

PML-1000 – LVDT/RVDT Panel Meter



- Large 5 digit LED display
- AC line or AC/DC low voltage powered
- 0-10VDC and 4-20ma outputs (*user selectable*)
- RS422/485 communications (*optional*)
- Selectable excitation voltage & frequency
- Easy 'Fast-Cal' calibration feature
- Min, Max, Average, Zero, Tare & Hold functions
- 2 programmable logic inputs for remote control
- 2 programmable function keys
- 1/8th DIN standard panel mounting

DESCRIPTION

The **PML-1000** is an AC line powered LVDT/RVDT panel meter featuring multiple software functions. Ideal for industrial and test applications, it features a large, easy to read 5 digit variable brightness LED display. For control applications, it has an isolated 0-10 VDC, 0-20mA or 4-20mA scaleable output. A buffered, un-scaled, high speed 125Hz analog output is also available, for highly dynamic applications requiring the fastest response. An optional Serial (2 or 4 wire) RS422/485 communications interface is also available to allow connection to data loggers, PLCs and computers. With a user-selectable transducer excitation of 1 or 3 VRMS, and 2.5 or 10 kHz, the PML-1000 is compatible with all standard Measurement Specialties LVDTs and RVDTs.

Calibration is quick and easy with the 'Fast-Cal' calibration feature. This routine automatically calibrates the indicator to any connected LVDT or RVDT type transducer. Simply connect the transducer to the PML 1000, and measure the output at two positions. The PML-1000 stores the two measured values, and scales the output.

Two logic control inputs are provided to allow remote control of user pre-programmed functions such as 'Fast-Cal', tare, auto-zero, hold, display max, min, average, etc. The PML-1000 also features two user pre-programmed function keys (panel push-buttons) which can be assigned to a number of display functions for quick access. The PML-1000 meets European safety and EMC requirements for panel mounted equipment (CE certified).

Also see our other LVDT/RVDT signal conditioner models:

| | |
|-----------------|---|
| LiM-420 | 24VDC supply, 4-20mA (3-wire) output, open circuit board |
| LVM-110 | ±15VDC supply, ±10 and 0 to 10VDC outputs, open circuit board |
| LDM-1000 | 10 to 30VDC supply, DC voltage and 4 to 20mA outputs, DIN rail mountable |
| ATA-2001 | Line powered, DC voltage and current outputs, push-button programmable |
| IEM-422 | Line powered, 4-20mA output, NEMA-13 rated enclosure |
| MP-2000 | Line-powered, analog DC & RS232 outputs, ¼ DIN, dual channel set point controller with bit-mapped display |

Measurement Specialties, Inc. (NASDAQ MEAS) offers many other types of sensors and signal conditioners. Data sheets can be downloaded from our web site at: <http://www.meas-spec.com/datasheets.aspx>

MEAS acquired Schaevitz Sensors and the **Schaevitz**® trademark in 2000.

FEATURES

- 'Fast-Cal' automatic calibration
- Min, Max, Average, Zero and Hold functions
- Voltage and current outputs
- Remote RS-485 monitoring (*optional*)
- Low voltage operation (*optional*)

APPLICATIONS

- Process monitoring
- Test stands/data collection
- Part classification
- Position monitoring
- Test & Measurement

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PERFORMANCE SPECIFICATIONS

| ELECTRICAL SPECIFICATIONS | |
|---|---|
| Power requirements | Standard: Universal 90 to 265 VAC, 50 to 60Hz, 12VA nominal Low voltage (optional): 24VAC or VDC $\pm 20\%$, 50 to 60Hz, 12VA nominal |
| Display | |
| Digits (5) | 0.58 inch [14.7mm] tall, high-brightness red LED (<i>adjustable brightness</i>) |
| Range | -19999 to +99999 |
| Decimal point position | User selectable |
| Update rate | 2, 4 or 10 per second (<i>user selectable</i>) |
| Filtering of displayed value | 0 (no filtering) to 999 second time constant (<i>user adjustable</i>) |
| Transducer excitation | |
| Voltage | 1 or 3 VRMS (<i>user selectable</i>) |
| Oscillator frequency | 2.5 or 5kHz (<i>user selectable</i>) |
| Current drive capability | 25mA |
| Transducer requirements | |
| Transducer type | LVDT or RVDT with 4, 5 or 6 electrical connections |
| Full scale output | 0.05 to 5 VRMS |
| Input (primary) impedance | 40 Ω min with 1 VRMS excitation; 120 Ω min with 3 VRMS excitation |
| Amplifier characteristics (transducer input) | |
| Input sensitivity range | 0.05 to 5VRMS |
| Non-linearity | $\pm 0.02\%$ of FSO, maximum |
| Temperature coefficient of gain | $\pm 0.003\%$ of FSO per degree F [$\pm 0.005\%$ of FSO per degree C] over operating temp. |
| Stability | $\pm 0.01\%$ of FSO, maximum, after 15 minute warm up |
| Measurement rate | 10 readings per second |
| Isolated analog output | |
| Isolation | 500V (DC or peak AC) |
| Output modes/ranges | 0 to +10VDC, 0 to 20mA, or 4 to 20mA (<i>user selectable</i>) |
| Scaling | User selectable |
| Maximum voltage output | 11VDC @ 22mA |
| Maximum current output | 22mA @ 18VDC |
| Maximum load | 900 Ω (current output mode) |
| Accuracy | 0.2% of FSO, maximum |
| Resolution | 0.05% of FSO |
| Temperature coefficient of output | $\pm 0.006\%$ of FSO per degree F [$\pm 0.01\%$ of FSO per degree C] over operating temp. |
| Response | 63% of output signal within 32mS, 99% within 100mS |
| Damping filter | Programmable |
| High speed analog output | |
| Output | ± 10 VDC maximum (dependent on transducer full scale output) |
| Frequency response | 125Hz @ -3dB |
| Serial communications | |
| Type | RS422/485, 2 or 4 wire multi-drop |
| Isolation | 500V (DC or peak AC) |
| Speed | 1200, 2400, 4800, or 9600 baud (<i>user selectable</i>) |
| Parity | Odd, even, or none (<i>user selectable</i>) |
| Stop bits | 1 or 2 (<i>user selectable</i>) |
| Protocols | MODBUS™ (RTU or ASCII), J-BUS, or DTPI (<i>user selectable</i>) |
| Math | |
| Min/Max | Stores minimum and maximum display values |
| Averaging | Calculates average value over a user defined period of 1 to 9999 seconds |

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ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS

| | |
|--------------------------------|---|
| Operating temperature range | +50°F to +122°F [+10°C to +50°C] |
| Storage temperature range | +14°F to +158°F [-10°C to +70°C] |
| Humidity | 0 to 95% RH, non-condensing |
| Safety | EN61010 |
| EMC Susceptibility | EN50082-1 & 2 |
| EMC Emissions | EN50081-1 & 2; EN50022 Class A for radiated and conducted |
| Weight | 14.1 oz [0.4 kg] |
| Mounting | 1/8 th DIN panel mount |
| Depth behind panel (installed) | 6.54 [166] including terminals |
| Panel cut-out (H x W) | 1.73 [44] x 3.62 [92] |

Notes:

All values are nominal unless otherwise noted

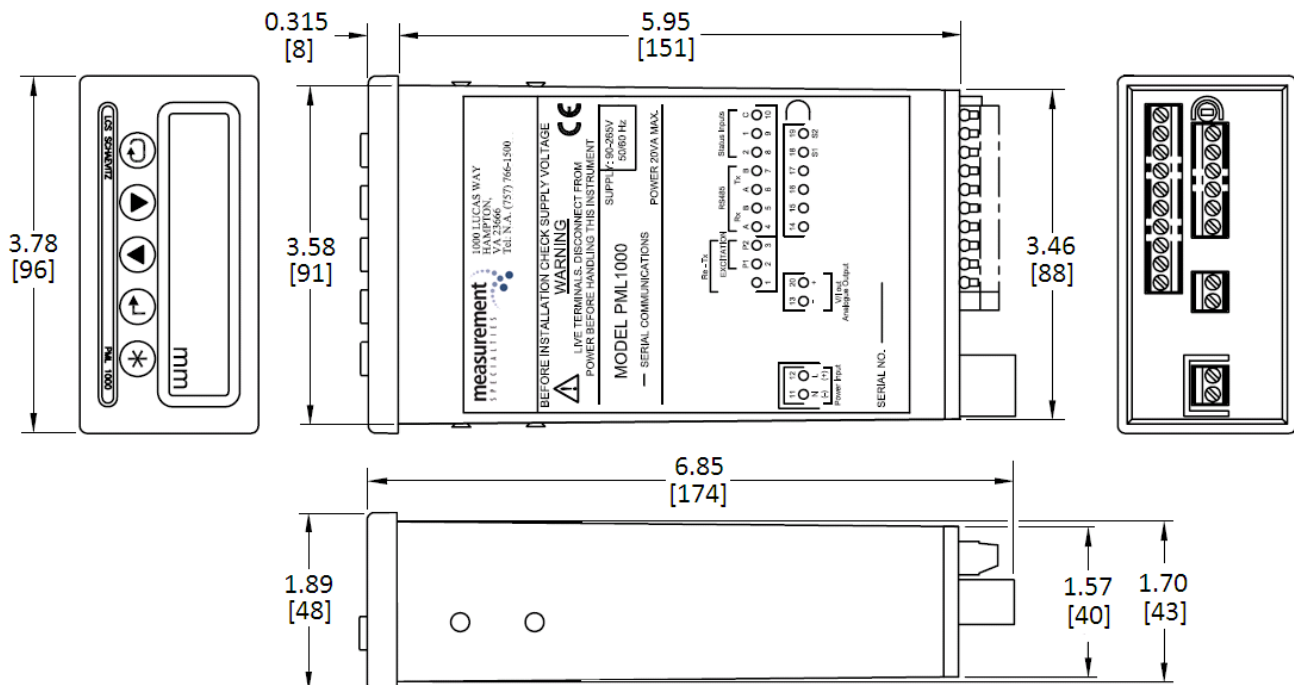
Dimensions are in inch [mm]

FSO (Full Scale Output) is the largest absolute value of the outputs measured at the range ends

WIRING

Download the operation manual at: <http://www.meas-spec.com/manuals.aspx>

DIMENSIONS



Dimensions are in inch (mm)

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ORDERING INFORMATION

| Description | Part Number |
|--|--------------|
| PML-1000 standard (90 to 265 VAC, 50 to 60Hz) | 02291330-000 |
| PML-1000 standard with RS422/485 | 02291330-040 |
| PML-1000 low-voltage with RS422/485 | 02291330-140 |
| Cable to connect HCA/HCI/GCA/R36AS to PML-1000, 200°C [392°F] PTO6A-10-6S to Stripped & Tinned (1) | 04290595-000 |
| Extension cable to connect LBB (option -001) to PML-1000, PTO6A-10-6S to Stripped & Tinned (1) | 04290596-000 |

(1) All cables are shielded, 10 foot long, and rated 80°C [176°F] operating, unless otherwise noted. Consult factory for other lengths.

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TECHNICAL CONTACT INFORMATION

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|---|--|---|
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