

pro^{sense}® Digital Panel Meters - DPM3-P Series 1/8 DIN



The ProSense DPM3-P series offers a simple, feature packed digital display for counter, chronometer, frequency, tachometer, rate, and pulse width modulated (PWM) applications. The DPM3-P has a 5-digit, 14mm character height, tri-color red, green or amber LED, accepts input from AC voltage, magnetic sensors, NPN/PNP sensors, NAMUR sensors, TTL/24V encoders, or switched contacts, and provides selectable sensor excitation voltages. Models are available with two SPDT relay outputs that can be set to activate on an increasing or decreasing input signal with hysteresis or time delay operation in tachometer, rate, and frequency modes as well as pulsed or latched operation in counter and chronometer modes. 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. 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 (valley) and maximum (peak) display values, start/stop in chronometer mode or stop in counter mode, and display brightness adjustment. ProSense digital panel meters are backed by a 3 year warranty.

Features:

- 96 x 48mm 1/8 DIN
- 5 digit (-99999 to 99999) tri-color (red, green, amber) LED display
- Selectable decimal point
- Counter/Chronometer/Frequency/Tachometer (RPM/Rate/PWM) modes
 - AC voltage
 - Magnetic sensor
 - NAMUR sensor
 - NPN/PNP sensor
 - TTL/24V encoder
 - Switched contact
- AC or DC powered
- Selectable sensor excitation voltage
- Optional 4-20mA analog output
- Optional (2) Form C SPDT
 - Activation on increasing or decreasing input signal
 - Hysteresis or time delay operation (frequency and tach modes)
 - Pulsed or latch operation (counter and chronometer modes)
 - Display color change on relay operation
- Total or selective configuration lock out
- Programmable functions include:
 - Minimum (valley) and maximum (peak) value memory
 - Minimum (valley) and maximum (peak) value reset
 - Start/Stop in chronometer mode or Stop in counter mode
- Display brightness adjustment
- 3 year warranty



DPM3-P Series Panel Meters			
Model	Description	Weight (lbs)	Price
<u>DPM3-P-H</u>	ProSense digital panel meter, panel mount, 1/8 DIN, 14mm 5-digit tri-color (red, green, amber) LED, pulse or frequency input, 85-265 VAC/100-300 VDC operating voltage.	0.6	\$173.00
<u>DPM3-P-A2R-H</u>	ProSense digital panel meter, panel mount, 1/8 DIN, 14mm 5-digit tri-color (red, green, amber) LED, pulse or frequency input, 4-20 mA, (2) 8A SPDT relays output, 85-265 VAC/100-300 VDC operating voltage.	0.71	\$217.00
<u>DPM3-P-L</u>	ProSense digital panel meter, panel mount, 1/8 DIN, 14mm 5-digit tri-color (red, green, amber) LED, pulse or frequency input, 22-53 VAC/10.5-70 VDC operating voltage.	0.59	\$173.00
<u>DPM3-P-A2R-L</u>	ProSense digital panel meter, panel mount, 1/8 DIN, 14mm 5-digit tri-color (red, green, amber) LED, pulse or frequency input, 4-20 mA, (2) 8A SPDT relays output, 22-53 VAC/10.5-70 VDC operating voltage.	0.69	\$217.00



Digital Panel Meters - DPM3-P Series 1/8 DIN

Technical Specifications		
Tachometer/Frequency Mode	Maximum Frequency	20kHz (without totalizer) 8kHz (with totalizer) 1kHz (duty)
	Minimum Frequency	0.01 Hz
Counter Mode	Without totalizer	11kHz
	With totalizer	9kHz
AC voltage Input	Range	10 to 300 VAC
Magnetic Sensor Input	Sensitivity	V _{in} (AC) > 60mVpp for f < 1kHz > 120 mVpp for f > 1kHz
NAMUR* Sensor Input	R _C	3.3 kΩ
	I _{ON}	< 1mA DC
	I _{OFF}	> 3mA DC
NPN/PNP Sensors Input	R _C	3.3 kΩ
	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	3.9 kΩ
	F _C (auto selection of input type prog.)	20Hz with duty cycle 50% 10Hz with duty cycle 30%
Accuracy at 23°C ±5°C	Frequency / Tachometer	0.005%
	Chronometer	0.01%
	Temperature coefficient	50ppm / °C
	Warm-up time	5 minutes
Power Supply and Fuses	-H High Voltage:	85-265 VAC 50/60 Hz or 100-300 VDC, (recommended fusing 0.5A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)
	-L Low Voltage:	22-53 VAC 50/60 Hz or 10.5 - 70 VDC, (recommended fusing 2A/250V, 5mm x 20mm glass miniature or DIN 41661 equivalent)
Power Consumption		5W, 8W for -A2R
Sensor Excitations		8.2 VDC @ 30mA ; 20VDC (not stabilized) @ 100mA
Display	Type	5 LED digits 14mm (0.55") (Programmable color Red, Green, Amber)
	LEDs	8, functions and outputs status
	Decimal Point	Programmable
	Positive overflow indication	OvEr
	Negative overflow indication	-OvEr
	Counter display limits	Process -99999 to 99999
	Totalizer	-9999999 to 99999999
	Chronometer ranges	4, from 999.99s to 99999h
	Frequency ranges	0.01 Hz to 20kHz/10kHz(totalizer)
	Tachometer range	0 to 99999(rpm), programmable (rate)
	Scale factor	Counter/Tach, programmable from 0.0001 to 99999
	Display update rate	Counter/Chronometer, 100ms Frequency/Tachometer, programmable 0.1 to 9.9 s
Relays -A2R Only	Maximum switching current (resistive load)	8A
	Maximum switching power	2000VA / 192W
	Maximum switching voltage	400VAC / 125VDC
	Contact rating	8A @ 250VAC / 24VDC
	Contact resistance	≤ 100mΩ at 6 VDC @ 1A
	Contact type	SPDT
	Operate time	≤ 10ms

* For more information about NAMUR sensors see www.namur.net.

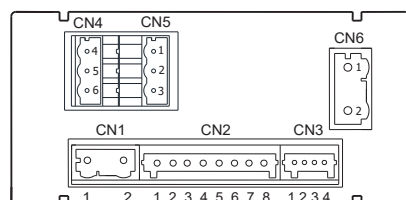
prosense® Digital Panel Meters - DPM3-P Series 1/8 DIN

Technical Specifications Continued

Analog Output -A2R Only	Type	4-20 mA Sourcing
	Maximum load	≤ 500Ω
	Resolution	13 bits
	Accuracy	0.1%FS ±1 bit
	Response time	50ms
	Thermal drift	0.5μA / °C
Environmental Conditions	Operating temperature	-10°C to +60°C (14°F to 140°F)
	Storage temperature	-25°C to +80°C (-13°F to 176°F)
	Relative humidity (non-condensing)	< 95% @ 40°C (104°F)
	Maximum altitude	2000m
	Frontal protection degree	IP65
Environmental Air	No corrosive gases permitted	
Agency Certifications	CE	

Wiring

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



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

Polarity insensitive for DC power

CN3	
Logic Functions	
1	Common
2	Input 1
3	Input 2
4	Input 3

CN2	
Electrical Inputs	
1	Not used
2	(+) 20V Excitation
3	(+) 8.2 V Excitation for NAMUR sensors
4	(-) Common excitation / signal
5	Signal B input
6	Signal A input
7	Not used
8	High voltage input (300VAC max.)

2 SPDT Relays (-A2R)

CN4	
Relay 2	
4	NO2
5	CM2
6	NC2

CN5	
Relay 1	
1	NO1
2	CM1
3	NC1

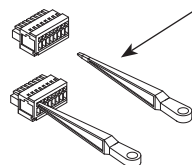
CN6	
Analog Output	
1	(-) 4-20mA
2	(+) 4-20mA

NO: Normally Open, CM: Common, NC: Normally Closed

Terminals

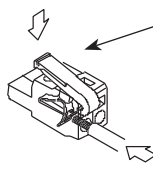
Connector	CN1	CN2	CN3	CN4 & CN5	CN6
Wire cross section	0.08 to 2.5mm² (28 to 12 AWG)	0.08 to 0.5mm² (28 to 20 AWG)	0.08 to 0.5mm² (28 to 20 AWG)	0.08 to 2.5mm² (28 to 12 AWG)	0.08 to 2.5mm² (28 to 12 AWG)
Strip length	8 to 9mm	5 to 6mm	5 to 6mm	8 to 9mm	8 to 9mm
Manufacturer	Wago 231-202/026-000	Wago 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

CN2 and CN3 Terminals



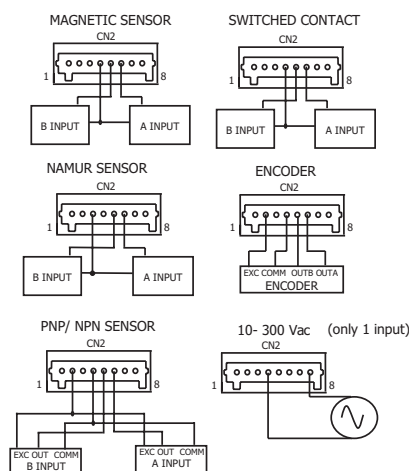
Insertion Tool (included with meter)
Insert wires into the proper terminal while using the insertion tool to open the clip inside the connector. Release the insertion tool to fix wire to the terminal.

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.

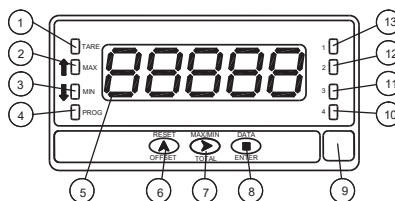
Input Wiring Diagrams



WARNING!
Never connect a dangerous voltage to PIN 4 of CN2 (input common).

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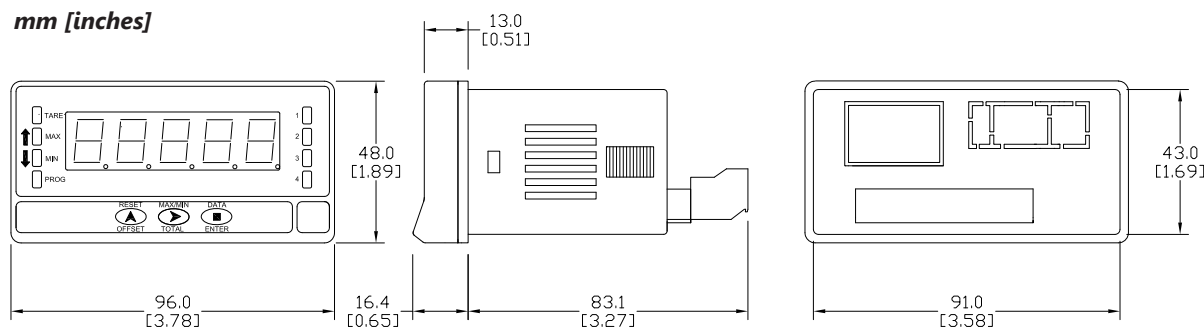
Programming Panel



Programming Panel			
#	Description	Run Mode	Programming Mode
1	TARE	Indicates that there is an offset value programmed	---
2	MAX	Solid indicates rotation sense or count polarity; Blinking indicates visualization of a Max value	Indicates rotation sense (polarity)
3	MIN	Solid indicates rotation sense or count polarity; Blinking indicates visualization of a Min value	Indicates rotation sense (polarity)
4	PROG	---	Indicates programming mode
5	DISPLAY	Displays the input variable	Displays programming parameters
6	RESET/OFFSET KEY	In Tachometer mode reset of MAX/ MIN/ TOTAL (if present on display) In Counter mode Reset / OFFSET (starts measuring)	- To increase blinking digit value - Direct access to Setpoints value
7	MAX-MIN/TOTAL KEY	1 st push allows TOTALIZER visualization (if activated) 2 nd push allows Max visualization (only Tachometer) 3 rd push allows Min visualization (only Tachometer) Following push: back to current value.	To move blinking digit
8	ENTER KEY	To enter programming menu or to visualize parameters if programming is locked	- To step forward in programming menu - To validate programmed values - To exit programming menu
9	Free space for units label	---	---
10	LED Output 4	---	---
11	LED 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 for complete Engineering drawings.

Installation	
Dimensions	96 x 48 x 60mm (1/8 DIN)
Panel Cutout	92 x 45mm (Max. panel thickness 10mm)
Case Material	Polycarbonate UL 94 V-0

Insert



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

Manual



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

pro^{sense} Digital Panel Meters DPM Series

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.



Type DPM1-A-LP



Type DPM1-A-T



Type DPM1-A-2R



Type DPM2



Type DPM2L



Type DPM3

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		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
DPM1-A-2R-L				2 Relays Form A SPST Normally Open 4-20mA	21-53VAC 50/60 Hz 10.5-70VDC	\$132.00
DPM1-A-A2R-H					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
DPM2L-AT-HL	2 Relays Form C SPDT				\$149.00	
DPM2-AT-2R-HL					\$152.00	
DPM2L-AT-2R-HL					\$164.00	
DPM3-AT-H	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

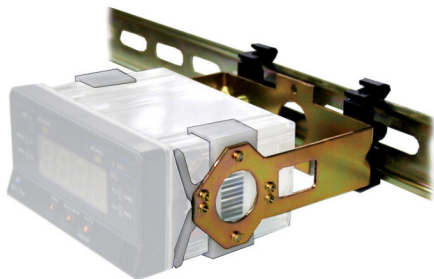
DPM Series Digital Panel Meters Electrical Input Selection Guide

Model	Size	Display	Inputs	Outputs	Power	Price
<u>DPM1-E-H</u>	1/32 DIN	10mm, Red LED, -1999 to 9999 Selectable decimal point	100 / 600 VAC or VDC 1A / 5AAC or DC	None	85-265 VAC, 50/60 Hz 100-300 VDC	\$119.00
<u>DPM1-E-L</u>					21-53 VAC, 50/60Hz 10.5-70 VDC	\$119.00
<u>DPM2-E-HL</u>	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
<u>DPM2-E-2R-HL</u>				2 Relays Form C SPDT		\$152.00
<u>DPM3-E-H</u>		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
<u>DPM3-E-A2R-H</u>				2 Relays Form C SPDT 4-20mA		\$239.00
<u>DPM3-E-L</u>				None	22-53 VAC 10.5-70 VDC	\$202.00
<u>DPM3-E-A2R-L</u>				2 Relays Form C SPDT 4-20mA		\$239.00

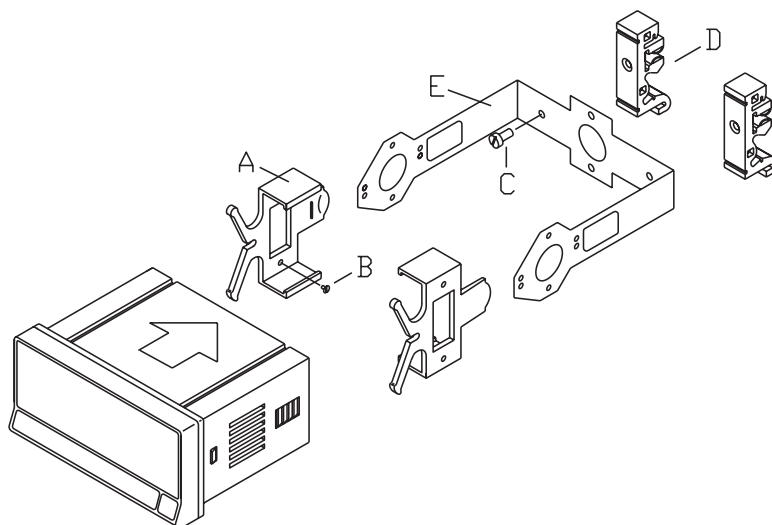
DPM Series Digital Panel Meters Pulse, Frequency Input Selection Guide

Model	Size	Display	Inputs	Outputs	Power	Price
<u>DPM1-P-H</u>	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
<u>DPM1-P-L</u>					1-53 VAC 10.5-70 VDC	\$119.00
<u>DPM1-P-A2R-H</u>		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
<u>DPM1-P-A2R-L</u>					21-53 VAC 13.5-70 VDC	\$145.00
<u>DPM2-P-HL</u>	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
<u>DPM2-P-2R-HL</u>				2 Relays Form C SPDT		\$152.00
<u>DPM3-P-H</u>		14mm Red, Green, Amber LED -99999 to 99999, -9999999 to 9999999 Totalizer Programmable decimal point	19kHz (without totalizer) 9.9 kHz (with totalizer)	None	85-265 VAC 100-300 VDC	\$173.00
<u>DPM3-P-A2R-H</u>				2 Relays Form C SPDT 4-20mA		\$217.00
<u>DPM3-P-L</u>				None	22-53 VAC 10.5-70 VDC	\$173.00
<u>DPM3-P-A2R-L</u>				2 Relays Form C SPDT 4-20mA		\$217.00

prosense® Digital Panel Meter Accessories



Panel Meter Accessories				
Model	Description	Weight (lbs)	Drawing Link	Price
<u>DPM-BKT1</u>	ProSense panel mount bracket, for use with DPM2 and DPM3 series 1/8 DIN digital panel meters. Hardware included.	0.3	<u>PDF</u>	\$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.