InstruTech®, Inc.

Series 201 Super Bee™ Convection Vacuum Gauge

Wide measurement range
1.0 x 10^{-4} to 1000 Torr
1.3 x 10^{-4} to 1333 mbar
1.3 x 10^{-2} Pa to 133 kPa

Monitor your vacuum system from atmosphere to 10^{-4} Torr with a single gauge

Built-in digital OLED display, two setpoint relays, linear, log-linear, non-linear analog outputs, and RS232/485 communications are all included in the standard module

Bright, sharp and clear digital OLED graphical display is extremely easy to read and allows for a wide viewing angle

Also a low cost direct drop-in plug-compatible replacement for the Granville-Phillips® Mini-Convectron® module

Significant savings for you
No changes to your process
Use your existing hardware, cables, and software



CVM201 Sensor

The sensor inside CVM201 *Super Bee™* 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 convection enhanced Pirani vacuum gauge with significant cost savings that are passed on to the user.

CVM201 Built-in Controller with OLED Display

The InstruTech CVM201 *Super Bee* provides the basic signal conditioning required to turn the gauge into a complete measuring instrument. Similar feature filled design philosophy is incorporated into the module electronics. The CVM201 *Super Bee* provides non-linear or log-linear and linear analog outputs, two setpoint relays and RS232/485 serial communications. A built-in OLED digital display provides the measured pressure values and provides for a convenient user interface for setup and operation of the vacuum gauge.

The biggest cost savings is from manufacturing a single model, with all possible options, instead of making dozens of different pc boards and models. And you don't have to give up one feature to get another you want.

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 CVM201 Super Bee offers a cost-effective solution for your vacuum gauging needs.

Also a direct drop-in plug-compatible replacement for the Mini-Convectron®

The InstruTech CVM201 *Super Bee* module will also directly replace most Granville-Phillips® Mini-Convectron® modules. The InstruTech *Super Bee* provides equivalent or better performance throughout the range of 10^{-4} to 1000 Torr.

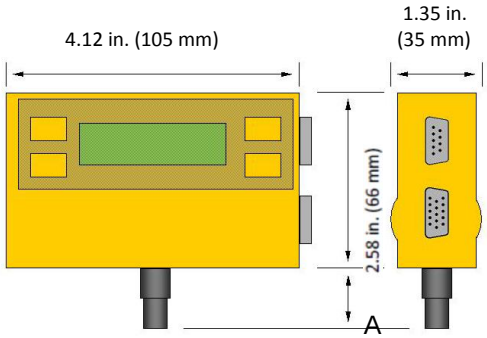
Linear and non-linear analog signals, digital interfaces, and setpoint relays are all included in the standard InstruTech module. All are identical to their corresponding Mini-Convectron® functions. Software commands are the same.

One InstruTech CVM201 Super Bee can directly replace dozens of different Mini-Convectron® configurations, reducing the number of spares you need to keep on hand.

The 9-pin D-sub and 15 pin D-sub connectors have the same pinouts and signals as the corresponding Mini-Convectrons®. With *Super Bee's* performance, more robust design, longevity, and lower cost, your process will only improve.

Specifications

measurement range (signal)	1.0×10^{-4} to 1000 Torr / 1.3×10^{-4} to 1333 mbar / 1.3×10^{-2} Pa to 133 kPa
accuracy - N_2 (typical)	1.0×10^{-4} to 1.0×10^{-3} Torr; 0.1 mTorr resolution 1.0×10^{-3} to 400 Torr; ± 10% of reading 400 to 1,000 Torr; ±2.5% of reading
repeatability - (typical)	± 2% of reading
display	bright OLED, 4 digits, user-selectable Torr, mbar, or Pa (4 digits from 1100 Torr to 1000 Torr), (3 digits from 999 Torr to 10.0 mTorr), (2 digits from 9.9 mTorr to 1.0 mTorr), (1 digit 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	12 oz. (340 g)
housing (electronics)	aluminum extrusion
operating temperature	0 to +40 °C
storage temperature	-40 to +70 °C
bakeout temperature	150 °C max (gauge only - electronics removed)
humidity	0 to 95% relative humidity, non-condensing
mounting position	horizontal recommended
analog outputs	1) log-linear 1 to 8 Vdc, 1 V/decade or non-linear S-curve 0.375 to 5.659 Vdc, and 2) linear 0 to 10 Vdc
serial communications	RS485 / RS232 - ASCII protocol
input power	11 to 30 Vdc, 2 W, protected against power reversal, transients, and over-voltages
setpoint relays	two, single-pole double-throw relays (SPDT), 1 A at 30 Vdc resistive, or ac non-inductive
connectors	9-pin D-sub male and 15-pin high-density D-sub male
RF/EMI protection	CE compliant
environmental	RoHS compliant



fitting	dimension A
1/8 in. NPT male -1/2 in. tube	0.86 in. (21.8 mm)
NW16KF	1.16 in. (29.5 mm)
NW25KF	1.16 in. (29.5 mm)
NW40KF	1.16 in. (29.5 mm)
1 1/3 in. Mini-Conflat®	1.34 in. (34.0 mm)
2 3/4 in. Conflat®	1.34 in. (34.0 mm)
1/4 in. Cajon® 4VCR®	1.72 in. (43.7 mm)
1/2 in. Cajon® 8VCR®	1.61 in. (40.9 mm)

Ordering Information — Part Number

CVM201 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)	CVM201GAA
NW16KF	CVM201GBA
NW25KF	CVM201GCA
NW40KF	CVM201GDA
1 1/3 in. Mini-CF / NW16CF Mini-Conflat®	CVM201GEA
2 3/4 in. CF / NW35CF Conflat®	CVM201GFA
1/4 in. Cajon® 4VCR® female	CVM201GGA
1/2 in. Cajon® 8VCR® female	CVM201GHA

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