

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: $\pm 200\text{mV}$, $\pm 2\text{VDC}$, and $\pm 20\text{VDC}$. 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

1. 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.
2. 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

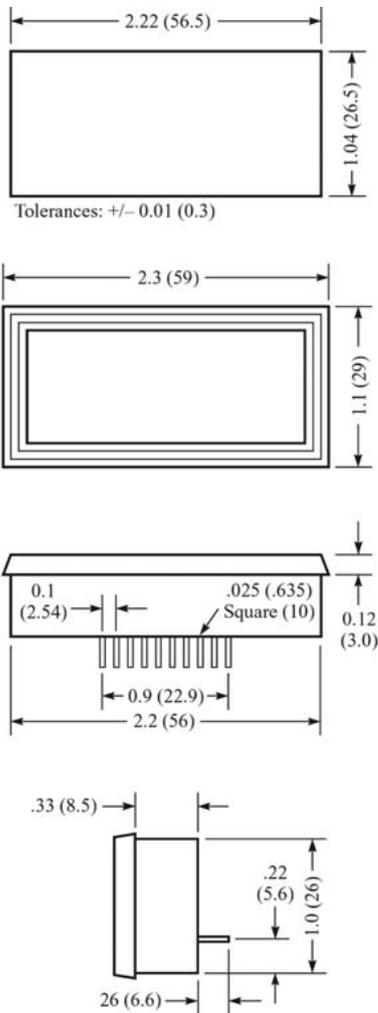
- Portable/mobile equipment
- Medical instruments
- Avionics/aerospace systems
- Office equipment

Ordering Information

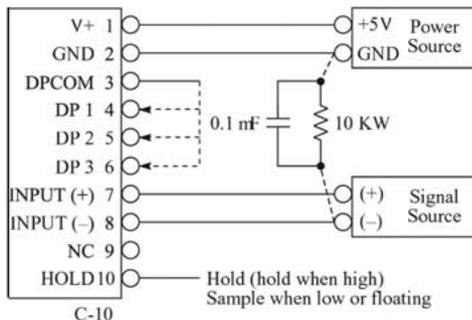
| Model | Description |
|--------|--------------------------------------|
| DP-650 | Miniature DPM LCD $\pm 200\text{mV}$ |
| DP-652 | Miniature DPM LCD $\pm 2\text{V}$ |
| DP-654 | Miniature DPM LCD $\pm 20\text{V}$ |
| APS-5 | 120V AC to 5V DC Power Supply |
| C-10 | Connector - 10 pin |

DP-650 Series

Dimensions



inches (mm)



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

| | | |
|----------------------------|----------------------------|--|
| Display | Digits | 3½ (±1999 count) |
| | Type | 7-segment LCD |
| Signal Inputs | Digit Height | .39in (10mm) |
| | Polarity Indication | Automatic - for neg input |
| | Decimal Point | 3 position selectable |
| | Overrange Indication | 1--- for positive, -1--- for negative |
| | Other Features/Options | Display hold function |
| | Configuration | Bipolar, differential |
| | Full-Scale Input | ±200mV, ±2V, ±20V |
| Performance | Input Offset Adjustment | Auto zero |
| | Input Impedance | 10MΩ (±200mV), 1MΩ (other ranges) |
| | Common Mode Range | ±1VDC |
| | Common Mode Rejection | >86dB |
| | Overrange Protection | ±350VDC (±100 VDC for 200mV range) |
| | Input Bias Current | 1pA typical, 100pA max |
| | Control Inputs | Decimal point select, hold function |
| Power Supply Requirements | Sampling Rate | 3.3 readings/s |
| | Accuracy | ±(0.1% + 2 counts) typ, ±(0.2% + 2 counts) max |
| | Warmup, typical | 10 min |
| Physical | Temperature Drift, typical | 100 ppm/°C |
| | Supply Voltage | +5VDC ±5% |
| | Supply Current, typical | 3mA |
| Environmental Requirements | Package Style | Snap-in bezel mount |
| | Dimensions | 2.30 x 1.10 x .71 |
| | Panel Cutout | 2.22 x 1.04 |
| | Weight | 0.7oz (20g) |
| | Connector | C-10 (10-pin) optional |
| Environmental Requirements | Bezel | Snap-in bezel included |
| | Operating Temperature | 0 to 50°C |
| | Storage Temperature | -10 to 60°C |
| Relative Humidity | 0 to 95% non-condensing | |