

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	\$100.00
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	\$110.00

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	$\pm(0.1\% \text{ rdg}+35\Omega)$

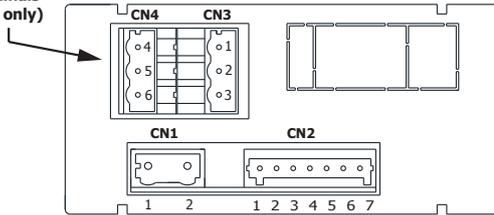
pro^{sense}® Digital Panel Meters - DPM2 Series 1/8 DIN

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				

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

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

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

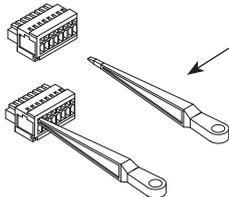
(DPM2-AT-2R-HL only)

CN4 (Relay 2)	
4	NO2
5	CM2
6	NC2

CN3 (Relay 1)	
1	NO1
2	CM1
3	NC1

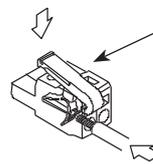
NO: Normally open contact.
CM: Common
NC: Normally closed contact.

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.

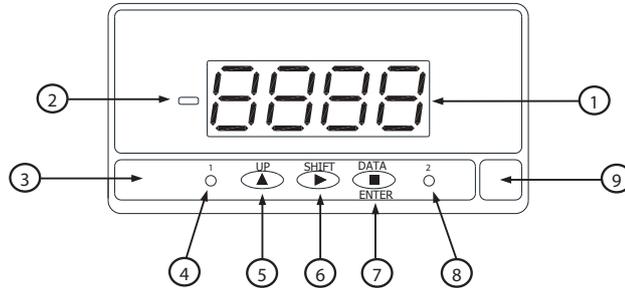
CN1, CN3, CN4 Terminals



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.

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

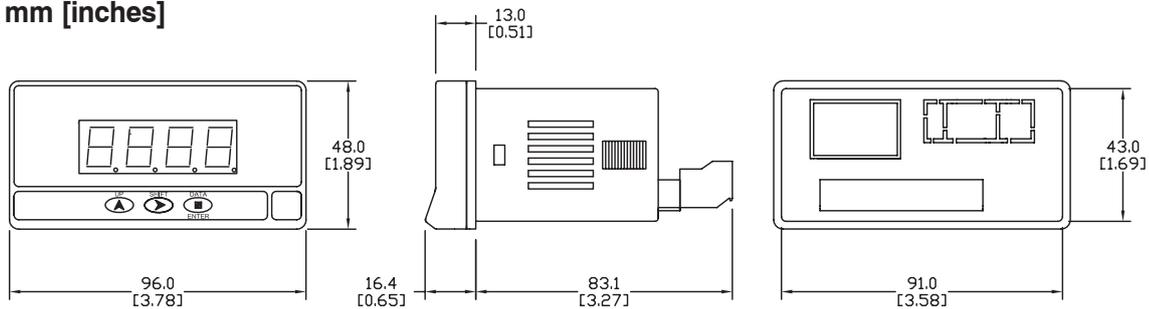
Programming Panel



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.

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Encoders

Sensors: Limit Switches

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

Appendix Book 2

Terms and Conditions

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	\$65.00	
DPM1-A-H			±20mA, ±100mV		85-265VAC, 50/60 Hz 100-300VDC	\$85.00	
DPM1-A-L			±10V, ±20V ±200V		21-53VAC 50/60 Hz 10.5-70VDC	\$85.00	
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	\$85.00	
DPM1-T-L					21-53VAC 50/60 Hz 10.5-70VDC	\$85.00	
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	\$95.00
DPM1-A-2R-L						21-53VAC 50/60 Hz 10.5-70VDC	\$95.00
DPM1-A-A2R-H					2 Relays Form A SPST Normally Open 0/4-20mA	85-265VAC, 50/60 Hz 100-300VDC	\$100.00
DPM1-A-A2R-L						21-53VAC 50/60 Hz 10.5-70VDC	\$100.00
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	2 Relays Form C SPDT	20-265VAC 50/60 Hz 11-265VDC	\$100.00	
DPM2-AT-2R-HL						\$110.00	
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	85-265VAC 50/60Hz 100-300VDC	\$125.00	
DPM3-AT-2R-H				2 Relays Form C SPDT		\$140.00	
DPM3-AT-4R-H				4 Relays Form A Normally Open with shared common		\$150.00	
DPM3-AT-A-H				4-20mA		\$140.00	
DPM3-AT-A2R-H				2 Relays Form C SPDT 4-20mA		\$155.00	
DPM3-AT-L				None		\$125.00	
DPM3-AT-2R-L				2 Relays Form C SPDT		\$140.00	
DPM3-AT-4R-L				4 Relays Form A Normally Open with shared common		22-53VAC 50/60 Hz 10.5-70VDC	\$150.00
DPM3-AT-A-L				4-20mA		\$140.00	
DPM3-AT-A2R-L				2 Relays Form C SPDT 4-20mA		\$140.00	

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