



## MP-2000

### Dual Channel LVDT/RVDT Readout/Controller

#### SPECIFICATIONS

- ◆ Large backlit dual channel display
- ◆ Menu driven setup and calibration
- ◆ 100 to 240 VAC line powered
- ◆ MIN, MAX, TIR, A+B and A-B functions
- ◆ 2.5, 3.3, 5 and 10kHz selectable excitation
- ◆ Analog and RS-232 outputs
- ◆ Four user programmable set-points
- ◆ Splash-proof front panel with status LEDs
- ◆ 1/4 DIN standard panel mounting

The **MP-2000** is a dual channel, microprocessor based readout and set-point controller designed for industrial and process control applications utilizing any LVDT/RVDT-based measurement device. In addition to displaying real-time readings of LVDTs, RVDTs and gage heads, the MP2000 is also capable of displaying values such as MIN, MAX, TIR (Total Indicated Run-out), A+B (sum of two channels) and A-B (difference between two channels). A 17-bit analog-to-digital converter provides excellent performance and resolution, while a standard 9-pin RS-232 communications interface provides serial data output to a PLC or PC COM port.

The MP-2000 features four user-programmable, opto-isolated, open-collector set-point outputs, which can be used to monitor any display parameter. Any combination of high or low set-points may be selected, while programmable high and low hysteresis values may be used to create 'set-point dead band' for prevention of control relay chatter. An optional 'Relay Board' with a current handling capability of 5A per relay is available and highly recommended.

A front panel pushbutton permits auto-zeroing (tare) over the full range. Auto-calibration eliminates calculation of slope or gain factors. All calibration and setup parameters are stored in nonvolatile memory for retention on power down or interruption. The zero and min/max reset functions can be hard wired for remote control. The large, easy to read, bit-mapped display provides user-friendly, menu driven prompts for simple push-button system setup, calibration, and monitoring of in-process measurement parameters. A real-time scaled analog output, proportional to the digital readout is provided for each LVDT/RVDT channel. An RS-232 output is provided for data transfer to a computer at 1200 to 19.2K baud.

#### FEATURES

- ◆ Versatile dual channel display
- ◆ Software selectable gain and excitation
- ◆ 4 user-programmable set-points with LED indicators
- ◆ Master/Slave sync input/output for multiple MP-2000s
- ◆ Remote zero and min/max reset
- ◆ Rugged extruded aluminum housing

#### APPLICATIONS

- ◆ Pass/fail part sorting
- ◆ Concentricity/roundness gaging
- ◆ Press cycle control
- ◆ Part classification
- ◆ Material thickness measurement
- ◆ Industrial process control

## PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS	
Power requirements	100 to 240 VAC $\pm 10\%$ , 47 to 63Hz
<b>Display</b>	
Digits (5)	0.4 [10] high, bitmapped LCD, electroluminescent backlight
Range	$\pm 99999$
Decimal point position	User selectable
Annunciator lights (LED)	Each of the four set-points, zero, and preset
<b>Transducer excitation</b>	
Voltage	1 or 3 VRMS ( <i>user selectable</i> )
Oscillator frequency	2.5, 3.3, 5 or 10kHz ( <i>user selectable</i> )
Current drive capability	25mA maximum per LVDT
<b>Transducer requirements</b>	
Transducer type	LVDT or RVDT with 5 or 6 electrical connections
Full scale output	1.2VRMS maximum with 1 or 3 VRMS excitation
Input (primary) impedance	40 $\Omega$ min with 1 VRMS excitation; 120 $\Omega$ min with 3V RMS excitation
<b>Amplifier characteristics (transducer input)</b>	
Input sensitivity range	High gain: 0.6 VRMS; Low gain: 1.2 VRMS
Input impedance	100k $\Omega$ minimum
Non-linearity	$\pm 0.02\%$ of FSO, maximum
<b>Analog output</b>	
Unipolar voltage output	0 to +10VDC
Bipolar voltage output	$\pm 5$ VDC (may be over-ranged to $\pm 10$ VDC)
Response	20mS
<b>Set-points</b>	
Description	4 user programmable, high or low, with LED indicators
Hysteresis (dead band)	User programmable
Outputs	Opto-isolated, open collector logic outputs, 5VDC, 4mA per set-point
Relay board <i>(optional and highly recommended)</i>	Four relays, Normally Open and Normally Closed contacts Maximum switching capability (each relay): 50VAC/30VDC, 5A
<b>Serial communications</b>	
Type	RS-232
Speed	1200, 2400, 4800, 9600, or 19200 Baud ( <i>user selectable</i> )

ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS	
Operating temperature range	+32°F to +131°F [0°C to +55°C]
IP rating	IP61 (front panel only)
Mounting	¼ DIN panel mount
Depth behind panel (installed)	7.7 [196] with optional relay board installed (plugged into J4 connector)

**Note:**

All values are nominal unless otherwise noted

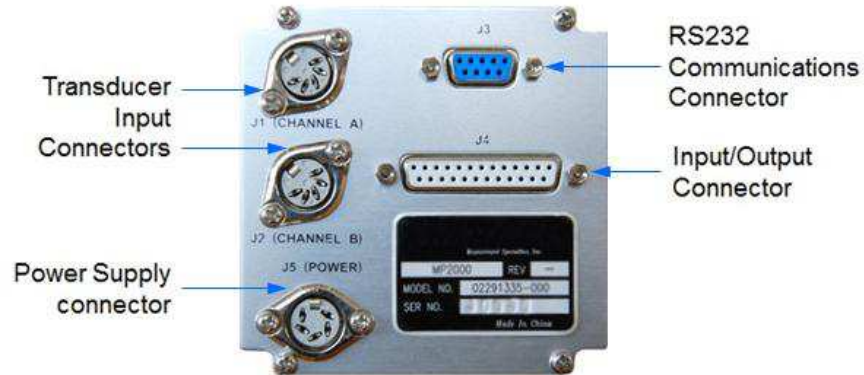
Dimensions are in inch [mm]

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

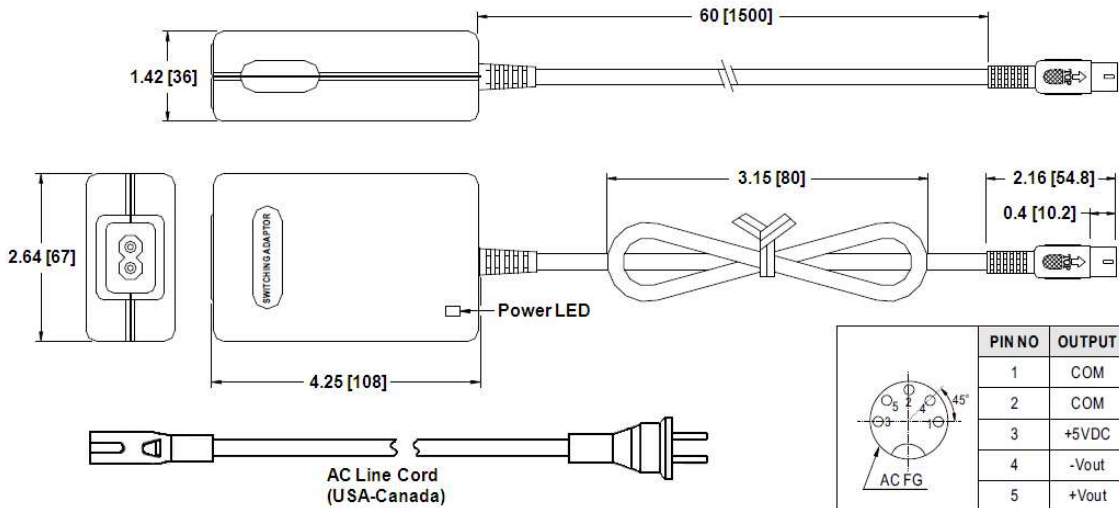
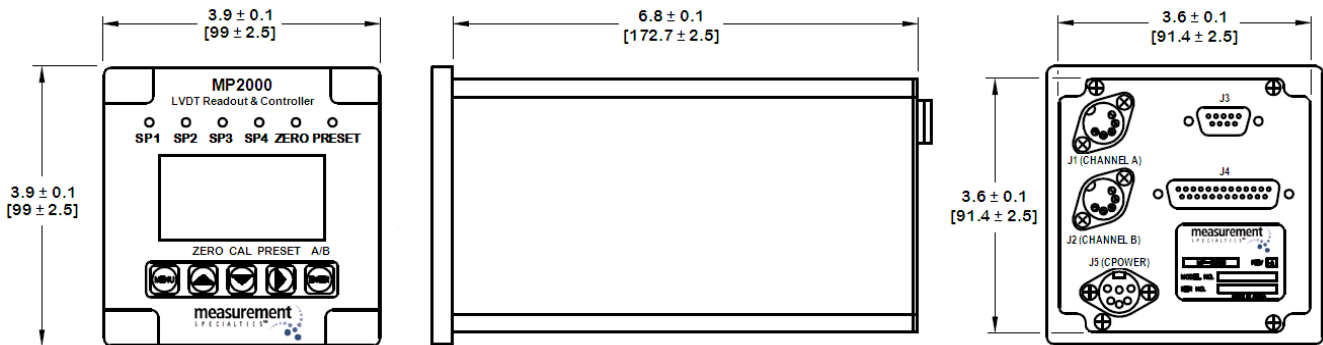
# MP-2000

Dual Channel LVDT/RVDT Readout/Controller

## CONNECTIONS (REAR PANEL)



## DIMENSIONS

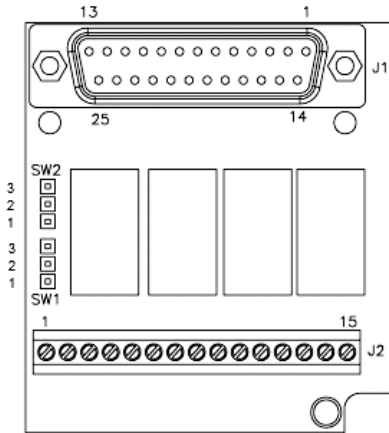


Dimensions are in inch [mm]

# MP-2000

Dual Channel LVDT/RVDT Readout/Controller

## RELAY BOARD (SOLD SEPARATELY)

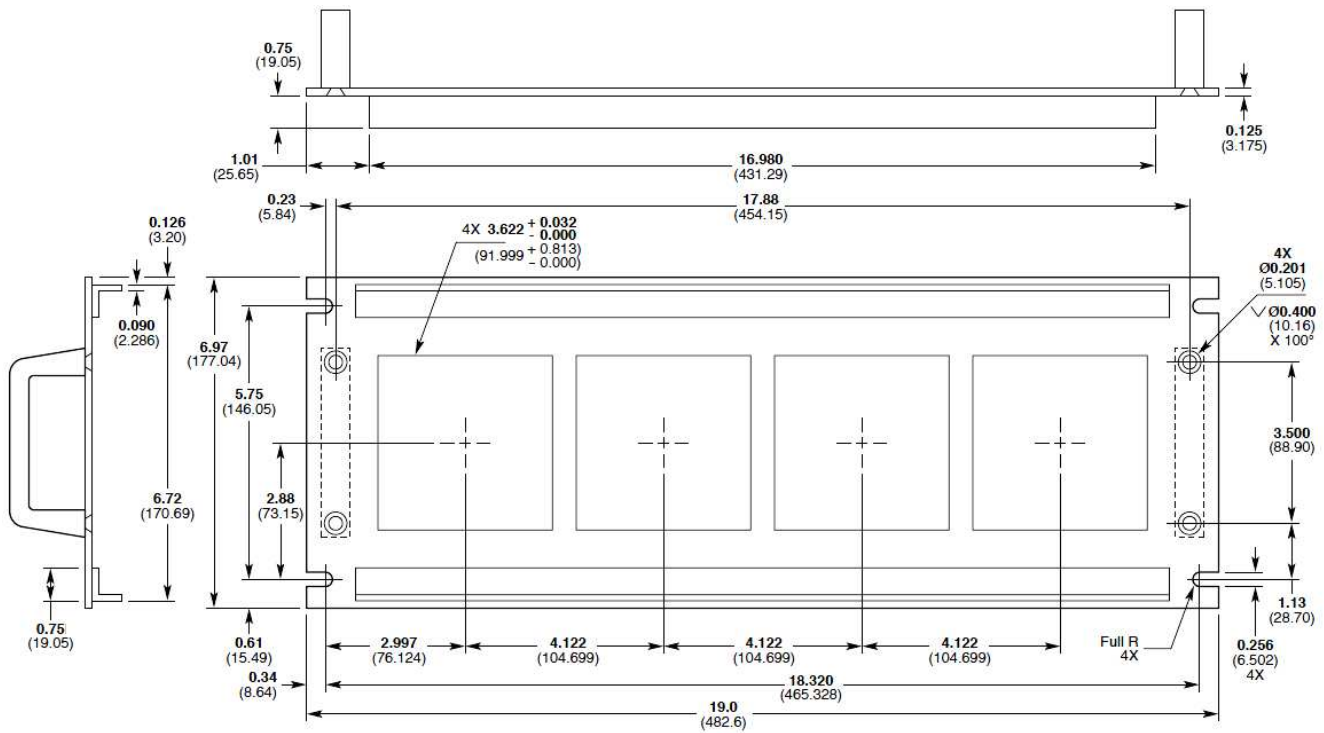


J1	
Func.	Term #
Analog Gnd	25
Digital Gnd	24
Analog Out Ch A	21
Analog Out Ch B	20
Remote Reset	19
Remote Zero	14
Osc Sync Output	8
Osc Sync Input	7
Reboot	6
RXD	5
DTR	4
TXD	3
DSR	2

J2		
Relay	Func.	Term #
Set-point 1	NO	8
	NC	7
	COM	15
Set-point 2	NO	6
	NC	5
	COM	14
Set-point 3	NO	4
	NC	3
	COM	11
Set-point 4	NO	2
	NC	1
	COM	9
	+5VDC	12
	Return	13

Jumpers		
SW1	Pin #1 and #2 shorted	Pin #2 and #3 shorted
SW2	Pin #2 and #3 shorted	Pin #1 and #2 shorted
Function	+5Vdc relay power supplied by MP-2000	External +5Vdc relay power required on terminal #12 on J2

## RACK ADAPTOR (SOLD SEPARATELY)



Accommodates up to four MP-2000 Readout/Controllers  
 Dimensions are in inch (mm)

## MP-2000

Dual Channel LVDT/RVDT Readout/Controller

### ORDERING INFORMATION

Description	Part Number
MP-2000 Dual Channel LVDT/RVDT Readout/Controller	02291335-000
Rack Adaptor for up to 4 readout/controllers <i>(optional - MP-2000 readout/controllers not included)</i>	05290032-000
Relay Board <i>(optional and highly recommended)</i>	74170000-000
Cable to connect HCA/HCI/GCA/R36AS to MP2000, PTO6A-10-6S to 05BL5M (1)	04290560-000
Extension cable to connect LBB (option -001) to MP2000, PTO6A-10-6S to 05BL5M (1)	04290562-000

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

#### NORTH AMERICA

Measurement Specialties, Inc.,  
a TE Connectivity Company  
Phone +1-800-522-6752  
Email: [customercare.pens@te.com](mailto:customercare.pens@te.com)

#### EUROPE

MEAS Deutschland GmbH(Europe)  
a TE Connectivity Company  
Phone: +49-800-440-5100  
Email: [customercare.dtmd@te.com](mailto:customercare.dtmd@te.com)

#### ASIA

Measurement Specialties (China), Ltd.,  
a TE Connectivity Company  
Phone: +86-400-820-6015  
Email: [customercare.shzn@te.com](mailto:customercare.shzn@te.com)

#### [TE.com/sensorsolutions](http://TE.com/sensorsolutions)

Measurement Specialties, Inc., a TE Connectivity company.

Accustar, American Sensor Technologies, AST, ATEXIS, DEUTSCH, IdentiCal, TruBlue, KPSI, Krystal Bond, Microfused, UltraStable, Measurement Specialties, MEAS, Schaevitz, TE Connectivity, TE, and the TE connectivity (logo) are trademarks of the TE Connectivity Ltd. family of companies. Other logos, product and company names mentioned herein may be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.