

# pro<sup>sense</sup>® Digital Panel Meters - DPM3 Series 1/8 DIN



The ProSense DPM3 series offers a simple, feature packed digital display of analog process signals, temperature in either Fahrenheit or Celsius from RTD or thermocouple temperature sensors, load cell, or potentiometer inputs. The 5-digit tri-color red, green or amber LED display is easily scaled into any engineering units from -19999 to 39999 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. Non-linear processes can be scaled by entering up to 11 scaling points. Models are available with two SPDT or four SPST relay outputs that can be set to activate on an increasing or decreasing input signal with hysteresis or time delay operation. Additionally the

display color can be set to change on relay operation. Models are also available with a 4-20mA analog output. The meter is powered from an external AC or DC power supply and provides both 24VDC and 10VDC 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. Other features include memory and reset of minimum and maximum display values, three tare functions, display hold function, filtering to minimize display bounce, and display brightness adjustment. ProSense digital panel meters are backed by a 3 year warranty.

## Features:

- 96 x 48mm 1/8 DIN
- Simple menu driven pushbutton configuration
- 5 digit (-19999 to 39999) tri-color (red, green, amber) LED display
- Selectable decimal point
- Process ( $\pm 10V$ ,  $\pm 20mA$ )
- Temperature (RTD: Pt100, TC: J, K, T, N, Resolution: 1°F, 0.1°F, 1°C, 0.1°C)
- Potentiometer
- Load cell ( $\pm 15mV$ ,  $\pm 30mV$ ,  $\pm 150mV$ )
- AC or DC powered
- Sensor excitation voltage 24V and 10V
- Display scaling or process teaching modes
- 4-20mA analog output on select models
- (2) Form C SPDT or (4) Form A SPST relays on select models
  - Activation on increasing or decreasing input signal
  - Hysteresis or time delay operation
  - Display color change on relay operation
- Configuration for direct or reverse acting linear processes and up to 11 point non-linear processes
- Total or selective configuration lock out
- Programmable functions include:
  - Minimum and maximum value memory
  - Minimum and maximum value reset
  - Tare
  - Hold
- Filtering to minimize display bounce
- Display brightness adjustment
- 3 year warranty



# pro<sup>sense</sup> Digital Panel Meters - DPM3

## Series 1/8 DIN

DPM3 Series Panel Meters			
Model	Description	Weight (lbs)	Price
<b>DPM3-AT-H</b>	ProSense digital panel meter, 1/8 DIN, 5-digit tri-color (red, green, amber) LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 10 VDC, +/- 150 mVDC, +/- 30 mVDC, +/- 15 mVDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100, 85 to 265 VAC / 100 to 300 VDC operating voltage.	0.6	\$129.00
<b>DPM3-AT-2R-H</b>	ProSense digital panel meter, 1/8 DIN, 5-digit tri-color (red, green, amber) LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 10 VDC, +/- 150 mVDC, +/- 30 mVDC, +/- 15 mVDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100, (2) Form C (SPDT) relay(s), 8A @ 250 VAC, 8A @ 24 VDC, 85 to 265 VAC / 100 to 300 VDC operating voltage.	0.7	\$144.00
<b>DPM3-AT-4R-H</b>	ProSense digital panel meter, 1/8 DIN, 5-digit tri-color (red, green, amber) LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 10 VDC, +/- 150 mVDC, +/- 30 mVDC, +/- 15 mVDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100, (4) Form A (SPST) relay(s), 5A @ 250 VAC, 5A @ 30 VDC, 85 to 265 VAC / 100 to 300 VDC operating voltage.	0.7	\$155.00
<b>DPM3-AT-A-H</b>	ProSense digital panel meter, 1/8 DIN, 5-digit tri-color (red, green, amber) LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 10 VDC, +/- 150 mVDC, +/- 30 mVDC, +/- 15 mVDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100, output current signal range(s) of 4 - 20 mA, 85 to 265 VAC / 100 to 300 VDC operating voltage.	0.7	\$144.00
<b>DPM3-AT-A2R-H</b>	ProSense digital panel meter, 1/8 DIN, 5-digit tri-color (red, green, amber) LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 10 VDC, +/- 150 mVDC, +/- 30 mVDC, +/- 15 mVDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100, output current signal range(s) of 4 - 20 mA, (2) Form C (SPDT) relay(s), 8A @ 250 VAC, 8A @ 24 VDC, 85 to 265 VAC / 100 to 300 VDC operating voltage.	0.7	\$160.00
<b>DPM3-AT-L</b>	ProSense digital panel meter, 1/8 DIN, 5-digit tri-color (red, green, amber) LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 10 VDC, +/- 150 mVDC, +/- 30 mVDC, +/- 15 mVDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100, 22 to 53 VAC / 10.5 to 70 VDC operating voltage.	0.6	\$129.00
<b>DPM3-AT-2R-L</b>	ProSense digital panel meter, 1/8 DIN, 5-digit tri-color (red, green, amber) LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 10 VDC, +/- 150 mVDC, +/- 30 mVDC, +/- 15 mVDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100, (2) Form C (SPDT) relay(s), 8A @ 250 VAC, 8A @ 24 VDC, 22 to 53 VAC / 10.5 to 70 VDC operating voltage.	0.7	\$144.00
<b>DPM3-AT-4R-L</b>	ProSense digital panel meter, 1/8 DIN, 5-digit tri-color (red, green, amber) LED, input current signal range(s) of +/- 20 mA, input voltage signal range(s) of +/- 10 VDC, +/- 150 mVDC, +/- 30 mVDC, +/- 15 mVDC, input thermocouple type(s): J, K, T, N, input RTD type(s): Pt100, (4) Form A (SPST) relay(s), 5A @ 250 VAC, 5A @ 30 VDC, 22 to 53 VAC / 10.5 to 70 VDC operating voltage.	0.7	\$155.00
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## Series 1/8 DIN

Technical Specifications					
<b>Process</b>	<b>Range</b>	<b>Input Impedance</b>	<b>Accuracy</b>	<b>Resolution</b>	
	±10VDC	1MΩ	±(0.1% rdg + 1 digit)	1mV	
	±20mA DC	15Ω	±(0.1% rdg + 1 digit)	1μA	
<b>Sensor Excitation</b>	24V@60mA, 10V @ 60mA				
<b>Potentiometer</b>	<b>Range</b>	<b>Input Impedance</b>	<b>Accuracy</b>	<b>Resolution</b>	
	200Ω minimum	1MΩ	±(0.1% rdg + 1 digit)	0.005%	
<b>Sensor Excitation</b>	10V @ 60mA				
<b>Load Cell</b>	<b>Range</b>	<b>Input Impedance</b>	<b>Accuracy</b>	<b>Resolution</b>	
	±15mV, ±30mV, ±150mV	100MΩ	±(0.1% rdg + 1 digit)	1μV	
<b>Sensor Excitation</b>	10V @ 60mA				
<b>Temperature</b>	<b>RTD</b>	<b>Pt100 (3-Wire)</b>			
	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 1472.0°F / 0.1°F -328°F to 1472°F / 1°F			
	Accuracy / resolution	±(0.2% rdg+0.6°C) / 0.1°C ±(0.2% rdg+1°C) 1°C ±(0.2% rdg+1°F) / 0.1°F ±(0.2% rdg+2°F)			
	Pt100 sensor excitation	<1mA DC			
	Max lead resistance	40Ω / cable (balanced)			
	<b>Thermocouple</b>	<b>J</b>	<b>K</b>	<b>T</b>	<b>N</b>
	Fixed display range / resolution	-150.0°C to 1100.0°C / 0.1°C -150°C to 1100°C / 1°C -238.0°F to 2012.0°F / 0.1°F -238°F to 2012°F / 1°F	-150.0°C to 1200.0°C / 0.1°C -150°C to 1200°C / 1°C -238.0°F to 2192.0°F / 0.1°F -238°F to 2192°F / 1°F	-200.0°C to 400.0°C / 0.1°C -200°C to 400°C / 1°C -328.0°F to 752.0°F / 0.1°F -328°F to 752°F / 1°F	-150.0°C to 1300.0°C / 0.1°C -150°C to 1300°C / 1°C -238.0°F to 2372.0°F / 0.1°F -238°F to 2372°F / 1°F
	Accuracy / resolution	±(0.4% rdg+0.6°C) / 0.1°C ±(0.4% rdg+1°C) 1°C ±(0.4% rdg+1°F) / 0.1°F ±(0.4% rdg+2°F) / 1°F	±(0.4% rdg+0.6°C) / 0.1°C ±(0.4% rdg+1°C) 1°C ±(0.4% rdg+1°F) / 0.1°F ±(0.4% rdg+2°F) / 1°F	±(0.4% rdg+0.6°C) / 0.1°C ±(0.4% rdg+1°C) 1°C ±(0.4% rdg+1°F) / 0.1°F ±(0.4% rdg+2°F) / 1°F	±(0.4% rdg+0.6°C) / 0.1°C ±(0.4% rdg+1°C) 1°C ±(0.4% rdg+1°F) / 0.1°F ±(0.4% rdg+2°F) / 1°F
	Cold junction compensation range	-10°C to 60°C (14°F to 140°F)			
	Offset programmable	-19.9° / +99.9°			
<b>Conversion</b>	Technique	Sigma-Delta			
	Resolution	±15 bits			
	Conversion rate	20 times per second			
<b>Accuracy Conditions</b>	Temperature coefficient	100 ppm/°C			
	Warm-up time	10 minutes			
	Temperature	23°C±5°C			

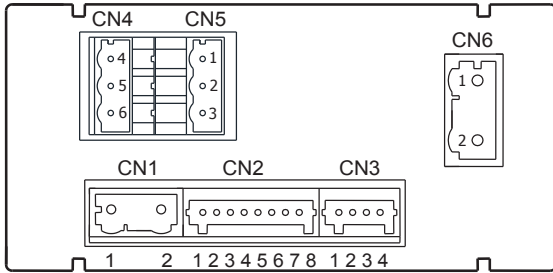
# pro<sup>sense</sup> Digital Panel Meters - DPM3

## Series 1/8 DIN

Technical Specifications Continued			
<b>Display</b>	Range	-19999 / +39999, 5 LED digits 14mm (Programmable color Red, Green, Amber)	
	LEDs	8, functions and outputs status	
	Display refresh rate	Process / Load cell	20 times per second
		Pt100	20 times per second
		TC	10 times per second
Display / Input overrange indication	"-oUEr", "oUEr"		
<b>Relays</b>	<b>-2R: (2) Form C SPDT</b>	<b>-4R: (4) Form A SPST Normally Open with shared common</b>	
	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 at 1A Operate time.....≤10ms	Nominal contact rating.....5A at 250VAC / 30 VDC Maximum switching current (resistive load).....5A Maximum switching power.....1250VA / 150W Maximum switching voltage.....250VAC / 30VDC Contact resistance.....≤100mΩ at 6VDC at 1A Operate time.....≤10ms	
<b>Analog Output -A &amp; -A2R Only</b>	Type	4-20 mA Sourcing	
	Maximum load	≤500Ω	
	Resolution	13 bits	
	Accuracy	0.1%FS ±1 bit	
	Response time	10ms	
	Thermal drift	0.5μA / °C	
<b>Power Supply and Fuses</b>	-H High Voltage: -L Low Voltage:	85-265 VAC 50/60 Hz (100-300 VDC), (recommended fusing 0.5A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent) 22-53 VAC 50/60 Hz (10.5 - 70 VDC), (recommended fusing 2A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)	
<b>Power Consumption</b>	5W without options, 8W max.		
<b>Filter</b>	Cutoff frequency	4Hz to 0.05Hz	
	Slope	-20dB/Dec.	
<b>Environmental Conditions</b>	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	
<b>Environmental Air</b>	No corrosive gases permitted		
<b>Agency Approvals</b>	CE		

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## Wiring



Note: For additional wiring information download complete manual from [www.AutomationDirect.com](http://www.AutomationDirect.com)

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

Polarity insensitive for DC power

CN3	
1	Common
2	Tare
3	Tare reset
4	Hold

CN2				
Input Signal / Excitation				
	Process	Temperature	Load Cell	
1	-EXC24V	---	-EXC10	
2	+EXC24V	---	---	
3	---	---	+EXC10	
4	---	Pt100 A	---	
5	+mA	---	---	
6	+V	---	---	
7	---	Pt100 B	+TC	+mV
8	-V / -mA (COM)	Pt100 B	-TC	-mV (COM)

Terminals					
Connector	CN1	CN2	CN3	CN4 & CN5	CN6
Wire cross section	0.08 to 2.5mm <sup>2</sup> (28 to 12 AWG)	0.08 to 0.5mm <sup>2</sup> (28 to 20 AWG)	0.08 to 0.5mm <sup>2</sup> (28 to 20 AWG)	0.08 to 2.5mm <sup>2</sup> (28 to 12 AWG)	0.08 to 2.5mm <sup>2</sup> (28 to 12 AWG)
Strip length	8 to 9mm	5 to 6mm	5 to 6mm	8 to 9mm	8 to 9mm
Manufacturer	Wago 231-202/026-000	Wago 733-108	Wago 733-104	Wago 231-303/026-000	Wago 231-302/026-000
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 0.3 mm x 1.8 mm blade	Insertion tool or screwdriver with 0.5 mm x 3.0 mm blade	Insertion tool or screwdriver with 0.5 mm x 3.0 mm blade

### 2 SPDT Relays (-2R)

CN4 (Relay 2)		CN5 (Relay 1)	
4	NO2	1	NO1
5	CM2	2	CM1
6	NC2	3	NC1

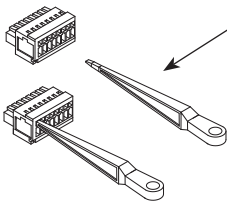
### 4 SPST Relays (-4R)

CN4		CN5	
4	NO4	1	NO1
5	Unused	2	NO2
6	CM (All)	3	NO3

NO: Normally open, CM: Common, NC: Normally closed

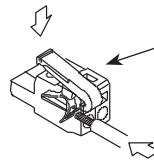
CN6	
Analog Output	
1	(-) 4-20mA
2	(+) 4-20mA

### CN2 and CN3 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.

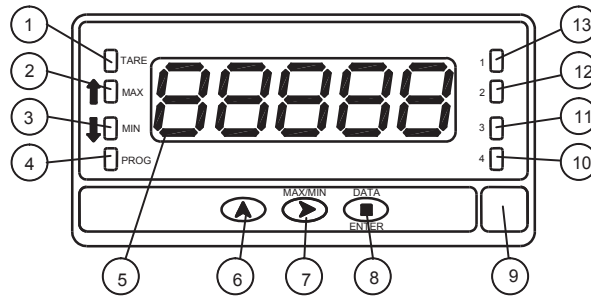
### CN1, CN4, CN5 and CN6 Terminals



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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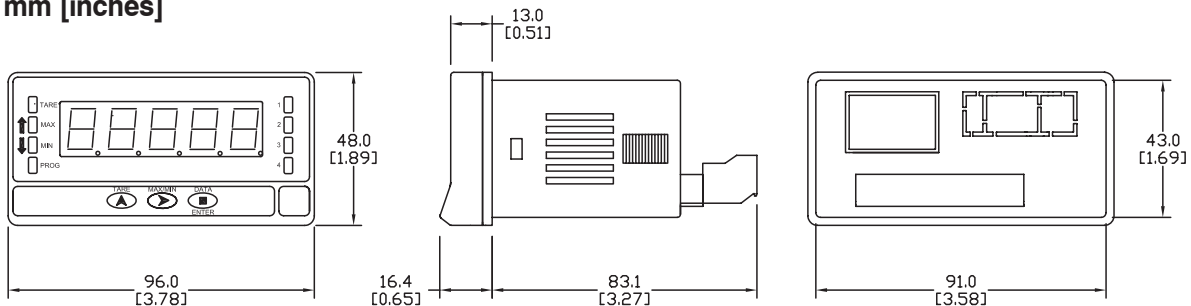
## Programming Panel



Programming Panel			
#	Description	Run Mode	Programming Mode
1	TARE	Indicates tare in the memory	---
2	MAX	Indicates peak displayed	---
3	MIN	Indicates valley displayed	---
4	PROG	---	Indicates programming mode
5	DISPLAY	Displays the input variable	Displays programming parameters
6	UP/TARE KEY	Takes on the display value as tare	Increments the value of the flashing digit
7	SHIFT/MAX/MIN KEY	Recalls Max/Min values	Moves to the right
8	ENTER KEY	Enters in PROG mode. Displays data	Accepts data. Advances program
9	Free space for units label	---	---
10	LED Output 4	Activation output 4	Programming output 4
11	LED Output 3	Activation output 3	Programming output 3
12	LED Output 2	Activation output 2	Programming output 2
13	LED Output 1	Activation output 1	Programming output 1

## Dimensions

mm [inches]



See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

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

For additional information and configuration details download the complete instructions from [www.AutomationDirect.com](http://www.AutomationDirect.com)

# pro<sup>sense</sup> 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	1/8 DIN	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			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	4 Relays Form A Normally Open with shared common
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	\$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					
DPM3-AT-2R-L	22-53VAC 50/60 Hz 10.5-70VDC	\$155.00					

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