

## CC-10 Wide Range Active Vacuum Gauge

Part Number: 2-7980-0XX



### Operating Specifications

Operating Range	1*10 <sup>-9</sup> Torr to 1000 Torr
Communications	RS-485
Analog Output	0 V to 10 V linear/logarithmic
Programmable Set Points	3 relays
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	-40 °C to 85 °C
Bakeout Temperature	110 °C (electronics removed)
Response Time	≤ 500 ms
Display Readable Distance	4 m (13 ft)
<b>Accuracy</b>	
10 <sup>-9</sup> Torr to 10 <sup>-1</sup> Torr	±0.2 of decade
10 <sup>-1</sup> Torr to 200 Torr	±15% of reading
200 Torr to 1000 Torr	±5% of reading
Analog Output	±10 mV

### Physical Characteristics

Enclosure Material	Metallized plastic
Electrical Connections	D-Sub 15-pin male
Weight with Sensor	698 g (1.54 lbs) (NW25 Flange)
Weight without Sensor	355 g (0.78 lbs)
Dimensions	3.7" x 2.75" x 6.3" (NW25 Flange)

### Key Features and Benefits

- Wide measurement range
- Compact design
- Easy to read LED display
- Analog and RS-485 communications standard
- Excellent resolution and repeatability
- Superior unit to unit performance
- Excellent customer support

### Applications and Industries

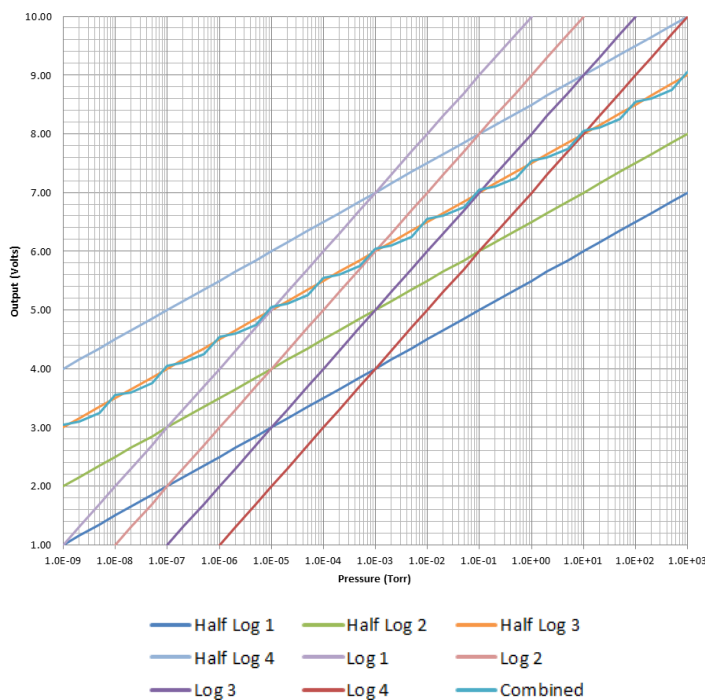
- Particle accelerators
- National labs, research and development
- Semiconductor
- Thin film deposition

### Description

The CC-10 Wide Range Active Vacuum Gauge utilizes dual sensor technology to replace multiple conventional vacuum gauges, permitting seamless measurement of twelve decades of pressure. It has a variety of features including a wide range of measurement from 1\*10<sup>-9</sup> Torr up to 1000 Torr, RS-485 communications, three programmable set points, and a selectable analog output. The bright LED display makes it easy to read from a distance.

Options can be set from either four touch controls located on the front of the unit or through RS-485 communications. The simplicity of use and wide measurement range make this unit an excellent choice for a variety of vacuum applications.

### Analog Output Behavior



### Materials Exposed to Vacuum

Molybdenum	Chromium
Glass	Solder
Copper	Fluorocarbon Elastomer
Stainless Steel	Quartz

### Certifications, Compliance, and Ratings

- CE certified to EN 61010-1, EN 61236-1
- RoHS compliant
- IP40
- ISO 17025 accredited calibration optional
- NIST traceable calibration optional

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

<STX>0R1<CR>	Read units
<STX>0R2<CR>	Read SP1L and SP1H
<STX>0R5<CR>	Read analog output set parameter
<STX>0W1XXXX<CR>	Set pressure unit
<STX>0W2XXXXXXXX<CR>	Set SP1L and SP1H
<STX>0C1<CR>	Crystal gauge atm adjustment
<STX>0S1<CR>	Read pressure data
<STX>0S2<CR>	Read error status

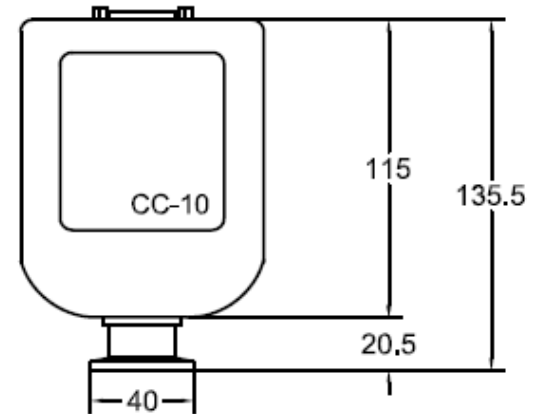
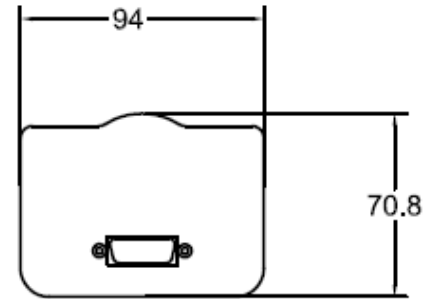
### Electrical Connections

Pin	Description	
1	Analog Out (Ground)	Analog Out (Ground) 1
2	RS-485 A (-)	Analog Out (0 to 10) V 9
3	SP3 Out	RS-485 A (-) 2
4	SP2 Out	RS-485 B (+) 10
5	SP1 Out	SP3 Out 3
6	Zero adjust input (signal in)	SP2, SP3 COM 11
7	EXT Vcc (signal in)	SP2 Out 4
8	Supply voltage (+)	SP1 COM 12
9	Analog Out (0 to 10) V	SP1 Out 5
10	RS-485 B (+)	HV Inhibit 13
11	SP2, SP3 COM	Zero Adj 6
12	SP1 COM	Atm Adj 14
13	HV inhibit signal (signal in)	EXT Vcc 7
14	Atm adjust input (signal in)	Supply Voltage (-) 15
15	Supply Voltage (-)	Supply Voltage (+) 8

### Set Points

The CC-10 has three set points. All three are optically coupled solid state relays that are rated for 0.12 A at 50 V DC. Each set point has hysteresis characteristics and consists of two set values: upper threshold and lower threshold. LEDs on the front panel display the status of each set point. The high and low threshold values of each of the three set points can be set independently.

### Dimensional Drawing



NW 25  
Flange

\*Dimensions in mm

### Ordering Information

Part Number	Description
2-7980-031	NW25/KF25 Stainless Steel
2-7980-032	NW40/KF40 Stainless Steel
2-7980-052	2.75" CF Stainless Steel

### 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)
2-9858-100	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
2-7900-099	Anode Assembly

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### Additional Documentation

Manual	CC-10 Wide Range Active Vacuum Gauge 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 -

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.

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