RoHS

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**
- **¼ DIN standard panel mounting**

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

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.

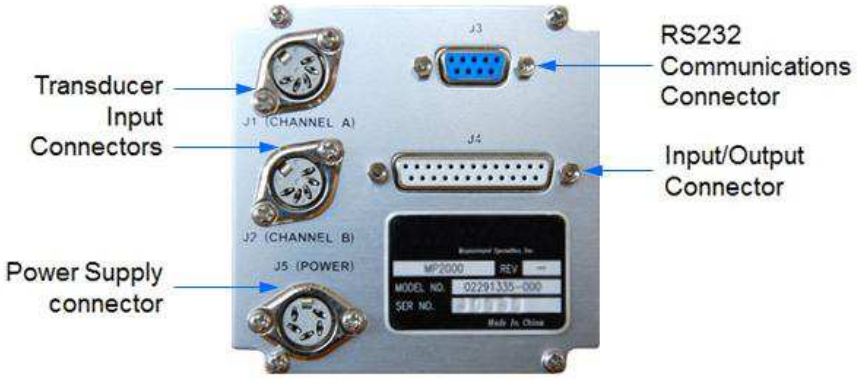
PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS	
Power requirements	100 to 240 VAC ±10%, 47 to 63Hz
Display	
Digits (5)	0.4 [10] high, bitmapped LCD, electroluminescent backlit
Range	±99999
Decimal point position	User selectable
Annunciator lights (LED)	Each of the four set-points, zero, and preset
Transducer excitation	
Voltage	1 or 3 VRMS *(user selectable)*
Oscillator frequency	2.5, 3.3, 5 or 10kHz *(user selectable)*
Current drive capability	25mA maximum per LVDT
Transducer requirements	
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	40Ω min with 1 VRMS excitation; 120Ω min with 3V RMS excitation
Amplifier characteristics (transducer input)	
Input sensitivity range	High gain: 0.6 VRMS; Low gain: 1.2 VRMS
Input impedance	100kΩ minimum
Non-linearity	±0.02% of FSO, maximum
Analog output	
Unipolar voltage output	0 to +10VDC
Bipolar voltage output	±5VDC (may be over-ranged to ±10VDC)
Response	20mS
Set-points	
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 *(optional and highly recommended*	Four relays, Normally Open and Normally Closed contacts Maximum switching capability (each relay): 50VAC/30VDC, 5A
Serial communications	
Type	RS-232
Speed	1200, 2400, 4800, 9600, or 19200 Baud *(user selectable)*

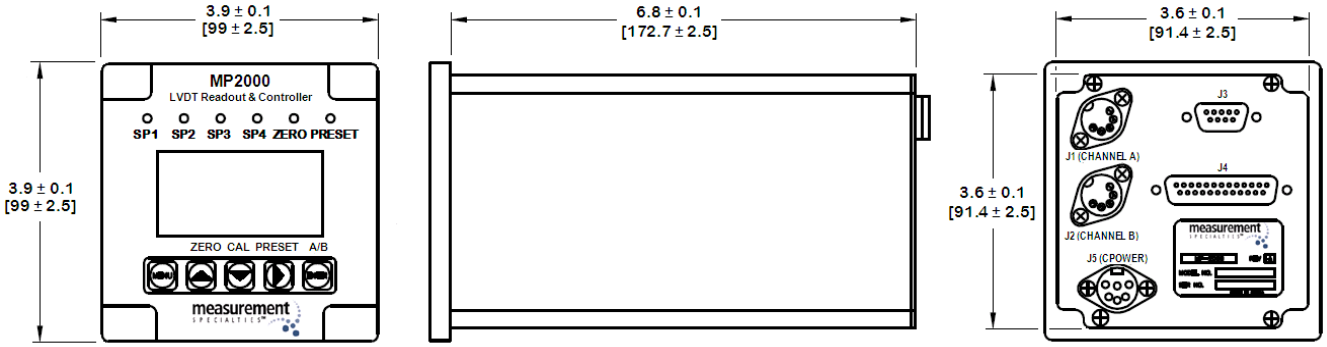
ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS	
Operating temperature range	+32°F to +131°F [0°C to +55°C]
IP rating	IP61 (front panel only)
Mounting	¼ DIN panel mount
Depth behind panel (installed)	7.7 [196] with optional relay board installed (plugged into J4 connector)

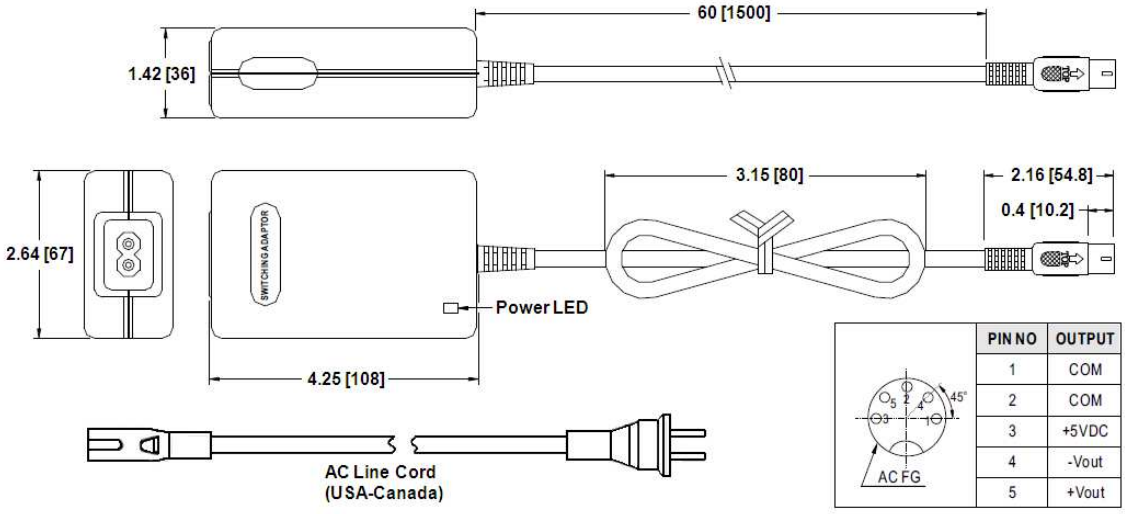
Note:
All values are nominal unless otherwise noted
Dimensions are in inch [mm]
FSO (Full Scale Output) is the largest absolute value of the outputs measured at the range ends

CONNECTIONS (REAR PANEL)



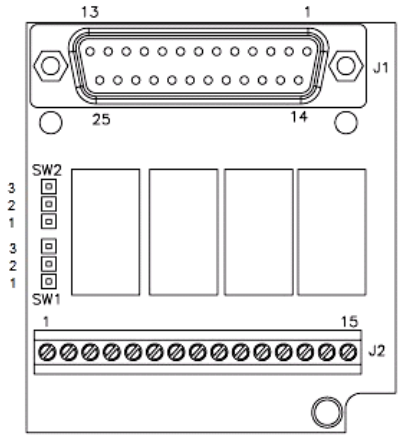
DIMENSIONS





Dimensions are in inch [mm]

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

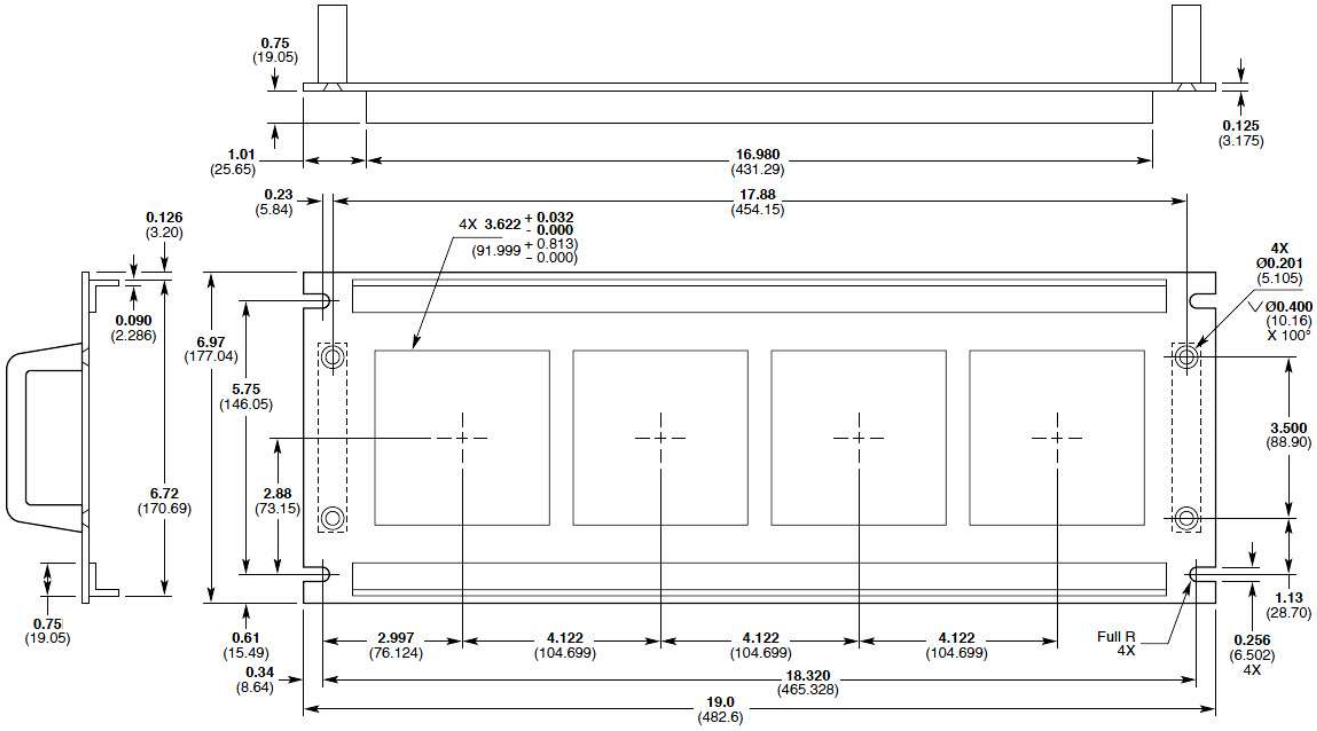
J2

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)

ORDERING INFORMATION

Description	Part Number
MP-2000 Dual Channel LVDT/RVDT Readout/Controller	02291335-000
Rack Adaptor for up to 4 readout/controllers *(optional - MP-2000 readout/controllers not included)*	05290032-000
Relay Board *(optional and highly recommended)*	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.

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