InstruTech, Inc.

CVM-201 Super Bee
Convection Vacuum Gauge Module

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

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

Built-in digital display, two setpoints, linear,log-linear and non-linear analog outputs, and RS232/485 interface are all included in standard module

You can stock just one Super Bee module to support all your equipment requirements.

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

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

The InstruTech CVM-201 Sensor

The sensor inside CVM-201 "*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. Guided by our vast experience and vacuum measurement know how, our sensors are specifically designed for reliability and manufacturability.

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

The InstruTech CVM-201 Built-in Controller

The InstruTech CVM-201 module 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 CVM-201 *"Super Bee"* module provides non-linear and linear or log-linear analog outputs, RS232/485 interface, and two setpoint relays. A built-in 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.

Whether you're looking to reduce costs or improve your process, the CVM-201 Super Bee offers a cost-effective solution for your vacuum gauging needs.

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

The InstruTech CVM-201 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.

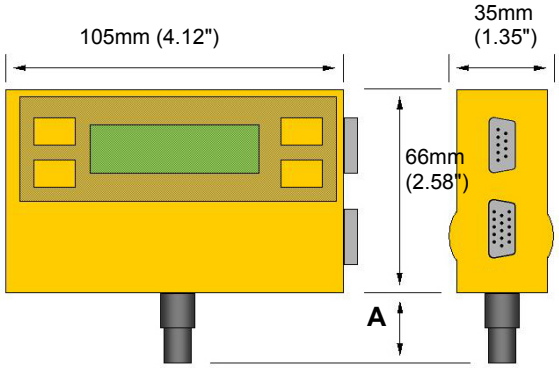
Linear and non-linear analog signals, digital interfaces, and setpoint relays are all included in the standard InstruTech module. All are identical to their corresponding Mini-Convectron® functions. Software commands are the same.

One InstruTech CVM-201 module can directly replace dozens of different Mini-Convectron® configurations, reducing the number of spares you need to keep on hand.

The 9-pin D and 15 pin D 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 could only improve.

Specifications

measurement range (signal)	$1x10^{-4}$ to 1000 Torr / $1x10^{-4}$ to 1333 mbar / $1x10^{-2}$ Pa to 133 kPa
display	LCD, 4 digits, user-selectable Torr, mbar, or Pa 1000Torr, (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	26 cm^3 (1.589 in^3)
internal surface area	59.7 cm^2 (9.25 in^2)
weight	340 gm (12 oz)
housing	aluminum extrusion 105 x 66 x 35mm (4.12 x 2.58 x 1.35 inches)
fittings/flanges	1/8"NPT-1/2" tubulation, 4VCR, 8VCR, Mini-Conflat® (NW16CF), 2-3/4" Conflat®(NW35CF), KF16, KF25, KF40
operating temperature	0 to +40 °C
storage temperature	-40 to +70 °C
bakeout temperature	150 °C (gauge only - electronics removed)
humidity	0 to 95% RH non-condensing
mounting position	horizontal recommended
analog outputs	1) non-linear S-curve 0.375 to 5.659 Vdc 2a) linear 0 to 10 Vdc, user scalable (default is 0-10Vdc = 0-1 Torr), or 2b) log-linear 1 to 8 Vdc, 1V/decade
digital interface	RS485 / RS232
input power	11 to 30 Vdc, protected against power reversal, transients, and over-voltages
trippoint relays	two, single-pole double-throw relays (SPDT)
contact rating	1A at 30 Vdc resistive, or ac non-inductive
connectors	9-pin D male and 15-pin high-density D male
RF/EMI protection	CE compliant



fitting	dimension A
1/8"NPT - ½" tube	21.8mm (0.86")
NW16KF	29.5mm (1.16")
NW25KF	29.5mm (1.16")
NW40KF	29.5mm (1.16")
1.33" Mini-Conflat CF16	34.0mm (1.34")
2.75" Conflat CF35	34.0mm (1.34")
1/4" Cajon 4VCR	43.7mm (1.72")
1/2" Cajon 8VCR	40.9mm (1.61")

Ordering Information

InstruTech CVM-201 Module, with fitting:	CVM-201 Part Number
1/8"NPT - ½" tube	CVM 201 G A A
NW16KF	CVM 201 G B A
NW25KF	CVM 201 G C A
NW40KF	CVM 201 G D A
1-1/3" Mini-CF / NW16CF Mini-Conflat®	CVM 201 G E A
2-3/4" CF / NW35CF Conflat®	CVM 201 G F A
¼" Cajon® 4VCR female	CVM 201 G G A
½" Cajon® 8VCR female	CVM 201 G H A