

pro^{sense} Digital Panel Meters - DPM2 Series 1/8 DIN



The ProSense DPM2 series offers a simple, low cost digital display of analog process signals, temperature in either Fahrenheit or Celsius from RTD or thermocouple temperature sensors, or potentiometer inputs. The 4-digit red LED display is easily scaled into any engineering units from -9999 to 9999 with a selectable decimal point location. Two point direct or reverse acting linear scaling values can be entered manually or by introducing actual sensed process values in Teach mode. Temperature inputs are pre-configured for fixed temperature ranges based on the type of temperature sensor and can be displayed with 1 or 0.1 degree of resolution. One model includes two

SPDT relay outputs that can be set to activate on an increasing or decreasing input signal with hysteresis or time delay operation. The meter is powered from an external wide range AC or DC power supply and provides 24VDC for external sensor excitation. The 1/8 DIN housing is easy to install in a panel and the meter face has an IP65 rating. Configuration parameters can be totally or selectively locked out to prevent unauthorized or accidental changes to the meter's operation. Additionally, the DPM2 meters include memory and reset of minimum and maximum display values. ProSense digital panel meters are backed by a 3 year warranty.

Features:

- 96 x 48mm 1/8 DIN
- Simple menu driven pushbutton configuration
- 4 digit (-9999 to 9999) red LED display
- Selectable decimal point
- Process ($\pm 10V$, $\pm 200V$ and $\pm 20mA$)
- Temperature (RTD: Pt100, Pt1000, TC: J, K, T, N, Resolution: 1°F, 0.1°F, 1°C, 0.1°C)
- Potentiometer (100 Ω to 100k Ω)
- Resistance (999.9 Ω , 9999 Ω and 50k Ω)
- AC or DC powered
- Sensor excitation voltage 24V
- 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 process teaching modes
- Configuration for direct or reverse acting linear processes
- Minimum and maximum value memory
- Total or selective configuration lock out
- 3 year warranty



DPM2 Series Panel Meters			
Model	Description	Weight (lbs)	Price
DPM2-AT-HL	ProSense digital panel meter, 1/8 DIN, 4-digit red LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 200 VDC, +/- 10 VDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100 and Pt1000, input potentiometer signal range(s) of 100 to 100k Ohms, 20 to 265 VAC / 11 to 265 VDC operating voltage.	0.6	\$103.00
DPM2-AT-2R-HL	ProSense digital panel meter, 1/8 DIN, 4-digit red LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 200 VDC, +/- 10 VDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100 and Pt1000, input potentiometer signal range(s) of 100 to 100k Ohms, (2) Form C (SPDT) relay(s), 8A @ 250 VAC, 8A @ 24 VDC, 20 to 265 VAC / 11 to 265 VDC operating voltage.	0.6	\$113.00

Technical Specifications				
Process Input	Range	Input Impedance	Resolution	Accuracy
	$\pm 20mA$	$<20\Omega$	2 μA	$\pm(0.1\% \text{ rdg}+15\mu A)$
	$\pm 10V$	2M Ω	1mV	$\pm(0.1\% \text{ rdg}+6mV)$
	$\pm 200V$	2M Ω	20mV	$\pm(0.1\% \text{ rdg}+0.1V)$
Sensor Excitation	24V $\pm 3V$ @ 30mA			
Potentiometer	Range	Maximum Measurement Current	Resolution	Accuracy
	100-100k Ω	$<0.4mA$	0.01% F.S.	$\pm(0.1\% \text{ rdg}+0.05\% \text{ F.S.})$
Resistance	999.9 Ω	2.3mA	0.1 Ω	$\pm(0.1\% \text{ rdg}+0.7\Omega)$
	9999 Ω	230 μA	1 Ω	$\pm(0.1\% \text{ rdg}+6\Omega)$
	50k Ω	23 μA	10 Ω	$\pm(0.1\% \text{ rdg}+35\Omega)$

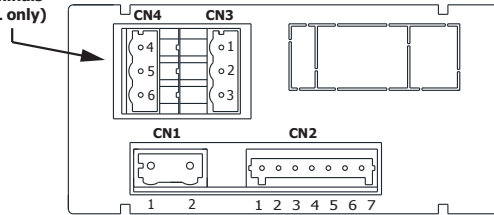
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Technical Specifications Continued						
Temperature	RTD	Pt100 (3 wire)		Pt1000 (2 wire)		
	Fixed Display Range / Resolution	-200.0°C to 800.0°C / 0.1°C -200°C to 800°C / 1°C -328.0°F to 999.9°F / 0.1°F -328°F to 1472°F / 1°F				
	Measurement current	1mA		100µA		
	Maximum resistance per wire	40Ω (balanced)		-		
	Linearization	IEC 60751				
	Coefficient	0.00385				
	Accuracy	±(0.15% rdg+0.5°C), t<-50°C ±(1% rdg+0.5°C) ±(0.15% rdg+0.9°F), t<-58°F ±(1% rdg+0.9°F)				
	Thermocouple	J	K	T	N	
	Fixed Display Range / Resolution	-150.0°C to 999.9°C / 0.1°C -150°C to 1100°C / 1°C -238.0°F to 999.9°F / 0.1°F -238°F to 2012°F / 1°F	-150.0°C to 999.9°C / 0.1°C -150°C to 1200°C / 1°C -238.0°F to 999.9°F / 0.1°F -238°F to 2192°F / 1°F	-150.0°C to 400.0°C / 0.1°C -150°C to 400°C / 1°C -238.0°F to 752.0°F / 0.1°F -238°F to 752°F / 1°F	-150.0°C to 999.9°C / 0.1°C -150°C to 1300°C / 1°C -238.0°F to 999.9°F / 0.1°F -238°F to 2372°F / 1°F	
	Cold junction compensation range	-10°C to 60°C (14°F to 140°F)				
Accuracy	±(0.1% rdg+0.6°C) ±(0.1% rdg+1.1°F)		±(0.2% rdg+0.8°C) ±(0.2% rdg+1.5°F)	±(0.1% rdg+0.6°C) ±(0.1% rdg+1.1°F)		
Conversion	Technique	Sigma-Delta				
	Resolution	±16 bits				
	Conversion rate	20 times per second				
Display	Range	-9999 to +9999, selectable decimal point position				
	Type	4 digit 14mm (0.55"), red				
	LEDs	Relay 1, Relay 2				
	Display refresh rate	20 times per second				
	Display / Input overrange indication	"- DUE", "DUE"				
Accuracy Conditions	Temperature coefficient	100 ppm/°C				
	Warm-up time	5 minutes				
	Temperature	23°C±5°C				
Relays (DPM2-AT-2RL-HL only)	2 Relays 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, 5mm x 20mm glass miniature or DIN 41661 equivalent)					
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					

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Wiring

Output relay terminals (DPM2-AT-2R-HL only)



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

Polarity insensitive for DC power

CN2	
1	Common / RTD B / -TC / Pot. Term. 1
2	RTD A / +TC / 10kΩ res. / Pot. center
3	50kΩ res. / Pot. Term. 2
4	RTD B Pt100
5	+20mA
6	Excitation +24V
7	+10/200VDC

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

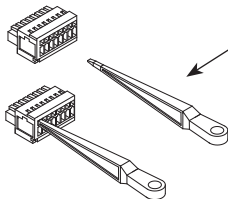
Connector	Terminals		
	CN1	CN2	CN3 & CN4
Wire cross section	0.08 to 2.5mm ² (28 to 12 AWG)	0.08 to 1.5mm ² (28 to 14 AWG)	0.08 to 2.5mm ² (28 to 12 AWG)
Strip length	8 to 9mm	6 to 7mm	8 to 9mm
Manufacturer	Wago 231-202/026-000	Wago 734-107	Wago 231-303/026-000
Cage clamp connection	Insertion tool or 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

(DPM2-AT-2R-HL only)

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

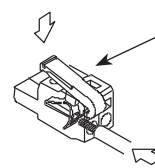
NO: Normally open contact.
CM: Common
NC: Normally closed contact.

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.

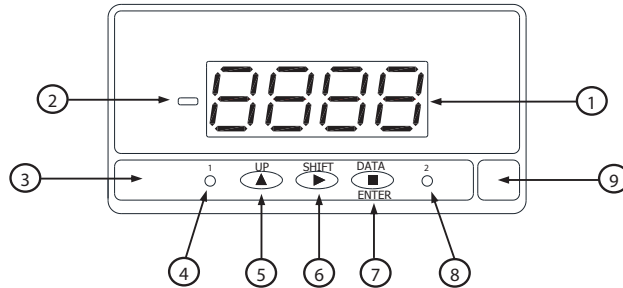
CN1, CN3, CN4 Terminals



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.

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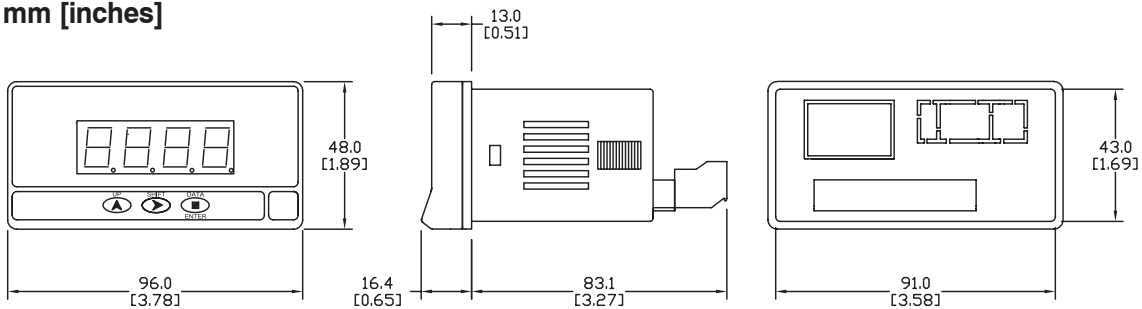
Programming Panel



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	---	---

Dimensions

mm [inches]



Installation	
Dimensions	96 x 48 x 83.1mm (1/8 DIN)
Panel Cutout	92 x 45mm (Max. panel thickness 10mm)
Case Material	Polycarbonate UL 94 V-0

See our website www.AutomationDirect.com for complete Engineering drawings.

For additional information and configuration details download the complete instructions from www.AutomationDirect.com

pro^{sense} Digital Panel Meters



Type DPM1-A-LP



Type DPM1-A-T



Type DPM1-A-2R



Type DPM2



Type DPM3

Description

The ProSense DPM family of digital panel meters includes both 1/32 DIN and 1/8 DIN meter sizes with simple menu-driven pushbutton configuration. A wide variety of input signals can be accepted for process, temperature, load cell, and other applications. Available output options include alarm relays, analog signal retransmission, and sensor excitation voltage. Backed by a 3-year warranty, ProSense digital panel meters offer outstanding features and performance at an incredible price point.

Click on the thumbnail or go to <https://www.automationdirect.com/VID-PS-0007> for a short video on Digital Panel Meters



DPM Series Digital Panel Meters Selection Guide							
Model	Size	Display	Inputs	Outputs	Power	Price	
DPM1-A-LP	1/32 DIN	Red LED*, -1999 to 9999 Selectable decimal point	4-20mA	None	Loop Powered	\$67.00	
DPM1-A-H			±20mA, ±100mV		85-265VAC, 50/60 Hz 100-300VDC	\$88.00	
DPM1-A-L			±10V, ±20V ±200V		21-53VAC 50/60 Hz 10.5-70VDC	\$88.00	
DPM1-T-H		Red LED, -1999 to 9999	RTD Pt100 (3-wire) TC Type J, K, T or N		85-265VAC, 50/60 Hz 100-300VDC	\$88.00	
DPM1-T-L					21-53VAC 50/60 Hz 10.5-70VDC	\$88.00	
DPM1-A-2R-H		Red LED, -1999 to 9999 Selectable decimal point		±20mA, ±100mV ±10V, ±60V	2 Relays Form A SPST Normally Open	85-265VAC, 50/60 Hz 100-300VDC	\$98.00
DPM1-A-2R-L						21-53VAC 50/60 Hz 10.5-70VDC	\$98.00
DPM1-A-A2R-H					2 Relays Form A SPST Normally Open 0/4-20mA	85-265VAC, 50/60 Hz 100-300VDC	\$103.00
DPM1-A-A2R-L						21-53VAC 50/60 Hz 10.5-70VDC	\$103.00
DPM2-AT-HL		Red LED, -9999 to 9999 Selectable decimal point	±20mA, ±10V ±200V, 100-100k Ohm potentiometer, 1k-50k Ohm resistance, RTD Pt100 (3-wire) RTD Pt1000 (4-wire) TC Type J, K, T or N	None	20-265VAC 50/60 Hz 11-265VDC	\$103.00	
DPM2-AT-2R-HL				2 Relays Form C SPDT		\$113.00	
DPM3-AT-H				1/8 DIN	Red, Green, Amber LED -19999 to 39999 Selectable decimal point	±20mA, ±10V RTD Pt100 (3-wire) TC Type J, K, T or N Load Cell ±15mV, ±30mV, ±150mV Potentiometer	None
DPM3-AT-2R-H	2 Relays Form C SPDT	\$144.00					
DPM3-AT-4R-H	4 Relays Form A Normally Open with shared common	\$155.00					
DPM3-AT-A-H		4-20mA	\$144.00				
DPM3-AT-A2R-H	2 Relays Form C SPDT 4-20mA	\$160.00					
DPM3-AT-L	None	22-53VAC 50/60 Hz 10.5-70VDC	\$129.00				
DPM3-AT-2R-L	2 Relays Form C SPDT		\$144.00				
DPM3-AT-4R-L	4 Relays Form A Normally Open with shared common		\$155.00				
DPM3-AT-A-L		4-20mA	\$144.00				
DPM3-AT-A2R-L	2 Relays Form C SPDT 4-20mA	\$144.00					

* Illumination based on available loop current and will not be as bright as the powered Digital Panel Meters