

MV2A Thermocouple Vacuum Controller

Part Number: 2-7900-07X

| Operating Specifications | |
|----------------------------|------------------------------------|
| Operating Range | 1*10 ⁻³ Torr to 20 Torr |
| Communications | None |
| Analog Output | 0 to 5 V DC |
| Analog Output Resolution | 12 bits |
| Programmable Set Points | 2 |
| Set Point Type | Relay |
| Supply Voltage | 110/220 V AC, 50-60 Hz |
| Maximum Power | 8 W |
| Calibration Medium | Dry air or nitrogen |
| Operating Temperature | 0 °C to 50 °C |
| Storage Temperature | -20 °C to 60 °C |
| Display Readable Distance | 3 m (10 ft) |
| Maximum Sensors Controlled | 1 |
| Maximum Sensors Displayed | 1 |
| Response Time | ≤2 ms |
| Accuracy | |
| 1 mTorr to 10 mTorr | ±1 mTorr |
| 10 mTorr to 100 mTorr | ±10% of reading |
| 100 mTorr to 1 Torr | ±20% of reading |

| Physical Characteristics | |
|------------------------------|-------------------|
| Housing | Aluminum |
| Electrical Connections | D-Sub 15-pin male |
| Weight with Sensor (typical) | 517 g (1.14 lbs) |
| Weight without Sensor | 320 g (0.70 lbs) |

- ### Key Features and Benefits
- Competitively priced
 - Very compact design
 - Analog 0 to 5 V DC output
 - Excellent customer service and support
 - Rapid turn-around for calibration and service

- ### Applications and Industries
- E-beam welding
 - Freeze dryers
 - Liquefied Natural Gas (LNG), industrial gas, cryogenics
 - National labs, research and development
 - Vacuum distillation
 - Vacuum glove boxes

Materials Exposed to Vacuum

Please refer to the appropriate sensor datasheet for materials exposed to vacuum. Datasheets are available to download on our website at frederickscompany.com/resources/.

- ### Certifications, Compliance, and Ratings
- IP40
 - ISO 17025 accredited calibration optional
 - NIST traceable calibration optional

Description

The MV2A is a thermocouple vacuum sensor controller with a range of 1*10⁻³ Torr to 20 Torr. It can utilize the Televac® 2A thermocouple, 2A VacuMini, and 2A NASA Mini vacuum gauge.

It has a red, three-digit, seven segment LED display that displays pressure in units of mTorr and Torr. The MV2A has 2 set points relays, and a 0 V DC to 5 V DC analog output.

Ordering Information

| Part Number | Description |
|-------------|---------------|
| 2-7900-071 | MV2A 110 V AC |
| 2-7900-072 | MV2A 220 V AC |

Cables and Accessories

| Part Number | Description |
|-------------|--------------------------|
| 2-9800-077 | 10' 2A cable |
| 2-9800-078 | 20' 2A cable |
| 2-9800-079 | 35' 2A cable |
| 2-9800-080 | 50' 2A cable |
| 2-9800-081 | 10' 2A coiled cable |
| 2-9800-096 | 10' 2A Mini cable |
| 2-9800-082 | 10' 2A Mini coiled cable |
| 6-8500-001 | Mounting clips |
| 6-8500-002 | Red lens |
| 6-8500-003 | Bezel |

Compatible Vacuum Gauges

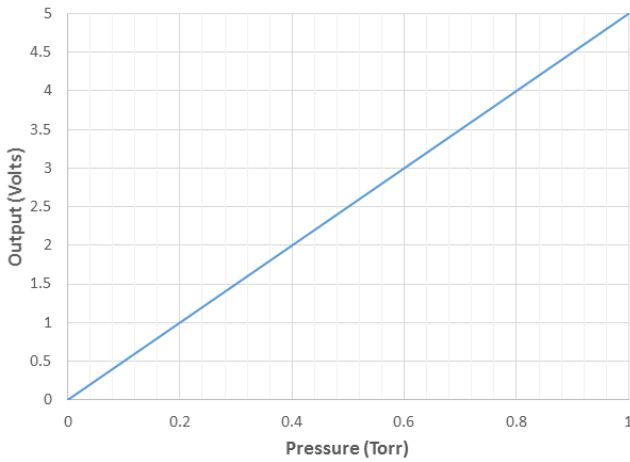
| Part Number | Description |
|-------------|---|
| 2-2100-10 | 2A 1/8" NPT Nickel-plated Brass |
| 2-2100-016 | 2A NW16/KF16 Nickel-plated Brass |
| 2-2100-025 | 2A NW25/KF25 Nickel-plated Brass |
| 2-2126-001 | 2A 1/8" NPT Stainless Steel |
| 2-2126-030 | 2A NW16/KF16 Stainless Steel |
| 2-2126-031 | 2A NW25/KF25 Stainless Steel |
| 2-2126-040 | 2A 8-VCO Male Stainless Steel |
| 2-2126-041 | 2A 8-VCO Female Stainless Steel |
| 2-2126-042 | 2A 8-VCR Male Stainless Steel |
| 2-2126-043 | 2A 8-VCR Female Stainless Steel |
| 2-2126-044 | 2A 4-VCR Male Stainless Steel |
| 2-2126-045 | 2A 4-VCR Female Stainless Steel |
| 2-2126-050 | 2A 1.33" CF Stainless Steel |
| 2-2126-052 | 2A 2.75" CF Stainless Steel |
| 2-2100-102 | 2A VacuMini 1/8" NPT Stainless Steel |
| 2-2100-31 | 2A NASA Mini 1/8" NPT Stainless Steel |
| 2-2100-97 | 2A NASA Mini VCR 4 male Stainless Steel |

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Analog Output Behavior

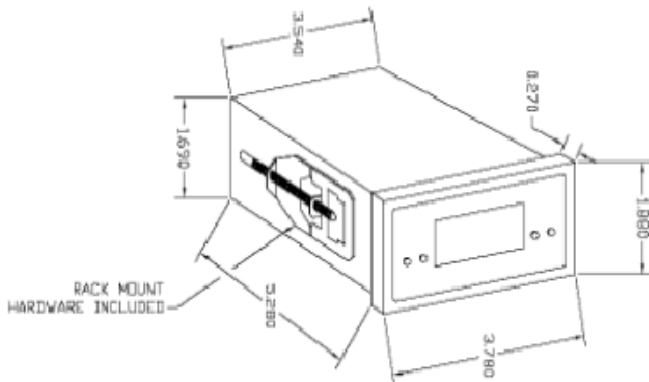


Electrical Connections



| Label | Description | Label | Description |
|-------|-------------|-------|-------------------------|
| 1 | AC Input | 7 | SP2 NO |
| 2 | SP1 C | 8 | Analog Out + (0 to 5) V |
| 3 | SP1 NC | 9 | Analog Out - (0 to 5) V |
| 4 | SP1 NO | 10 | Earth Ground |
| 5 | SP2 C | 11 | Sensor Input |
| 6 | SP2 NC | | |

Dimensional Drawing



Additional Documentation

- Manual [MV2A Thermocouple Instruction Manual](#)
- AN3010 [Torr Scientific/Torr Decimal/mTorr/Micron Conversions](#)
- AN3015 [Recommended Practices for Vacuum Calibration](#)
- AN3020 [Vacuum Terminology Reference](#)
- Resource [Televac® Tolerances](#)

Company Information

Specialty manufacturing services that promise precision - Since 1935, 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 sensitivity.

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

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