

## MX4A Convection Active Vacuum Gauge

Part Number: 2-8930-1XX

### Operating Specifications

Operating Range	1x10 <sup>-4</sup> Torr to 1000 Torr
Display	OLED
Digital Communications	RS-485
Analog Output	Selectable 0 V DC to 10 V DC
Programmable Set Points	2
Set Point 1	Open collector
Set Point 2	Relay
Supply Voltage	22 V DC to 26 V DC
Maximum Power	8 W
Calibration Medium	Dry air or nitrogen
Overpressure	150 PSI
Digital Output Resolution	2 significant digits with exponent
Analog Output Resolution	16-bits
Operating Temperature	0 °C to 50 °C
Storage Temperature	-20 °C to 60 °C
Bakeout Temperature	
Brass (PN: -110, -116, -125)	100 °C (electronics removed)
Stainless (PN: All Others)	200 °C (electronics removed)
Response Time	≤ 2 s
Accuracy (Vertical Mount)	
0.1 mTorr to 1 mTorr	0.1 mTorr resolution
1 mTorr to 10 mTorr	±1 mTorr
10 mTorr to 1000 Torr	±10% of reading
Analog Output	±10 mV
Display Readable Distance	3 m (10 ft)

### Physical Characteristics

Housing	Aluminum
Electrical Connections	D-Sub 15-pin male
Weight with Sensor (typical)	350 g (0.77 lbs)
Weight without Sensor (typical)	200 g (0.44 lbs)
Dimensions	See dimensional drawings

### Sample RS-485 Commands (assume default address 0)

*OS1<CR>	Read vacuum
*OR1<cr>	Read units
*OR2<cr>	Read SP1L and SP1H
*OW10001<cr>	Set units to Pascal
*OW10002<cr>	Set units to Torr
*OW10003<cr>	Set units to millibar

A full list of commands can be found in the MX4A manual.

### Benefits

- Simple sensor replacement - no screws to remove
- Low cost with a compact design and color OLED display
- Excellent accuracy of measurements
- Exceptional customer service and support

### Ratings and Compliance

- CE certified to EN 61010-1, EN 61236-1, EN 55011
- Certified to CAN/CSA C22.2 No. 61010-1-12
- RoHS compliant
- EAC certified
- IP40



### Description

The Televac® MX4A Active Gauge utilizes an easily replaceable (no screws) Televac 4A convection vacuum sensor. It has a variety of features including a wide range of measurement from 10<sup>-4</sup> Torr to 1000 Torr, RS-485 communications, two programmable set points, and a selectable analog output. The bright, color OLED display included on every unit makes it easy to read from a distance and allows settings and calibration to be adjusted at the unit without any additional equipment.

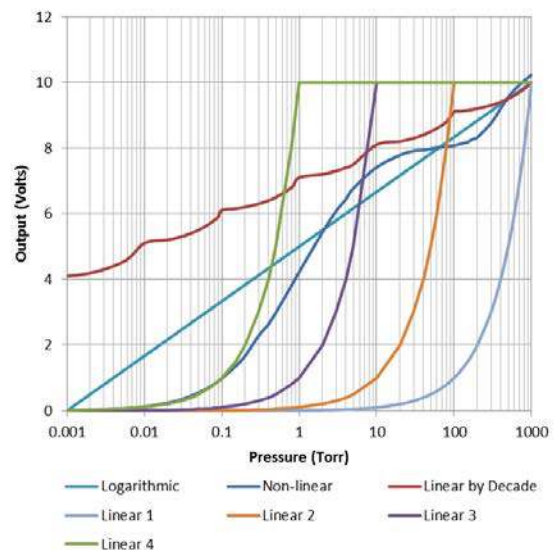
Options can be set from four capacitive touch controls located on the top of the unit or through RS-485 communications. The extensive selection of fittings, simplicity of use, ease of sensor replacement, and low cost make this unit an excellent choice for a variety of vacuum applications.

### Applications

- Heat treatment and vacuum furnaces
- Thin film deposition and coating processes
- Cryogenics
- Pharmaceutical product processes

Visit the Televac website at [www.frederickscompany.com](http://www.frederickscompany.com) for a full list of applications.

### Analog Output Behavior





#### Electrical Connections

Pin	Description
1	Analog Out (Ground)
2	RS-485 A (-)
3	SP2 NC
4	SP2 NO
5	SP1 Open Drain
6	Floating
7	Floating
8	Supply Voltage (+)
9	Analog Out (0 to 10) V
10	RS-485 B (+)
11	SP2 Com
12	SP1 Source
13	Floating
14	Floating
15	Supply Voltage (-)

#### Materials Exposed to Vacuum

MX4A PN: 2-8930-110, -116, -125	MX4A PN: All Others
Nickel	Nickel
Glass	Glass
Gold	Gold
Tophet	Tophet
Cupron	Cupron
Solder	Stainless Steel

#### Set Points

The MX4A has two set points. Set point 1 is an N-Channel 60 V MOSFET open collector. It has a maximum current rating of 1 A. The data sheet can be found at [www.vishay.com/docs/69958/si2308bd.pdf](http://www.vishay.com/docs/69958/si2308bd.pdf). Set point 2 is a relay with a maximum switching voltage of 220 V DC (250 V AC) and a maximum switching current of 2 A. The data sheet can be found at [www.te.com/catalog/pn/en/1393788-3](http://www.te.com/catalog/pn/en/1393788-3).

#### Replacement Sensors and Related Products

4A Nickel Plated Brass Sensor	Part Number
1/8" NPT	2-2119-010
NW16 (DN16 ISO-KF)	2-2119-016
NW25 (DN25 ISO-KF)	2-2119-025

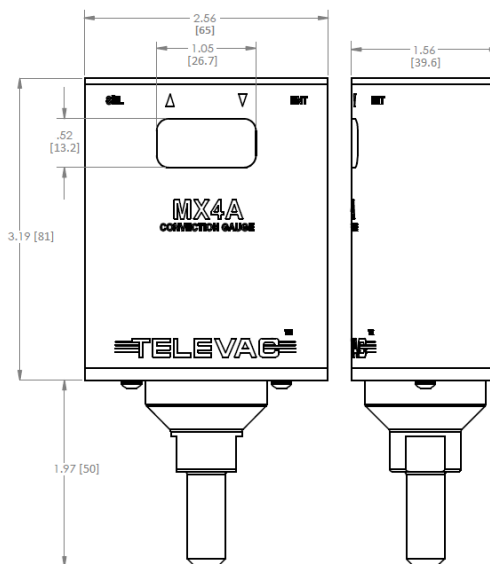
  

4A Stainless Steel Sensor	Part Number
1/8" NPT	2-2120-001
1/2" Straight	2-2120-011
NW16 (DN16 ISO-KF)	2-2120-030
NW25 (DN25 ISO-KF)	2-2120-031
NW40 (DN40 ISO-KF)	2-2120-032
1.33" CF (DN16 ISO-CF-F)	2-2120-050
2.75" CF (DN40 ISO-CF-F)	2-2120-052

**MP7ER Active Gauge** - This gauge measures high vacuum from  $10^{-8}$  to  $10^{-2}$  Torr. Combining it with the MX4A provides a full range (ATM to UHV,  $10^{-8}$  to 1000 Torr) active gauge measurement solution optimal for heat treat and vacuum furnace applications.

Visit the Televac website at [www.frederickscompany.com](http://www.frederickscompany.com) for a full list of products.

#### Dimensional Drawings



\*Dimensions are drawn with 1/8" NPT fitting installed

#### Ordering Information

MX4A Active Gauge	Part Number
1/8" NPT Stainless Steel	2-8930-101
1/8" NPT Nickel Plated Brass	2-8930-110
1/2" Straight Stainless Steel	2-8930-111
NW16 (DN16 ISO-KF) Nickel Plated Brass	2-8930-116
NW16 (DN16 ISO-KF) Stainless Steel	2-8930-130
NW25 (DN25 ISO-KF) Nickel Plated Brass	2-8930-125
NW25 (DN25 ISO-KF) Stainless Steel	2-8930-131
NW40 (DN40 ISO-KF) Stainless Steel	2-8930-132
1.33" CF (DN16 ISO-CF-F) Stainless Steel	2-8930-150
2.75" CF (DN40 ISO-CF-F) Stainless Steel	2-8930-152

VCR and VCO available upon request

D-Sub 6 Conductor Cable (flying leads)	Part Number
20 ft (6 m)	2-9857-020
50 ft (15 m)	2-9857-050
100 ft (30 m)	2-9857-100

D-Sub 15 Conductor Cable (flying leads)	Part Number
20 ft (6 m)	2-9858-020
50 ft (15 m)	2-9858-050
100 ft (30 m)	2-9858-100

Wall Power Supply	Part Number
100-240 V AC/47-63 Hz, plug types A, C, G, I	2-7900-097

#### Contact Us

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