DP-650 Series

Miniature LCD Display Digital Panel Meters



Description

The DP-650 Series is an ultra-compact, low-power LCD meter requiring only 15mW of power. This meter is ideal for applications requiring a highly reliable LCD display in a small package. The snap-in bezel packaging enables easy and rapid installation of the meter. The simplicity of design, overvoltage protection, and low power consumption all contribute to the high reliability of this device.

Three input voltage ranges are available: ± 200 mV, ± 2 VDC, and ± 20 VDC. A 4-20mA current input adapter (DP-670) is also offered. Automatic polarity, overrange indication, adjustable decimal point, and display HOLD are standard features. The DP-650 Series employs a dual slope integrating A/D converter, and operates from an internal 100mV reference via a precision DC-to-DC converter. Typical accuracy is $\pm 0.1\%$.

Features

- Convenient snap-in bezel package
- Very low power consumption (5VDC @ 3mA)
- Differential input, 3 voltage ranges
- 0.1% typical accuracy
- · User-selectable decimal point
- Hold-display function
- Overvoltage protection
- Quantity discounts

Technical Notes

- The connection shown utilizes differential inputs. For single-ended operation, INPUT(-) is strapped to GND. If the signal is isolated from the power source, connect INPUT(-) to GND either directly or through a 10K resistor network as shown to reduce common mode errors.
- Display holds reading when HOLD is high (+5V). Readings are updated when HOLD is low or floating.
- 3. The decimal point is user selectable by connecting the decimal point pins (4, 5, or 6) to DP COM (pin 3).
- 4. Full-scale input span is adjusted prior to shipment. Further calibration is possible by adjusting the trimpot mounted on the back of the DPM.
- 5. Unused pins should be left open.

Applications

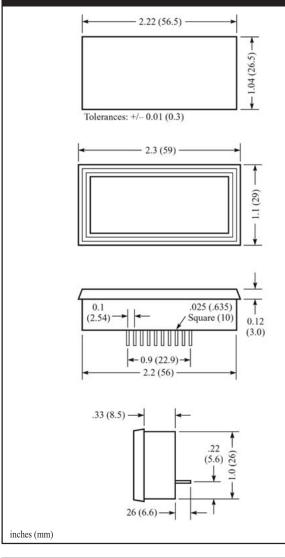
- Portable/mobile equipment
- · Medical instruments
- Avionics/aerospace systems
- · Office equipment

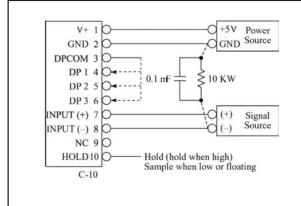
Ordering Information

Model	Description
DP-650	Miniature DPM LCD ±200mV
DP-652	Miniature DPM LCD ±2V
DP-654	Miniature DPM LCD ±20V
APS-5	120V AC to 5V DC Power Supply
C-10	Connector - 10 pin

DP-650 Series

Dimensions





С	Connections				
Pin No.	Pin Name	Description			
1	V+	+5V power supply			
2	GND	Power supply ground			
3	DP COM	Decimal point return			
4	DP1	1XX.X (connect to DP COM to turn on)			
5	DP2	1X.XX (connect to DP COM to turn on)			
6	DP3	1.XXX (connect to DP COM to turn on)			
7	INPUT(+)	Positive input signal			
8	INPUT(-)	Negative input signal (see Technical Note 1)			
9	NC	No connection required			
10	HOLD	Hold last display (see Technical Note 2)			

Specifications

Type7-segment LCDDigit Height.39in (10mm)Polarity IndicationAutomatic - for neg inputDecimal Point3 position selectableOverrange Indication1 for positive, -1 for negativeOther Features/OptionsDisplay hold functionSignal InputsConfigurationBipolar, differentialFull-Scale Input ± 200 mV, $\pm 2V$, $\pm 20V$ Input Offset AdjustmentAuto zeroInput Impedance10M Ω (± 200 mV), 1M Ω (other ranges)Common Mode Range ± 1 VDCCommon Mode Rejection >86dBOverrange Protection ± 350 VDC (± 100 VDC for 200mV range)Input Bias Current1pA typical, 100pA maxControl InputsDecimal point select, hold functionPerformanceSampling Rate3.3 readings/sAccuracy $\pm (0.1\% + 2$ counts) typ, $\pm (0.2\% + 2$ counts) maxWarmup, typical10 minTemperature Drift, typical100 ppm/°CPower Supply RequirementsSupply VoltageSupply Voltage ± 5 VDC $\pm 5\%$ Supply Current, typical3mAPhysicalPackage StyleSnap-in bezel mountDimensionsDimensions2.30 x 1.10 x .71Panel Cutout2.22 x 1.04Weight0.7oz (20g)ConnectorC-10 (10-pin) optionalBezelSnap-in bezelEnvironmental RequirementsOperating Temperature0 to 50°CStorage Temperature-10 to 60°CRelative Humidity0 to 95\% non-condensing <th>Display</th> <th>Digits</th> <th>3¹/₂ (±1999 count)</th>	Display	Digits	3 ¹ / ₂ (±1999 count)			
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$\begin{tabular}{ c c c c c c c } \hline Decimal Point & 3 position selectable \\ \hline Overrange Indication & 1 for positive, -1 for negative \\ \hline Other Features/Options & Display hold function \\ \hline Signal Inputs & Configuration & Bipolar, differential \\ \hline Full-Scale Input & \pm 200mV, \pm 2V, \pm 20V \\ \hline Input Offset Adjustment & Auto zero \\ \hline Input Impedance & 10M\Omega (\pm 200mV), 1M\Omega (other ranges) \\ \hline Common Mode Range & \pm 1VDC \\ \hline Common Mode Rage & \pm 1VDC \\ \hline Common Mode Rejection > 86dB \\ \hline Overrange Protection & \pm 350VDC (\pm 100 VDC for 200mV range) \\ \hline Input Bias Current & IpA typical, 100pA max \\ \hline Control Inputs & Decimal point select, hold function \\ \hline Performance & Sampling Rate & 3.3 readings/s \\ \hline Accuracy & \pm (0.1\% + 2 counts) typ, \pm (0.2\% + 2 counts) max \\ \hline Warmup, typical & 100 min \\ \hline Temperature Drift, typical & 100 ppm/°C \\ \hline Power Supply Requirements \\ \hline Supply Voltage & +5VDC \pm 5\% \\ \hline Supply Current, typical \\ \hline Dimensions & 2.30 x 1.10 x .71 \\ \hline Panel Cutout & 2.22 x 1.04 \\ \hline Weight & 0.70z (20g) \\ \hline Connector & C-10 (10-pin) optional \\ \hline Bezel & Snap-in bezel included \\ \hline Environmental Requirements & -10 to 60°C \\ \hline \env{rent} temperature 0 to 50°C \\ \hline Storage Temperature & -10 to 60°C \\ \hline \env{rent} temperature 0 to 50°C \\ \hline \ \ \env{rent} temperature 0 to 50°C \\ \hline \ \ \ \env{rent} temperature 0 to 50°C \\ \hline \ \ \ \env{rent} temperature 0 to 50°C \\ \hline \ \ \ \env{rent} temperature 0 to $		Digit Height				
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Storage Temperature -10 to 60°C						
Relative Humidity 0 to 95% non-condensing			-10 to 60°C			
			0 to 95% non-condensing			