

# 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
- 1/8<sup>th</sup> 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:

<b>LiM-420</b>	24VDC supply, 4-20mA (3-wire) output, open circuit board
<b>LVM-110</b>	±15VDC supply, ±10 and 0 to 10VDC outputs, open circuit board
<b>LDM-1000</b>	10 to 30VDC supply, DC voltage and 4 to 20mA outputs, DIN rail mountable
<b>ATA-2001</b>	Line powered, DC voltage and current outputs, push-button programmable
<b>IEM-422</b>	Line powered, 4-20mA output, NEMA-13 rated enclosure
<b>MP-2000</b>	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

# PML-1000 – LVDT/RVDT Panel Meter

## PERFORMANCE SPECIFICATIONS

<b>ELECTRICAL SPECIFICATIONS</b>	
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
<b>Display</b>	
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> )
<b>Transducer excitation</b>	
Voltage	1 or 3 VRMS ( <i>user selectable</i> )
Oscillator frequency	2.5 or 5kHz ( <i>user selectable</i> )
Current drive capability	25mA
<b>Transducer requirements</b>	
Transducer type	LVDT or RVDT with 4, 5 or 6 electrical connections
Full scale output	0.05 to 5 VRMS
Input (primary) impedance	40 $\Omega$ min with 1 VRMS excitation; 120 $\Omega$ min with 3 VRMS excitation
<b>Amplifier characteristics (transducer input)</b>	
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
<b>Isolated analog output</b>	
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 $\Omega$ (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
<b>High speed analog output</b>	
Output	$\pm 10$ VDC maximum (dependent on transducer full scale output)
Frequency response	125Hz @ -3dB
<b>Serial communications</b>	
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> )
<b>Math</b>	
Min/Max	Stores minimum and maximum display values
Averaging	Calculates average value over a user defined period of 1 to 9999 seconds

# PML-1000 – LVDT/RVDT Panel Meter

## ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS

Operating temperature range	+50F to +122F [ +10°C to +50°C]
Storage temperature range	+14F to +158F [ -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 <sup>th</sup> 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

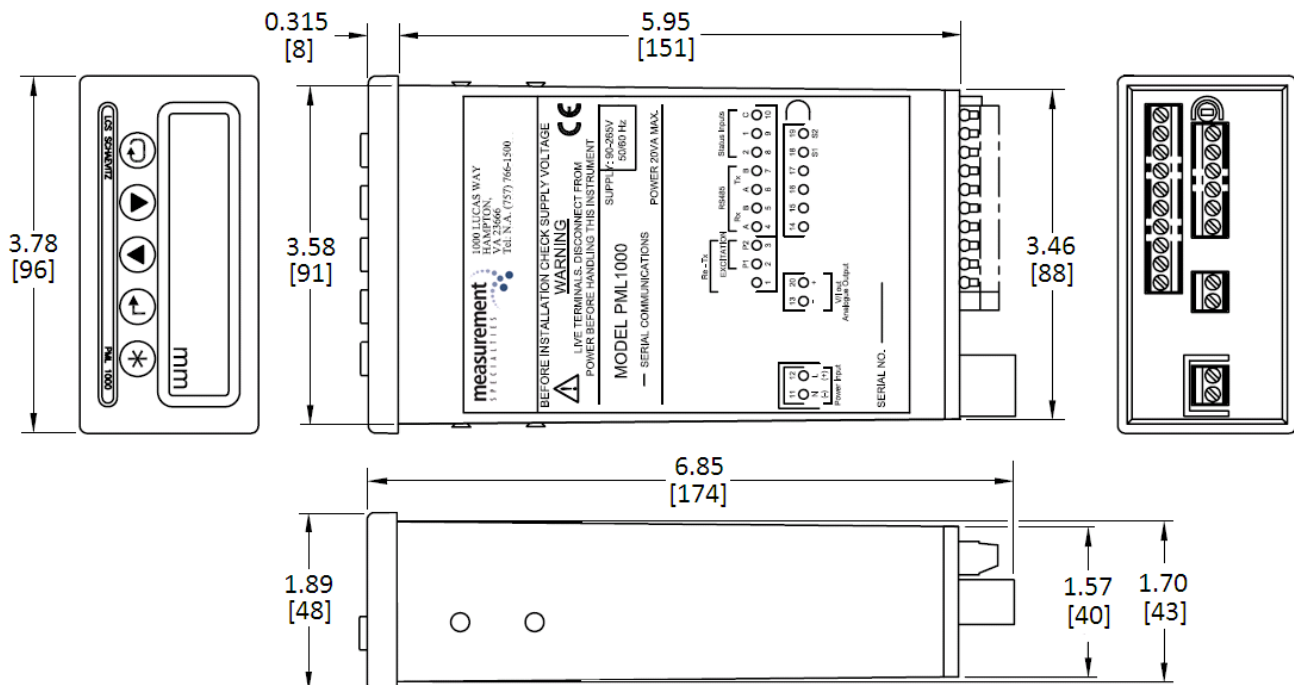
Dimensions are in inch [mm]

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)

# PML-1000 – LVDT/RVDT Panel Meter

## 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, <b>200°C [392°F]</b> 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.

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

## TECHNICAL CONTACT INFORMATION

NORTH AMERICA	EUROPE	ASIA
Measurement Specialties, Inc. 1000 Lucas Way Hampton, VA 23666 United States Phone: +1-800-745-8008 Fax: +1-757-766-4297 Email: <a href="mailto:sales@meas-spec.com">sales@meas-spec.com</a> Web: <a href="http://www.meas-spec.com">www.meas-spec.com</a>	MEAS Deutschland GmbH Hauert 13 D-44227 Dortmund Germany Phone: +49-(0)231-9740-0 Fax: +49-(0)231-9740-20 Email: <a href="mailto:info.de@meas-spec.com">info.de@meas-spec.com</a> Web: <a href="http://www.meas-spec.com">www.meas-spec.com</a>	Measurement Specialties China Ltd. No. 26, Langshan Road High-tech Park (North) Nanshan District, Shenzhen 518057 China Phone: +86-755-33305088 Fax: +86-755-33305099 Email: <a href="mailto:info.cn@meas-spec.com">info.cn@meas-spec.com</a> Web: <a href="http://www.meas-spec.com">www.meas-spec.com</a>

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice to any product herein. Measurement Specialties, Inc. makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does Measurement Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.