InstruTech®

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

- Wide measurement range
  1 x 10⁴ 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

**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

- $1 \times 10^4$ to 1,000 Torr  /  $1.3 \times 10^5$ to 1,333 mbar  /  $1.3 \times 10^2$ Pa to 133 kPa

accuracy - $N_2$ (typical)

- $1 \times 10^4$ to $1 \times 10^5$ Torr; 0.1 mTorr resolution
- $1 \times 10^3$ to 400 Torr; ±10% of reading
- 400 to 1,000 Torr; ±2.5% of reading

repeatability - (typical)

± 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

Ordering Information

<table>
<thead>
<tr>
<th>CVM211 Fittings / Flanges</th>
<th>Part Number With Log-Linear analog output</th>
<th>Part Number With Non-Linear analog output</th>
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</thead>
<tbody>
<tr>
<td>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)</td>
<td>CVM211GAL</td>
<td>CVM211GAA</td>
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<tr>
<td>NW16KF</td>
<td>CVM211GBL</td>
<td>CVM211GBA</td>
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<tr>
<td>NW25KF</td>
<td>CVM211GCL</td>
<td>CVM211GCA</td>
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<tr>
<td>NW40KF</td>
<td>CVM211GDL</td>
<td>CVM211GDA</td>
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<tr>
<td>1 1/3 in. Mini-Conflat®</td>
<td>CVM211GEL</td>
<td>CVM211GEA</td>
</tr>
<tr>
<td>2 3/4 in. Conflat®</td>
<td>CVM211GFL</td>
<td>CVM211GFA</td>
</tr>
<tr>
<td>1/4 in. Cajon® 4VCR® female</td>
<td>CVM211GGL</td>
<td>CVM211GGA</td>
</tr>
<tr>
<td>1/2 in. Cajon® 8VCR® female</td>
<td>CVM211GHL</td>
<td>CVM211GHA</td>
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