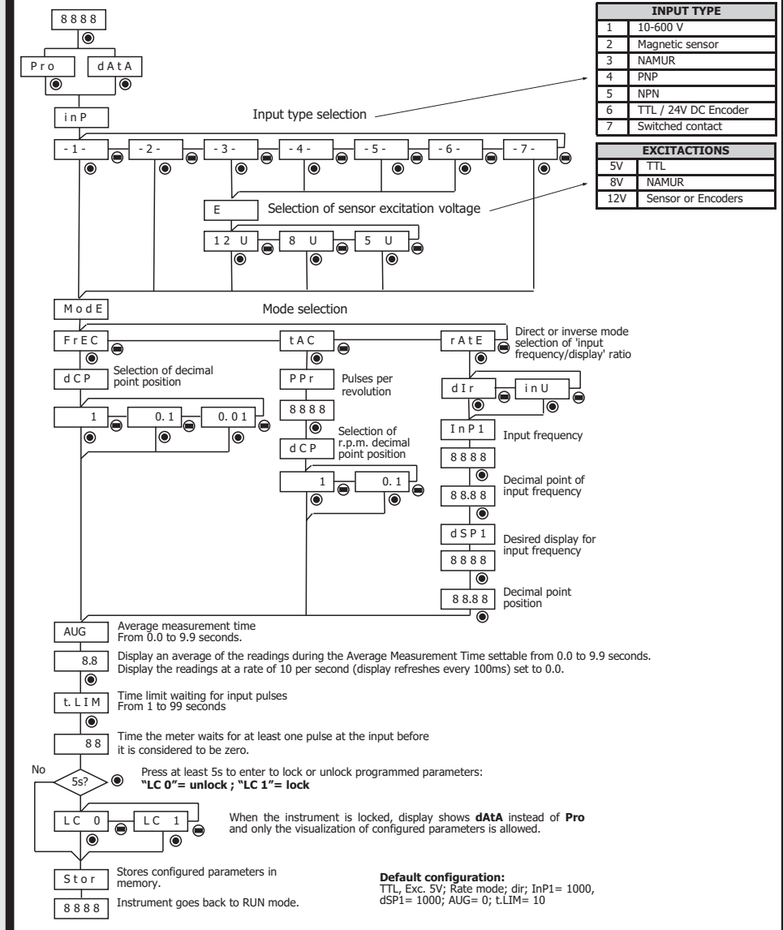
Before connecting wires, input range should be verified to be within the proper limits. Do not connect more than one input signal to the meter simultaneously.

Configuration

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.



INPUT TYPE	
1	10-600 V
2	Magnetic sensor
3	NAMUR
4	PNP
5	NPN
6	TTL / 24V DC Encoder
7	Switched contact

EXCITACTIONS	
5V	TTL
8V	NAMUR
12V	Sensor or Encoders

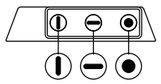
Default configuration:
TTL, Exc. 5V; Rate mode; dir; InP1= 1000, dSP1= 1000; AUG= 0; t.LIM= 10

Technical Specifications		
Signal Input	Maximum Frequency	7kHz (tachometer rpm or rate modes) 9999Hz (frequency meter mode)
	Minimum Frequency	0.01Hz
AC Voltage Input	Range	10 to 600 VAC
Magnetic Sensor Input	Sensitivity	Vin min. ≥ 30mV for f ≤ 120Hz Vin min. ≥ 100mV for f ≥ 1kHz
NAMUR Sensor Input	R_C	1.5kΩ
	I_{ON}	< 1mA DC
	I_{OFF}	> 3mA DC
NPN/PNP Sensors Input	R_C	3.9kΩ (NPN) ; 1.5kΩ (PNP)
	Logic level "0"	< 2.4 VDC
	Logic level "1"	> 2.6 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
	Cutoff frequency (Fc)	20Hz
Accuracy at 23ºC ±5ºC	Maximum error	± (0.01% of reading +1digit)
	Temperature coefficient	50ppm / ºC
	Warm-up time	5 minutes
Power Supply and Fuses	DPM1-P-H	85-265VAC 50/60Hz or 100-300VDC (Recommended fusing, 0.1A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)
	DPM1-P-L	21-53VAC 50/60Hz or 10.5-70VDC (Recommended fusing, 0.5A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)
Power Consumption	2.2W	
Stabilized Excitations	5V@60mA, 8V@60mA and 12V@60mA (Menu selectable)	
Display	Range	0 to 9999
	Type	4-digit 10mm (0.4"), red
	Display refresh rate	10 times per second
	Display / input overrange indication	"OuE"
Environmental Conditions	Operating temperature	-10ºC to +60ºC (14ºF to 140ºF)
	Storage temperature	-25ºC to +85ºC (-13ºF to 185ºF)
	Relative humidity (non-condensing)	<95% @ 40ºC (104ºF)
	Maximum altitude	2000m
	Frontal protection degree	IP65
Environmental Air	No corrosive gases permitted	
Agency Approvals	CE	

Model DPM1-P-H Example Application:

Frequency display of 120VAC line voltage

Programming Keys (Bottom View)



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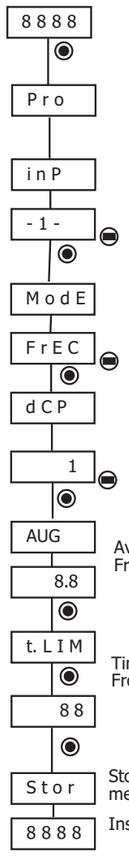


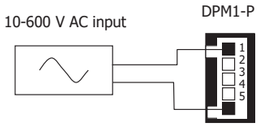
Average measurement time
From 0.0 to 9.9 seconds.

Time limit waiting for input pulses
From 1 to 99 seconds

Stores configured parameters in memory.

Instrument goes back to RUN mode.

Wiring



Notes