



MX7B Cold Cathode Ionization Active Vacuum Gauge

Part Number: 2-8940-XXX

Operating Specifications

| | |
|---|--|
| Operating Range | 1*10 ⁻⁸ Torr to 1*10 ⁻³ Torr |
| Display | OLED |
| Digital Communications | RS-485, USB (micro) |
| Analog Output | Configurable 0 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 | 3 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 | 120 °C |
| Response Time | ≤ 150 ms |
| Accuracy | |
| 1*10 ⁻⁷ to 1*10 ⁻³ Torr | ±30% of reading |
| Analog Output | ±10 mV |
| Display Readable Distance | 3 m (10 ft) |

Physical Characteristics

| | |
|------------------------------|-------------------------|
| Enclosure | Aluminum |
| Weight with Sensor | 1 kg (2 lbs) |
| Weight without Sensor | 0.3 kg (0.6 lbs) |
| Dimensions | See dimensional drawing |

Key Features and Benefits

- Simple sensor replacement - no screws to remove
- Selectable 0 V DC to 10 V DC analog output
- Selectable units of measurement including Torr, mbar, and kPa
- Supports air, dry nitrogen, and Argon gas types
- Excellent resolution and accuracy of measurements
- Compact design with an easy to read color OLED display
- Superior unit to unit performance

Applications and Industries

- [E-Beam Welding](#)
- [Medical Particle Accelerators](#)
- [Thin film deposition and coating process](#)
- [Vacuum Furnaces, heat treating](#)

Certifications, Compliance, and Ratings

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

Description

The Televac® [MX7B Cold Cathode Ionization Active Gauge](#) utilizes a cleanable [7B Penning magnetron cold cathode](#). It has a variety of features including a wide range of measurement from 10⁻⁸ Torr to 10⁻³ Torr, RS-485 digital communications, a micro-USB port, two programmable set points, a configurable analog output, and a bright color OLED display. The unit also features 4 capacitive touch controls, making all features accessible through the display.

The selection of fittings, simplicity of use, ease of sensor cleaning, and low cost of the [MX7B](#) make it an excellent choice for a variety of vacuum applications and industries. This gauge is designed for use with the [MX2A](#) and [MX4A](#) active gauges to provide full range vacuum measurement from 10⁻⁸ Torr to 10⁻³ Torr.

When combined with the [MX2A](#) or [MX4A](#), the [MX7B](#) will provide full range vacuum measurement from 10⁻⁸ Torr to 1000 Torr. This is an optimal solution for heat treat and vacuum furnaces where calibration frequency requirements vary between rough vacuum ([MX2A](#) and [MX4A](#)) and high vacuum ([MX7B](#)) gauges.

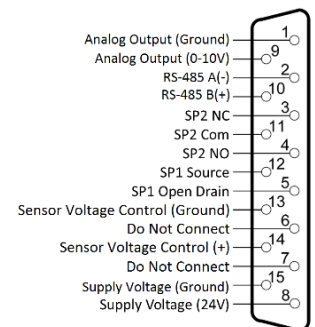
EthernetIP communications can be enabled by integrating the [MX7B](#) with the [EthernetIP Gateway](#).

Materials Exposed to Vacuum

Brass
 Stainless Steel
 Tophet
 Kovar
 Ceramic
 Glass
 Fluoropolymer Elastomer
 Nickel
 Solder

Electrical Connections

| Pin | Description |
|-----|---------------------------------|
| 1 | Analog Out (Ground) |
| 2 | RS-485 A (-) |
| 3 | SP2 NC |
| 4 | SP2 NO |
| 5 | SP1 Open Drain |
| 6 | Do not connect |
| 7 | Do not connect |
| 8 | Supply Voltage (+) |
| 9 | Analog Out (0 to 10) V |
| 10 | RS-485 B (+) |
| 11 | SP2 Com |
| 12 | SP1 Source |
| 13 | Sensor Voltage Control (Ground) |
| 14 | Sensor Voltage Control (+) |
| 15 | Supply Voltage (Ground) |





MX7B Cold Cathode Ionization Active Vacuum Gauge

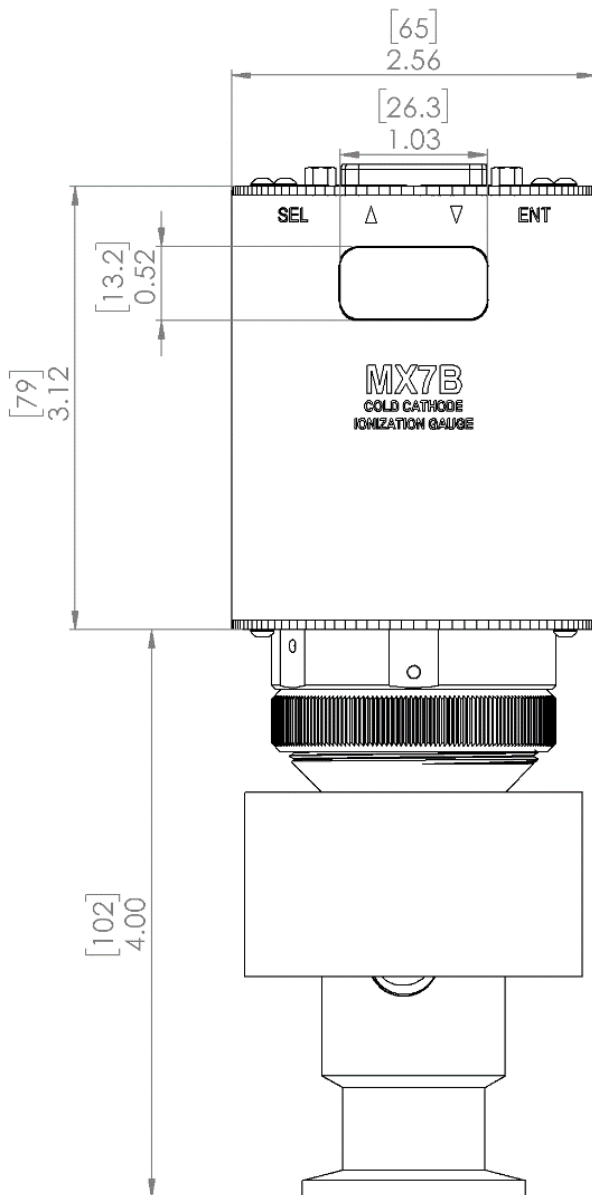
Part Number: 2-8940-XXX

Set Points

The MX7B 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 datasheet can be found at www.vishay.com/en/product/69958/.

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 datasheet can be found at www.te.com/catalog/pn/en/1393788-3.

Dimensional Drawing



Ordering Information

| Part Number | Description |
|-------------|---------------------------|
| 2-8940-NPT | 3/4" NPT Brass |
| 2-8940-075 | 3/4" Straight Brass |
| 2-8940-100 | 1" Straight Brass |
| 2-8940-125 | 1 1/4" Straight Brass |
| 2-8940-KF25 | NW25/KF25 Stainless Steel |

D-Sub 15, 6 Conductor Cable (flying leads)

| Part Number | Length |
|-------------|---------------|
| 2-9873-020 | 20 ft (6 m) |
| 2-9873-050 | 50 ft (15 m) |
| 2-9873-100 | 100 ft (30 m) |

D-Sub 15, 15 Conductor Cable (flying leads)

| Part Number | Length |
|-------------|---------------|
| 2-9858-010 | 10 ft (3 m) |
| 2-9858-020 | 20 ft (6 m) |
| 2-9858-035 | 35 ft (10 m) |
| 2-9858-050 | 50 ft (15 m) |
| 2-9858-065 | 65 ft (20 m) |
| 2-9858-100 | 100 ft (30 m) |

Wall Power Supply

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

Replacement Sensors

| Part Number | Description |
|-------------|---------------------------|
| 2-2171-NPT | 3/4" NPT Brass |
| 2-2171-075 | 3/4" Straight Brass |
| 2-2171-100 | 1" Straight Brass |
| 2-2171-125 | 1 1/4" Straight Brass |
| 2-2171-KF25 | NW25/KF25 Stainless Steel |

Replacement Parts

| Part Number | Description |
|-------------|----------------|
| 2-7900-707 | Anode Assembly |

Compatible Vacuum Controller

| Part Number | Description |
|-------------|------------------------------------|
| 2-8900-100 | MX Active Gauge EthernetIP Gateway |

Full Range Active Vacuum Gauge Solutions

| Part Number | Description | Supporting Document |
|-------------|-------------------|-------------------------|
| 2-8910-1XX | MX2A Thermocouple | Application Note AN3023 |
| 2-8930-1XX | MX4A Convection | Application Note AN3023 |

Click to Buy Online from Fredericks Now!



MX7B Cold Cathode Ionization Active Vacuum Gauge
Part Number: 2-8940-XXX

| Additional Documentation | |
|--------------------------|---|
| Manual | MX7B Cold Cathode Active Vacuum Gauge Manual |
| AN3002 | Cleaning the 7B Cold Cathode Gauge |
| AN3010 | Torr Scientific/Torr Decimal/mTorr/Micron Conversions |
| AN3015 | Recommended Practices for Vacuum Calibration |
| AN3020 | Vacuum Terminology Reference |
| AN3023 | Automatic Control of an MX7B with an MX2A/MX4A |
| Video | MX7B Cold Cathode Overview |
| Video | MX7B Disassembly Demonstration |
| Resource | Televac[®] Tolerances |

Contact Us

The Fredericks Company
 2400 Philmont Avenue
 Huntingdon Valley, PA 19006
 tel: +1 215 947 2500
 fax: +1 215 947 7464
 email: sales@frederickscompany.com
 web: www.frederickscompany.com

Disclaimer: Specifications subject to change without notice. The Fredericks Company assumes no responsibility for inaccuracies in product specifications or any liability arising from product use.
 © 2022 The Fredericks Company

Company Information

Specialty manufacturing services that promise precision –

For more than 85 years, Fredericks has specialized exclusively in tilt and vacuum measurement products. Today, our precise manufacturing processes produce the most accurate and advanced products on the market, ensuring perfection every time. A true specialty service provider, we are willing and eager to put our experience and capabilities to good use, helping OEMs achieve even the most complex designs.

High performance products designed and manufactured with pride -

Fredericks is a global provider and U.S. manufacturer and designer of high-performance tilt and vacuum measurement products. Built to last, our products are made with state-of-the-art sensing technology, proven processes, and an intrinsic passion for the trade. Offering simple integration and quality and safety benchmarks, our customers benefit not just from standard-setting reliability, but from our commitment to competitive pricing and performance.

A partnership that prioritizes uptime, lead time, and service -

Fredericks guarantees customer satisfaction and our ‘not too big, not too small’ operation is what enables us to offer a true partnership experience. Our dedicated representatives and engineers offer exceptionally responsive service and some of the fastest lead times in the industry, knowing that uptime is the key to your success. With anytime-access to our leadership team and solutions that enhance your products, you will feel the Fredericks difference.

Vacuum measurement tools built for the toughest jobs -

Fredericks’ world-class vacuum sensors, gauges, and control instrumentation are engineered for the most demanding applications and environments. Our patented Televac[®] and ETI vacuum brands feature cold-cathode technology, thermocouple and convection gauges, and precision-manufactured hot ionization gauges. Dedicated solely to vacuum gauging and calibration services, we provide industrial heating, national laboratories, cryogenics, and industrial gas applications, among many others, with fast lead times and industry-leading performance. Covering the entire practical vacuum range, our products deliver rapid response vacuum readings and superior sensitivity.