prosense® Digital Panel Meters - DPM2 Series 1/8 DIN

DPM2
14mm Display

DPM2L
20mm Display

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 14mm character height red LED display is easily scaled into any engineering units from -9999 to 9999 with a selectable decimal point location. The DPM2L offers a larger 20mm character height scaled from -1999 to 9999. 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
- 14mm 4-digit (-9999 to 9999) or 20mm (-1999 to 9999) red LED display
- Selectable decimal point
- Process input (±10V, ±200V and ±20mA)
- Temperature input (RTD: Pt100, Pt1000, TC: J, K, T, N, Resolution: 1°F, 0.1°F, 1°C, 0.1°C)
- Potentiometer input (100Ω to 100kΩ)
- Resistance input (999.9Ω, 9999Ω and 50kΩ)
- 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, panel mount, 1/8 DIN, 14mm 4-digit red LED, analog, RTD, thermocouple or potentiometer input, 20-265 VAC/11-265 VDC operating voltage.	0.6	$139.00
DPM2L-AT-HL	ProSense digital panel meter, panel mount, 1/8 DIN, 20mm 4-digit red LED, analog, RTD, thermocouple or potentiometer input, 20-265 VAC/11-265 VDC operating voltage.	0.6	$149.00
DPM2-AT-2R-HL	ProSense digital panel meter, panel mount, 1/8 DIN, 14mm 4-digit red LED, analog, RTD, thermocouple or potentiometer input, (2) 8A SPDT relays output, 20-265 VAC/11-265 VDC operating voltage.	0.65	$152.00
DPM2L-AT-2R-HL	ProSense digital panel meter, panel mount, 1/8 DIN, 20mm 4-digit red LED, analog, RTD, thermocouple or potentiometer input, (2) 8A SPDT relays output, 20-265 VAC/11-265 VDC operating voltage.	0.69	$164.00

Technical Specifications				
Process Input	**Range**	**Input Impedance**	**Resolution**	**Accuracy**
	±20mA	<20Ω	2µA	±(0.1% rdg+15µA)
	±10V	2MΩ	1mV	±(0.1% rdg+6mV)
	±200V	2MΩ	20mV	±(0.1% rdg+0.1V)
Sensor Excitation	24V±3V @ 30mA			
Potentiometer	**Range**	**Maximum Measurement Current**	**Resolution**	**Accuracy**
	100-100kΩ	<0.4mA	0.01% F.S.	±(0.1% rdg+0.05% F.S.)
Resistance	999.9Ω	2.3mA	0.1Ω	±(0.1% rdg+0.7Ω)
	9999Ω	230µA	1Ω	±(0.1% rdg+6Ω)
	50kΩ	23µA	10Ω	±(0.1% rdg+35Ω)

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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 (-1999 to +9999 for large display models), selectable decimal point position			
	Type	4 digit, 14mm (0.55") or 20mm (0.79"), red			
	LEDs	Relay 1, Relay 2			
	Display refresh rate	20 times per second			
	Display / Input overrange indication	"- OUE" , "OUE"			
Accuracy Conditions	Temperature coefficient	100 ppm/°C			
	Warm-up time	5 minutes			
	Temperature	23°C±5°C			
Relays (DPM2-AT-2R-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			

prosense® Digital Panel Meters - DPM2 Series 1/8 DIN

Wiring

Output relay terminals
(DPM2-AT-2R-HL & DPM2L-AT-2R-HL only)
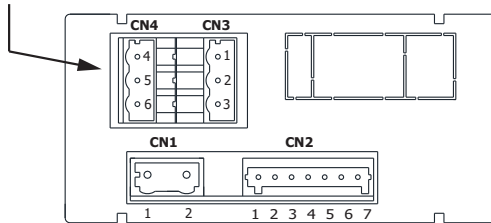
CN1			
AC Supply		**DC Supply**	
1	Line	1	VDC
2	Neutral	2	VDC

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

(DPM2-AT-2R-HL & DPM2L-AT-2R-HL only)

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

CN4 (Relay 2)	
4	NO2
5	CM2
6	NC2

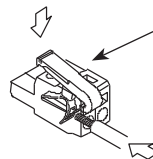| CN3 (Relay 1)	
1	NO1
2	CM1
3	NC1

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

CN2 Terminals
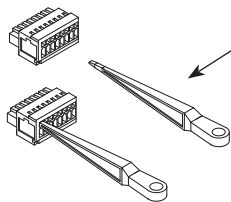
Insertion Tool (included with meter)
Insert wires into the proper terminal while using the insertion tool to open the clip inside the connector. Release the insertion tool to fix wire to the terminal.
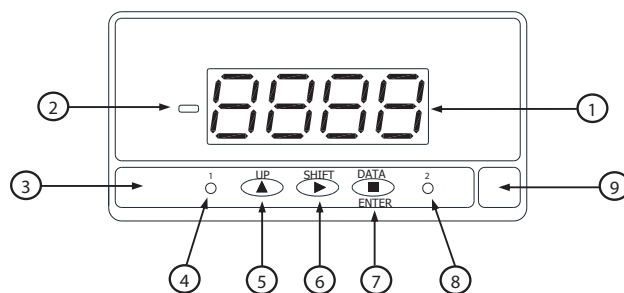
CN1, CN3, CN4 Terminals

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.

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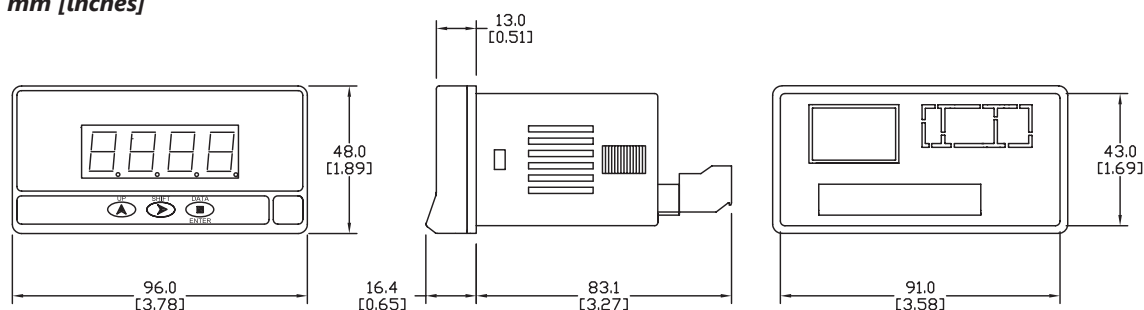
Installation	
Dimensions	96 x 48 x 83.1mm (1/8 DIN)
Panel Cutout	92 x 45mm (Max. panel thickness 10mm)
Case Material	Polycarbonate UL 94 V-0

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

Insert

Scan or click the above QR code to be taken to the DPM2 Series Quick Start Guide

Manual

Scan or click the above QR code to be taken to the DPM2 Series Manual

pro**S**ense® Digital Panel Meters DPM Series

Type DPM1-A-LP

Type DPM1-A-T

Type DPM1-A-2R

Type DPM2

Type DPM2L

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, voltage, current, pulse, frequency, 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 Process Input Selection Guide

Model	Size	Display	Inputs	Outputs	Power	Price
DPM1-A-LP	1/32 DIN	10mm, Red LED*, -1999 to 9999 Selectable decimal point	4-20mA	None	Loop Powered	$104.00
DPM1-A-H			±20mA, ±100mV ±10V, ±20V ±200V	None	85-265 VAC, 50/60 Hz 100-300 VDC	$119.00
DPM1-A-L					21-53 VAC, 50/60 Hz 10.5-70 VDC	$119.00
DPM1-T-H		10mm, Red LED, -1999 to 9999	RTD Pt100 (3-wire) TC Type J, K, T or N		85-265 VAC, 50/60 Hz 100-300 VDC	$119.00
DPM1-T-L					21-53 VAC, 50/60 Hz 10.5-70 VDC	$119.00
DPM1-A-2R-H		8mm, Red LED, -1999 to 9999 Selectable decimal point	±20mA, ±100mV ±10V, ±60V	2 Relays Form A SPST Normally Open	85-265 VAC, 50/60 Hz 100-300 VDC	$132.00
DPM1-A-2R-L					21-53VAC 50/60 Hz 10.5-70VDC	$132.00
DPM1-A-A2R-H				2 Relays Form A SPST Normally Open 4-20mA	85-265 VAC, 50/60 Hz 100-300 VDC	$145.00
DPM1-A-A2R-L					21-53 VAC, 50/60 Hz 13.5-70 VDC	$145.00
DPM2-AT-HL	1/8 DIN	DPM2: 14mm, Red LED, -9999 to 9999 DPM2L: 20mm, Red LED, -1999 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	20-265 VAC, 50/60 Hz 11-265 VDC	$139.00
DPM2L-AT-HL						$149.00
DPM2-AT-2R-HL				2 Relays Form C SPDT		$152.00
DPM2L-AT-2R-HL						$164.00
DPM3-AT-H	1/8 DIN	14mm, 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	85-265 VAC, 50/60Hz 100-300 VDC	$173.00
DPM3-AT-2R-H				2 Relays Form C SPDT		$195.00
DPM3-AT-4R-H				4 Relays Form A Normally Open with shared common		$210.00
DPM3-AT-A-H				4-20mA		$195.00
DPM3-AT-A2R-H				2 Relays Form C SPDT 4-20mA		$217.00
DPM3-AT-L				None	22-53 VAC, 50/60 Hz 10.5-70 VDC	$173.00
DPM3-AT-2R-L				2 Relays Form C SPDT		$195.00
DPM3-AT-4R-L				4 Relays Form A Normally Open with shared common		$210.00
DPM3-AT-A-L				4-20mA		$195.00
DPM3-AT-A2R-L				2 Relays Form C SPDT 4-20mA		$217.00

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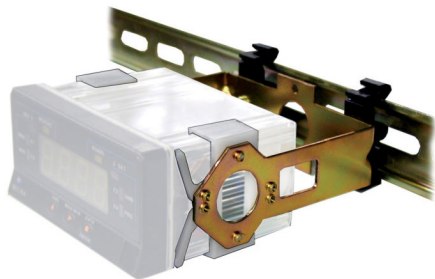
prosense® Digital Panel Meters DPM Series

DPM Series Digital Panel Meters Electrical Input Selection Guide

Model	Size	Display	Inputs	Outputs	Power	Price
DPM1-E-H	1/32 DIN	10mm, Red LED, -1999 to 9999 Selectable decimal point	100 / 600 VAC or VDC 1A / 5A AC or DC	None	85-265 VAC, 50/60 Hz 100-300 VDC	$119.00
DPM1-E-L					21-53 VAC, 50/60Hz 10.5-70 VDC	$119.00
DPM2-E-HL	1/8 DIN	14mm, Red LED, -9999 to 9999	600 / 200 / 20 VAC or VDC 1A / 5A / shunt 60mV / shunt 100mV AC or DC	None	20-265 VAC, 50/60 Hz 11-265 VDC	$139.00
DPM2-E-2R-HL				2 Relays Form C SPDT		$152.00
DPM3-E-H		14mm, Red, Green, Amber LED -19999 to 19999 Selectable decimal point	600 / 200 / 20 / 2 VAC True RMS or VDC 1A / 5A / shunt 50mV / shunt 60mV / shunt 100mV AC True RMS or DC	None	85-265 VAC 100-300 VDC	$202.00
DPM3-E-A2R-H				2 Relays Form C SPDT 4-20mA		$239.00
DPM3-E-L				None	22-53 VAC 10.5-70 VDC	$202.00
DPM3-E-A2R-L				2 Relays Form C SPDT 4-20mA		$239.00

## DPM Series Digital Panel Meters Pulse, Frequency Input Selection Guide

Model	Size	Display	Inputs	Outputs	Power	Price
DPM1-P-H	1/32 DIN	10mm, Red LED, 0 to 9999 Selectable decimal point	7kHz (tachometer rpm or rate modes) 9999Hz (frequency meter mode)	None	85-265 VAC 100-300 VDC	$119.00
DPM1-P-L					1-53 VAC 10.5-70 VDC	$119.00
DPM1-P-A2R-H		8mm, Red LED, 0 to 9999 Selectable decimal point	12kHz (tachometer rpm or rate modes) 9999Hz (frequency mode) 100Hz (duty/PWM mode)	2 Relays Form A SPST Normally Open 4-20mA	85-265 VAC 100-300 VDC	$145.00
DPM1-P-A2R-L					21-53 VAC 13.5-70 VDC	$145.00
DPM2-P-HL	1/8 DIN	14mm, Red LED, 0 to 9999, 0 to 999999 Totalizer Selectable decimal point	7.5 kHz (counter mode) 25kHz (tachometer rpm or rate modes)	None	20-265 VAC 11-265 VDC	$139.00
DPM2-P-2R-HL				2 Relays Form C SPDT		$152.00
DPM3-P-H		14mm Red, Green, Amber LED -99999 to 99999, -9999999 to 99999999 Totalizer Programmable decimal point	19kHz (without totalizer) 9.9 kHz (with totalizer)	None	85-265 VAC 100-300 VDC	$173.00
DPM3-P-A2R-H				2 Relays Form C SPDT 4-20mA		$217.00
DPM3-P-L				None	22-53 VAC 10.5-70 VDC	$173.00
DPM3-P-A2R-L				2 Relays Form C SPDT 4-20mA		$217.00

proense® Digital Panel Meter Accessories

Panel Meter Accessories			
Model	Description	Weight (lbs)	Price
DPM-BKT1	ProSense panel mount bracket, for use with DPM2 and DPM3 series 1/8 DIN digital panel meters. Hardware included.	0.3	$22.50
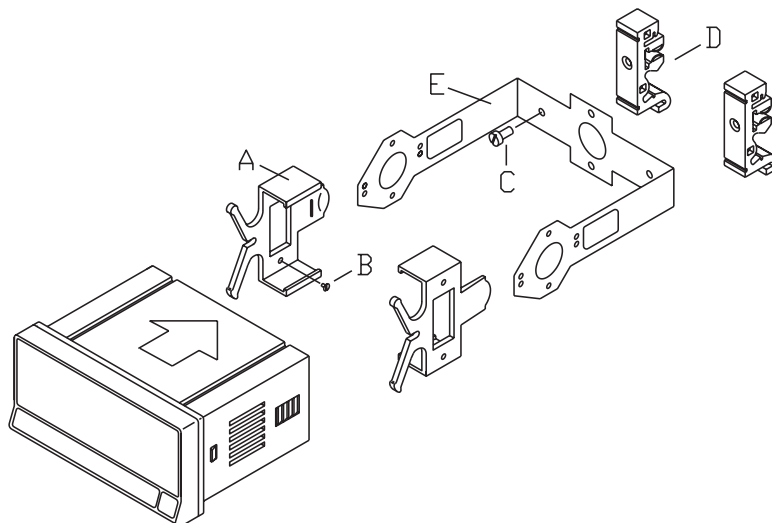
The DPM-BKT1 kit includes:

A. 2 mounting clips.

B. 4 screws M3 x 6 DIN 963 to attach the clips to the inside of the arms of part E.

C. 2 screws M4 x 8 DIN 84 to attach DIN rail clips to part E.

D. 2 DIN rail clips (DIN rail EN50022 or EN50035).

E. 1 metal bracket.

(Panel Meter not included)

Insert

Scan or click the above QR code to be taken to the DPM-BKT1 Insert

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