

MARTEL ELECTRONICS QM Series 2-Wire Panel Meters



The QM Single Mounting Hole Series are Nema 4 rated meters for simple commercial and industrial applications. To install, the user needs only to drill a single 7/32" (5.5mm) hole in the panel. A rubber seal is included, providing splashproof protection for the unit when fitted to the meter during installation. Includes: meter, mounting nut, washer and panel seal. All meters have reverse polarity protection.

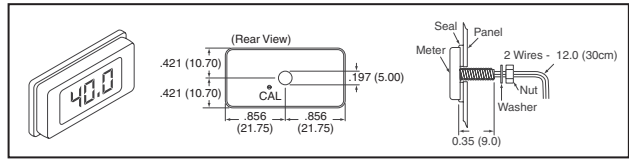
QM Voltmeter: 2-wire voltmeter powered from the voltage that it is measuring. The module indicates "LO" at voltages below 4V and "HI" at above 25V (40V for QM100V-40). **Specifications:** • Measured Input Voltage: 4 – 25VDC (QM100V), 4 – 40VDC (QM100V-40) • Supply Voltage: 3 – 50VDC • Sample Rate: 3 samples/second • Operating Range: 0°C – 50°C

QM Thermometer: A dual inside (sensor included) and outside (sensor required) digital thermometer that can display temperatures in either Fahrenheit or Celsius. **Specifications:** • Internal Sensor: 14°F – 122°F (-10°C – 50°C) • External Sensor: -4°F – 428°F (-20°C – 220°C) • Operating Range: -10°C – 50°C • Supply Voltage: 4 – 28VDC

QM Hourmeter: Automatically blanks the leading zeros for easy reading and display of hours and 1/10 hours. An output is provided that pulses high after every hour. Features trip and total time range. **Specifications:** • Resolution Range: 9,999.9 hour or 99,999 hour • Supply Voltage: 5 – 27VDC • Operating Range: 0°C – 50°C

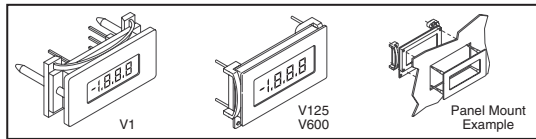
QM130M Digitalized Analog Gauge: An LCD analog gauge that looks similar to an analog voltmeter. A moving needle illustrates a quick confirmation of meter levels and changing colors allow quick visuals of meter status. This meter can be scaled for reading voltages or currents. **Specifications:** • Supply Voltage: 5 – 12VDC • Resolution: 125mVDC • Full Scale Reading: 1VDC

QM140V Scalable Meter: A universal 0 – 200mV input meter that with scaling resistors is able to measure 200mV/µA, 2V/mV and 20V/MA ranges. Trim pot calibration included on rear of meter. **Specifications:** • Supply Voltage: 7.5V – 15VDC • Sample Rate: 3 samples/second • Operating Range: 0°C – 50°C



Description	Digi-Key Part No.	Price Each	Martel Part No.
Voltmeter 4 – 25VDC, 100mV resolution	227-1042-ND	32.06	QM100V
Voltmeter 4 – 40VDC, 200mV resolution	227-1054-ND	32.06	QM100V-40
Thermometer, Inside/Outside -10°C – 50°C	227-1043-ND	32.06	QM110T
Hourmeter, 9,999.9 hrs trip/totalized time	227-1044-ND	32.06	QM120C
LCD Analog Gauge, moving LCD needle	227-1045-ND	25.29	QM130M
Universal Scalable Meter, Volt/Current	227-1046-ND	38.48	QM140V

V Series Very Low Cost Voltmeter

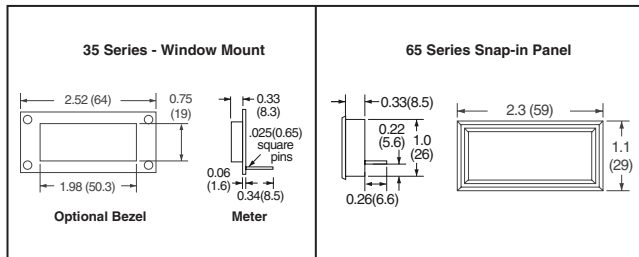


The V Series is a range of low cost LCD, 3 1/2 digit panel instruments. The meters have a ±200mVDC full scale reading with a typical accuracy of 0.25%. These meters use a 9VDC and are designed for high volume OEM applications where lowest possible cost is a major concern. They feature an exceptionally large display in a miniature package and includes auto-zero and user-selectable decimal points. All module's are supplied with a black panel mounting bezel kit.

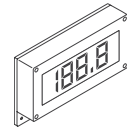


Description	Digi-Key Part No.	Price Each			Martel Part No.
		1	5	10	
Mini LCD Voltmeter, .25" digit height, 200mV Input, Includes Bezel	227-1059-ND	15.20	14.45	13.69	V1
Standard LCD Voltmeter, .50" digit height, 200mV Input, Includes Bezel	227-1060-ND	18.41	15.59	14.77	V125
Large LCD Voltmeter, .60" digit height, 200mV Input, Includes Bezel	227-1061-ND	17.61	16.74	15.86	V600

35/65 Series Digital Panel Meters



This low cost range of meters is the solution for a wide range of OEMs and Panel Builders. The DPM35 is available with either red or green LEDs and has an optional mounting bezel (BEZ35). The DPM65 has a reflective LCD display and comes with a snap-in bezel. **Inputs:** • Ranges: ±200.0mV, ±2,000V, ±20,00V • Single-ended; (INLO internally referenced to supply GND) **Power Supply:** • Voltage: 5VDC (±5%) **Mounting:** • 35 Series: Window mount or bezel mount with optional bezel • 65 Series: Snap-in bezel mount • Connection: 10 pins, 0.025" (.635mm) square on 0.1" (2.54mm) centers



Description	Digi-Key Part No.	Price Each			Martel Part No.
		1	5	10	
DPM Red LED, 200mV, 35 Series	227-1034-ND	36.01	34.21	32.41	DPM35R
DPM Green LED, 200mV, 35 Series	227-1035-ND	36.01	34.21	32.41	DPM35G
DPM Reflective LCD, Differential, 65 Series	227-1036-ND	36.01	34.21	32.41	DPM65
DPM Reflective LCD, Single-rail, 65 Series	227-1037-ND	36.01	34.21	32.41	DPM65S
Optional Snap-in Bezel for DPM35 Series	227-1038-ND	2.93	2.79	2.64	BEZ35

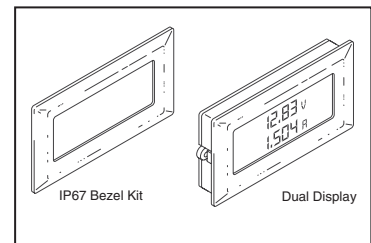
◆ RoHS Compliant

700 Series Industrial Voltmeter

The 700 Series Voltmeters are low cost LCD displays for panel instruments and portable equipment. Use the Dual Display meter to display "matched readings" (voltage and current or temperature and humidity) with separate selectable annunciators and calibration adjustments. Use the DPM742 (screw terminal connections) and 750 (with annunciators and low battery indicator) meters for portable equipment or industrial applications. LED backlight standard on 742 and 750. Use optional IP67 silver metallic bezel for watertight, industrial applications. All meters include a standard black bezel kit.

Description	Digi-Key Part No.	Price Each			Martel Part No.
		1	5	10	
IP67 Industrial Bezel Kit, for use with DPM742-BL and DPM750S-BL	227-1058-ND	18.15	17.25	16.34	
Dual Display Voltage-Ampereage meter, 0-200mV Input	227-1057-ND	94.16	89.46	84.75	DPM702S
Large LCD (.50") 4-20mA Loop Meter, screw terminal connections	227-1056-ND	96.89	92.05	87.21	DPM742-BL
Large LCD (.50") Voltmeter, 20-0mV Input, with Annunciators/Low Battery	227-1055-ND	55.93	53.14	50.34	DPM750S-BL

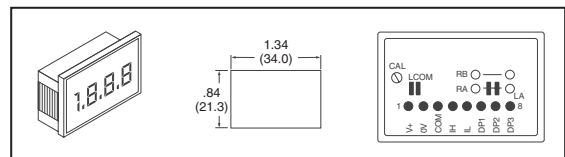
◆ RoHS Compliant



SP Series 3.5 Digital Voltmeter

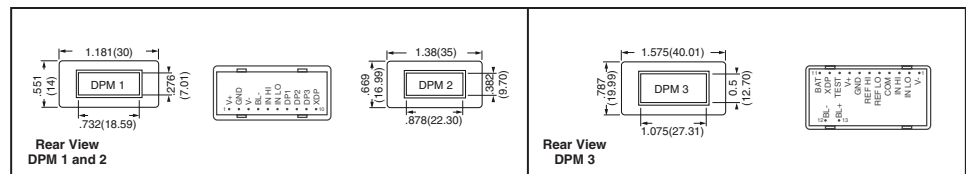
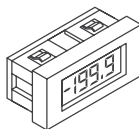
The 12-pin dual-in-line connection version is compatible with competing meters. This lower cost version is more suited to new designs. Includes full-scale reading ±200mVDC with a typical accuracy of 0.1% (±1 count). The module is 1.38" (35.05mm) width x 0.88" (22.35mm) height. Low cost means it will suit high and low volume applications. IP65 splash proof construction.

Description	Digi-Key Part No.	Price Each	Martel Part No.
Large Bright Red LED Voltmeter, 200mV Input	227-1052-ND	42.95	SP300



Series 10 Universal Volt/Ammeter

The DPM1, 2 and 3AS-BL features 200mVDC measurement with auto-zero and auto-polarity. Decimal points are user selectable. The DPM1, 2 and 3AS-BL feature a negative rail generator which enables the meter to measure a signal referenced to its own power supply GND. LED backlighting ensures excellent readability under low light conditions. The design of the housing allows the module to be easily snapped into a panel. The low cost module will suit high and low volume applications.



Description	Digi-Key Part No.	Price Each			Martel Part No.
		1	5	10	
Mini 5.5mm LCD Universal Meter with Backlight	227-1047-ND	44.17	41.97	39.76	DPM1AS-BL
Mini 8.2mm LCD Universal Meter with Backlight	227-1048-ND	47.80	45.41	43.02	DPM2AS-BL
Mini 11mm LCD Universal Meter with Backlight	227-1049-ND	50.21	47.70	45.19	DPM3AS-BL

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<p>Fig. 1</p> <p>Panel Cutout: 0.87" x 1.77" 22.10mm x 44.96mm</p> <p>DPM125 LCD Legacy Series</p> <p>The DPM125 features auto-zero, auto-polarity, 200mV fsr, 12.5mm digit height, low battery indication and selectable decimal points. The meter will plug directly into a 12-pin SIL socket or can be panel mounted using snap-in bezel provided.</p>	<p>Fig. 2</p> <p>Panel Cutout: 1.06" x 2.24" 26.92mm x 56.90mm</p> <p>DPM500 LCD Legacy Series</p> <p>The DPM500 features auto-zero, auto-polarity, 200mV-2V-20V fsr, 12.5mm digit height, low battery indication, selectable decimal points and 10 user-selected annunciators. The meter will plug into a 40-pin DIL socket or can be panel mounted using snap-in bezel provided.</p>	<p>Fig. 3</p> <p>Panel Cutout: 1.26" x 2.44" 32.00mm x 61.98mm External Bezel</p> <p>DPM600 LCD Legacy Series</p> <p>The DPM600 features auto-zero, auto-polarity, 200mV-2V-20V fsr, 12.5mm digit height, adjustable low battery indication, selectable decimal points and 12 user-selected annunciators. The meter has 36 pins for PCB mounting or can be panel mounted with optional bezel (p/n MB10).</p>	<p>Fig. 4</p> <p>Panel Cutout: 1.3" x 2.68" 33.02mm x 68.07mm</p> <p>DPM2000 LCD Legacy Series</p> <p>The DPM2000 features auto-zero, auto-polarity, 200mV-2V-20V fsr, 15mm digit height, adjustable low battery indication, selectable decimal points and 12 user-selected annunciators. The meter will plug into a 40-pin DIL socket or can be panel mounted using snap-in bezel provided.</p>	<p>Fig. 5</p> <p>Panel Cutout: 1.3" x 2.68" 33.02mm x 68.07mm</p> <p>DPM40 LED Series</p> <p>The DPM40 features auto-zero, auto-polarity, 200mV-2V-20V fsr, 11mm LED digit height and selectable decimal points. The meter is supplied with a bezel and filter to give a high contrast display.</p>
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Fig.	Supply	Input	Digi-Key Part No.	Price Each			Martel Part No.
				1	5	10	
1	7.5 - 15	200mV	227-1007-ND	50.05	47.55	45.05	DPM125
	7.5 - 15	200mV	227-1008-ND	59.71	56.72	53.74	DPM125L
2	7.5 - 15	20V	227-1011-ND	68.36	64.95	61.53	DPM500-20
	3.6 - 6.5	2V	227-1016-ND	68.36	64.95	61.53	DPM500S-2
	3.6 - 6.5	20V	227-1017-ND	70.90	67.36	63.82	DPM500S-20
3	5 - 15	20V	227-1023-ND	59.58	56.60	53.62	DPM600-20
	5 - 15	200mV	227-1027-ND	58.05	55.15	52.25	DPM2000
4	5 - 15	2V	227-1028-ND	58.05	55.15	52.25	DPM2000-2
	5 - 15	20V	227-1029-ND	58.05	55.15	52.25	DPM2000-20
	5 - 15	200mV	227-1030-ND	70.90	67.36	63.82	DPM40

◆ RoHS Compliant

Hour Meters



The Cramer line of ETIs (Elapsed Time Indicators) are used to record the amount of "on-time" operation for industrial and commercial grade equipment. Resettable and Non-resettable versions are available either in round or square bezel, displayed in tenths of an hour.

Applications: • Indicating, monitoring and recording a process where the time used is required • Recording "on-time" usage of machinery for billing purposes • Preventative maintenance for machinery or equipment

Features: • Large, easy-to-read numbers • Rugged design • Continuous duty • Tamper proof • Permanently lubricated • Square, round or rectangle bezel
Specifications: • Power Consumption: 2.7 watts • Working Voltage: 110VAC/115VAC • Electrical Connections: 6" leads, 22 gauge wire • Operating Temperature: -20°C - 55°C • Mounting: Front panel • Agency Approval: UL, CSA

Fig.	Description	Dimensions - Inch (mm)		Digi-Key Part No.	Price Each			Cramer Part No.
		A	B		1	10	50	
1	Square Bezel, 0 - 99.9K hours, 110VAC, Non-resettable	2.96 (75.39)	2.25 (57.15)	CRA215-ND	26.09	22.79	20.60	10186
	Square Bezel, 0 - 9.9K hours, 115VAC, Resettable	2.96 (75.39)	2.25 (57.15)	CRA217-ND	54.72	47.81	43.21	10083
2	Round Bezel, 0 - 99.9K hours, 115VAC, Non-resettable	2.96 (75.39)	—	CRA214-ND	26.09	22.79	20.60	10071
	Round Bezel, 0 - 9.9K hours, 115VAC, Resettable	2.96 (75.39)	—	CRA216-ND	54.72	47.81	43.21	10075
	Quartz Style Round Bezel, 0 - 99K hours, 90 - 264VAC	2.799 (71.1)	—	CRA219-ND	15.52	13.56	12.26	637-04
	Quartz Style Round Bezel, 0 - 99K hours, 10 - 80VDC	2.799 (71.1)	—	CRA220-ND	15.86	13.86	12.53	638-01
3	Quartz Style Rectangle Bezel, 0 - 99K hours, 90 - 264VAC	1.750 (44.5)	1.031 (26.2)	CRA218-ND	15.52	13.56	12.26	637-01
	Quartz Style Rectangle Bezel, 0 - 99K hours, 10 - 80VDC	1.750 (44.5)	1.031 (26.2)	CRA221-ND	15.86	13.86	12.53	638-04

<p>Fig. 1</p> <p>(Square bezel shown)</p>	<p>Fig. 2</p>	<p>Fig. 3</p>
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Honeywell
Sensing and Control

HOBBS Hour Meters



The 98000 Series LCD Hour Meters: Provides a large easy-to-read display in a conventional size package. Specifications: • Operating Temperature: -40°C - 85°C • Operating Voltage: 9 - 64VDC • 6 digit display • Digit Height: 6mm
The 20000 Series Deluxe Hour Meters: Totally sealed and benefits from an uncommon design which integrates the motor and frame into one substructure. Specifications: • Operating Temperature: -54°C - 68°C • Number Size: 3mm • UL Listed • CSA Certified
The 82000 Series Dichron Hour Meters: Meter must be moisture resistant when submerged in water at 150°F for 3 minutes. Specifications: • Operating Voltage: 10 - 80VDC

Fig.	No. of Terminals	Dimensions Inch (mm)		Digi-Key Part No.	Price Each			Honeywell Part No.
		A	B		1	50	100	
98000 Series - LCD Hour Meters								
1	2	2.1 (52.12)	1.18 (30.07)	700-1003-ND	14.37	10.43	10.07	098203 99
	2			700-1004-ND	13.87	10.06	9.71	098204 99
	3	1.60 (40.6)	1.08 (27.4)	480-2069-ND	13.16	9.62	9.45	098311 57
	4			480-2070-ND	35.23	27.46	24.15	098321 94
2	2			480-2068-ND	13.90	10.59	10.09	098301 94
	3	1.25 (31.8)	2.13 (54.1)	480-2066-ND	14.54	10.55	10.19	098313 12
	4			480-2067-ND	15.22	11.04	10.66	098323 81
3	2			480-2065-ND	15.07	11.02	10.83	098303 92
	3	2.27 (57.7)	2.00 (50.8)	480-2072-ND	15.73	11.50	11.30	098312 03
	4			480-2073-ND	17.66	12.80	12.36	098322 93
4	2			480-2071-ND	16.77	12.36	12.14	098302 93
	3	1.26 (32.0)	.712 (18.08)	480-2064-ND	9.63	6.57	6.35	098750 100
5	2			700-1000-ND	11.54	7.87	7.61	098755 100
	4							
20000 Series - Deluxe Hour Meters								
6	2	1.60 (40.6)	1.08 (27.4)	480-2080-ND	24.55	17.95	17.64	020116 23
7	2	1.398 (35.5)	1.02 (25.9)	480-2078-ND	15.40	11.26	11.06	020001 17
8	2	2.19 (55.6)	2.70 (68.6)	480-2079-ND	16.98	12.42	12.20	020017 14
82000 Series - Dichron Hour Meters								
6	2	1.55 (39.4)	1.03 (26.2)	480-2076-ND	14.17	10.13	9.62	082452 82
7	2	1.41 (35.8)	1.25 (31.8)	480-2074-ND	14.17	10.13	9.62	082450 83
8	2	1.98 (50.3)	2.24 (56.9)	480-2075-ND	14.17	10.13	9.62	082451 84
	2			480-2077-ND	14.17	10.13	9.62	082453 85

Dimensions in Inches (mm)

<p>Fig. 1</p> <p>Snap-in Mount: Panel Cut-out: 1.43 x 0.91 Rectangular Opening</p>	<p>Fig. 2</p> <p>Retainer Mount: Panel Cut-out: 1.45 x 0.95 Rectangular Opening</p>	<p>Fig. 3</p> <p>Panel Cut-out: 1.45 x 0.95 Rectangular Opening (2) 0.15 holes spaced 1.750</p>
<p>Fig. 4</p> <p>Retainer Mount 2.27 Panel Cut-out: 2.00 Diameter Opening</p>	<p>Fig. 5</p> <p>Four-Pin Mount: Panel Cut-out: .300 x .583 Rectangular Opening</p>	<p>Fig. 6</p> <p>Retainer Mount: Panel Cut-out: 1.45 x 0.95 Rectangular Opening</p>
<p>Fig. 7</p> <p>Two-Screw Mount: Panel Cut-out: 1.45 x 0.95 Rectangular Opening (2) 0.15 holes spaced 1.750</p>	<p>Fig. 8</p> <p>Three-Screw Mount: Panel Cut-out: 2.00 Diameter Opening (3) 0.125 holes equally spaced on 2.42 bolt circle diameter</p>	

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