



Series 211 Stinger™ Convection Vacuum Gauge Measurement Unit & Display - Torr/mTorr

- **Wide measurement range**
1 x 10⁻⁴ to 1,000 Torr
1.3 x 10⁻⁴ to 1,333 mbar
 - **Built-in digital display with analog output and setpoint relay**
 - **Wider measuring range and better accuracy than TC gauges**
 - **Also a lower cost, plug-compatible direct drop-in replacement for the most basic Granville-Phillips® Mini-Convectron® models**
- Monitor your vacuum system from atmosphere to 1 x 10⁻⁴ Torr with a single gauge*
 - Easy setup and operation*
 - Upgrade your vacuum system and process performance*
 - Significant savings for you
No changes to your process
Use your existing hardware, cables, and software*



CVM211 Sensor

The sensor inside the CVM211 *Stinger*™ module incorporates numerous design enhancements compared to other traditional convection vacuum gauges.

Temperature compensation has been moved out of the vacuum environment and placed around the outside of the vacuum gauge tube. This has eliminated a dozen or so unnecessary parts and welds, significantly increasing the reliability, providing optimal vacuum measurement while reducing cost. The improved mechanical strength results in a highly robust vacuum gauge less susceptible to mechanical shock and vibration.

Other design features include reduced internal volume and significant reduction of internal surface area resulting in faster pump-down and less outgassing. A fine mesh screen in the gauge inlet port helps prevent particulate contamination from entering the gauge. The gauge is shielded against RF interference.

These, and other, design features add up to a highly reliable vacuum gauge with significant cost savings that are passed on to the user.

CVM211 Built-in Controller & Display

InstruTech's CVM211 *Stinger* module provides the necessary signal conditioning to turn the convection gauge into a complete vacuum measuring instrument.

The CVM211 *Stinger* module provides one log-linear or non-linear analog output and one setpoint relay. In addition, a built-in display provides the measured pressure values and provides a convenient user interface for setup and operation of the vacuum gauge.

Low-cost upgrade for thermocouple TC vacuum gauges

The CVM211 *Stinger* provides a wider measuring range than traditional thermocouple vacuum gauges - from 1 x 10⁻⁴ Torr to above atmosphere - so you can monitor your entire pump-down and vent cycle.

The CVM211 *Stinger* convection enhanced Pirani gauge is more accurate than a thermocouple gauge, especially at lower pressures. And depending on your gauge/readout configuration, the cost of a *Stinger* is about the same cost of a TC gauge system.

Also a direct drop-in replacement for Mini-Convectron®

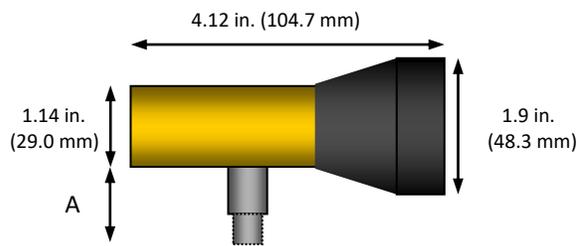
The CVM211 *Stinger* can also directly replace the most basic Granville-Phillips® Mini-Convectron® modules, at significantly lower cost. The InstruTech *Stinger* provides equivalent or better performance throughout the range of 1 x 10⁻⁴ to 1,000 Torr.

The 9-pin D-sub connector has the same pinouts and signals as the corresponding Mini-Convectrons®. The non-linear analog signal and setpoint relay are identical to their corresponding Mini-Convectron® functions. With *Stinger*'s performance, more robust design, longevity, smaller size, and lower cost, your process will only improve.

Guided by our vast experience and vacuum measurement know how, InstruTech sensors are specifically designed for optimum reliability and performance. Whether you're looking to reduce costs or improve your process, the CVM211 Stinger offers a cost-effective solution for your vacuum gauging needs.

Specifications

measurement range	1×10^{-4} to 1,000 Torr / 1.3×10^{-4} to 1,333 mbar / 1.3×10^{-2} Pa to 133 kPa
accuracy - N ₂ (typical)	1×10^{-4} to 1×10^{-3} Torr; 0.1 mTorr resolution 1×10^{-3} to 400 Torr; $\pm 10\%$ of reading 400 to 1,000 Torr; $\pm 2.5\%$ of reading
repeatability - (typical)	$\pm 2\%$ of reading
display	3 digit LED (3 digits from 999 Torr to 10.0 mTorr), (2 digit LED from 9.9 mTorr to 1.0 mTorr), (1 digit LED from 0.9 mTorr to 0.1 mTorr)
materials exposed to gases	gold-plated tungsten, 304 & 316 stainless steel, glass, nickel, Teflon®
internal volume	1.589 in ³ (26 cm ³)
internal surface area	9.25 in ² (59.7 cm ²)
weight	4.8 oz. (136 g)
housing (electronics)	molded plastic
operating temperature	0 to +40 °C
storage temperature	-40 to +70 °C
bakeout temperature	+70 °C max
humidity	0 to 95% relative humidity, non-condensing
mounting orientation	horizontal recommended (orientation has no effect on measurements below 1 Torr)
analog output	log-linear 1 to 8 Vdc, 1 V/decade, or non-linear analog S-curve 0.375 to 5.659 Vdc
input power	12 to 28 Vdc, 2 W protected against power reversal and transient over-voltages
setpoint relay	one, single-pole double-throw relay (SPDT), 1 A at 30 Vdc resistive, or ac non-inductive
connector	9-pin D-sub male
CE compliance	EMC Directive 2014/30/EU, EN55011, EN61000-6-2, EN61000-6-4, EN61326-1, EN61010-1
environmental	RoHS compliant



fitting	dimension A
1/8 in. NPT male - 1/2 in. tube	1.00 in. (25.4 mm)
NW16KF	1.30 in. (33.0 mm)
NW25KF	1.30 in. (33.0 mm)
NW40KF	1.30 in. (33.0 mm)
1 1/3 in. Mini-Conflat®	1.08 in. (27.4 mm)
2 3/4 in. Conflat®	1.47 in. (37.3 mm)
1/4 in. Cajon® 4VCR®	1.86 in. (47.2 mm)
1/2 in. Cajon® 8VCR®	1.75 in. (44.5 mm)

Ordering Information

	Part Number With Log-Linear analog output	Part Number With Non-Linear analog output
CVM211 Fittings / Flanges		
Combination 1/8 in. NPT male - 1/2 in. tube (use 1/8 in. NPT male or 1/2 in. O.D. O-ring compression)	CVM211GAL	CVM211GAA
NW16KF	CVM211GBL	CVM211GBA
NW25KF	CVM211GCL	CVM211GCA
NW40KF	CVM211GDL	CVM211GDA
1 1/3 in. Mini-CF / NW16CF Mini-Conflat®	CVM211GEL	CVM211GEA
2 3/4 in. CF / NW35CF Conflat®	CVM211GFL	CVM211GFA
1/4 in. Cajon® 4VCR® female	CVM211GGL	CVM211GGA
1/2 in. Cajon® 8VCR® female	CVM211GHL	CVM211GHA

Granville-Phillips® and Mini-Convectron® are registered trademarks of MKS Instruments, Andover, MA.
Swagelok®, Cajon®, VCR® are registered trademarks of the Swagelok Company, Solon, OH.

Conflat® is a registered trademark of Varian, Inc. / Agilent Technologies, Lexington, MA.
Teflon® is a registered trademark of E. I. du Pont de Nemours and Company, Wilmington, DE.



InstruTech®
1475 S. Fordham St.
Longmont, CO 80503
USA

Phone +1-303-651-0551

Fax +1-303-678-1754

E-mail info@instrutechinc.com

Web www.instrutechinc.com