PML-1000
LVDT/RVDT Panel Meter

SPECIFICATIONS

* **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**

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 scalable 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

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

PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS	
Power requirements	Standard: Universal 90 to 265 VAC, 50 to 60Hz, 20VA Low voltage (optional): 24 to 32VDC, 20 to 30VAC @ 50/60Hz, 20VA
Display	
Digits (5)	0.58 inch [14.7mm] tall, high-brightness red LED *(adjustable brightness)*
Range	-19999 to +99999
Decimal point position	User selectable
Update rate	2, 4 or 10 per second *(user selectable)*
Filtering of displayed value	0 (no filtering) to 999 second time constant *(user adjustable)*
Transducer excitation	
Voltage	1 or 3 VRMS *(user selectable)*
Oscillator frequency	2.5 or 5kHz *(user selectable)*
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	40Ω min with 1 VRMS excitation; 120Ω min with 3 VRMS excitation
Amplifier characteristics (transducer input)	
Input sensitivity range	0.05 to 5VRMS, 18 bit resolution
Non-linearity	±0.02% of FRO, maximum
Temperature coefficient of gain	±0.003% of FSO per degree F [±0.005% of FSO per degree C] over operating temp.
Stability	±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 *(user selectable)*
Scaling	User selectable
Maximum voltage output	11VDC @ 22mA
Maximum current output	22mA @ 18VDC
Maximum load	900Ω (current output mode)
Accuracy	0.2% of FRO, maximum
Resolution	0.05% of FRO
Temperature coefficient of output	±0.006% of FSO per degree F [±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	±10VDC 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 *(user selectable)*
Parity	Odd, even, or none *(user selectable)*
Stop bits	1 or 2 *(user selectable)*
Protocols	MODBUS™ (RTU or ASCII), J-BUS, or DTPI *(user selectable)*
Math	
Min/Max	Stores minimum and maximum display values
Averaging	Calculates average value over a user defined period of 1 to 9999 seconds

ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS

Operating temperature range	+14°F to +122°F [+10°C to +50°C]
Storage temperature range	+14°F to +158°F [-10°C to +70°C]
Humidity	10 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	1/8th 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]
IEC 60529 rating	IP61 (Front panel only)

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
FRO (Full Range Output) is the algebraic difference in outputs measured at the ends of the range

DIMENSIONS
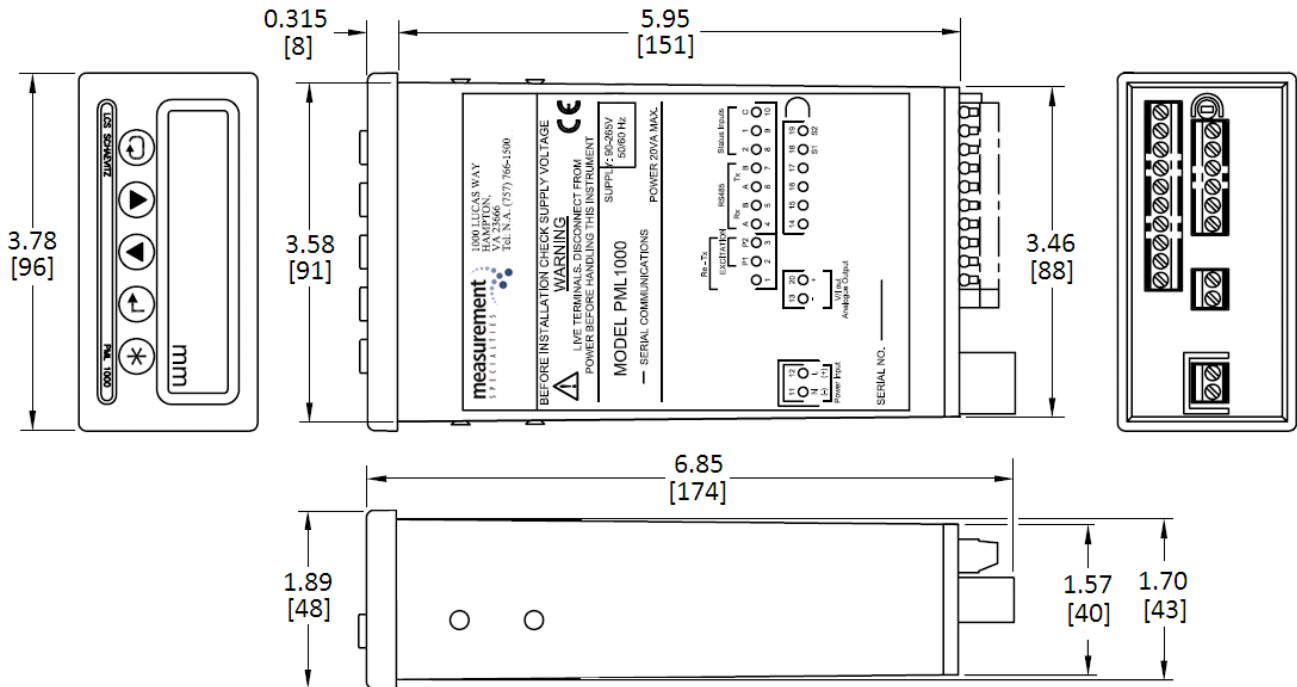
ORDERING INFORMATION

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.