



### ACTIVE GAUGE SOLUTION

MX4A & MX7B  
1x10<sup>-8</sup> - 1000 torr

RS-485, EthernetIP  
Analog 0 to 10 V (recorder) output  
Display on every unit  
Sensors easily replaced

### CONTROLLER SOLUTION

MX200, 4A & 7B  
1x10<sup>-7</sup> - 1000 torr



EthernetIP, RS-232, RS-485, USB  
Analog 0 to 10 V (recorder) outputs  
Control 10 sensors, display 8

## MX200 Controller

- USB, RS-232, and RS-485 standard, EthernetIP available
- Fast response time of ≤10 ms
- Field upgradable with a modular design
- Set point relays
- The MX200 now supports Nitrogen/Air, Argon, Hydrogen, Helium, Neon, Krypton, and Carbon Dioxide gases

## MX Active Gauges

- Sensor and controller combined in a single unit with a display
- 0 to 10 V analog outputs
- Set point relays and open collector outputs
- Same rugged and durable 2A, 4A, and 7B sensors easily replaced

## Sensors

- 2A Thermocouple and 4A Convection
- 7B Penning Cold Cathode Ionization is cleanable for extended life
- Piezo diaphragm, inverted magnetron cold cathode, hot ion

## Why Televac?

- Excellent technical customer support
- We are a woman-owned small business
- Contact us by phone, email, or through the new chat feature on our website
- USA based manufacturer
- Products with diverse features that are simple to integrate
- Products designed for the future of vacuum measurement

- Leading supplier of vacuum gauging for the heat treat industry
- Same great sensors with new electronic solutions
- Full range 10 bar to 10<sup>-11</sup> torr controller and active gauge solutions
- Analog and digital interfaces for simple integration
- Our 7B Penning Cold Cathode is the most robust technology on the market

### Cold Cathode Technology

- Contamination resistant Penning magnetron cold cathode technology
- Cleanable cold cathodes for extended gauge life (bead blasting or abrasive pad cleaning)
- Simple gauge disassembly and cleaning for lower maintenance costs

### Contamination Resistance

- Pirani, thermocouple, convection technologies (thermal conductivity gauges)
- Macro vs micro (MEMS) sensors provide better contamination resistance
- Feedback from customers: MEMS (micro) sensors are more susceptible to contamination, particularly in heat treat/vacuum furnace applications
- Requires more frequent calibration and replacement (additional cost)
- MEMS sensors are often active gauges and include electronics, adding to replacement costs

### NIST Calibration Services

- Calibration services available for all Televac systems
- NIST traceable and standard calibrations
- Calibration from 760 Torr to 1 \*1 Q-7 Torr
- Short lead times, typical turn-around within 2 weeks, with optional expedited 1 week calibrations

### Digital Calibration

- Gauges and controllers with display allows calibration at gauge
- Digital calibration - via digital communications or the display
- EthernetIP, RS-232, RS-485, among others
- Prevents mismatch between HMI and gauge display
- Allows for integration of calibration into PLC HMI

### Active Gauge Solutions for NADCAP / AMS 2769/ Aerospace Certification

To maintain Nadcap accreditation and comply with the requirements outlined in AMS 2769, rough vacuum gauges must be annually (once every year) calibrated to a NIST traceable standard, whereas high vacuum gauges (cold cathodes) require quarterly (once every 3 months) calibration. Active gauges greatly simplify this process by allowing you to return an individual active gauge for calibration without removing any cabling or other equipment from your system.

### Vacuum Furnace Diagram with Active Gauges and EthernetIP Gateway

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