## Series 500 Hornet™ Cold Cathode Miniature-Ionization Vacuum Gauge

<table>
<thead>
<tr>
<th>Wide measurement range</th>
<th>Full range measurement from $1 \times 10^{-9}$ to atmosphere when used with the B-RAX or the FlexRax controllers and a convection gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1 \times 10^9$ to $1 \times 10^7$ Torr</td>
<td></td>
</tr>
<tr>
<td>$1.3 \times 10^9$ to $1.3 \times 10^2$ mbar</td>
<td></td>
</tr>
<tr>
<td>$1.3 \times 10^7$ to $1.3$ Pa</td>
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</tr>
</tbody>
</table>

### Description

The CCM500 Hornet™ is a cold cathode ionization vacuum gauge module specifically designed for use with InstruTech’s B-RAX™ or FlexRax™ vacuum gauge controllers. All display and control functions are performed remotely by the B-RAX or the FlexRax controller.

### The InstruTech CCM500 Hornet Ionization Gauge

The CCM500 Hornet ionization vacuum gauge module provides the basic signal conditioning required to turn the gauge into a complete measuring instrument.

The CCM500 Hornet Cold Cathode ionization gauge sensor assembly is constructed of a compact metal design resulting in a simple yet rugged sensor suitable for numerous industrial applications.

The Double-Inverted magnetron design places two opposing magnetic fields over the anode (sensor) to enhance the generations of ions. This nearly doubles the electron currents, maximizing the generation of ions and improving sensitivity and signal-to-noise ratio.

The sensor assembly can be easily disassembled and cleaned allowing long term use with minimal down time.

InstruTech has made numerous design enhancements to the CCM500 Hornet to reduce cost and improve performance.

The CCM500 Hornet is functional only when used with the B-RAX or the FlexRax vacuum gauge controller. This allows the user to remotely operate the CCM500 Hornet from the B-RAX or the FlexRax controller.

All operations including sensor on/off is controlled from the B-RAX or the FlexRax.

Anode voltage and ion current can be monitored in real time on the research screen of the B-RAX or the FlexRax controller. Sensitivity may be adjusted by the user.

The combination of superior sensor design and enhanced signal processing provides optimal and stable pressure readings over the entire measurement range from low to high vacuum.
Specifications

**measurement range**  
$1 \times 10^{-9}$ to $1 \times 10^{-2}$ Torr / $1.3 \times 10^{-9}$ to $1.3 \times 10^{-2}$ mbar / $1.3 \times 10^{-7}$ to $1.3$ Pa

**accuracy - N₂ (typical)**  
$1 \times 10^{-8}$ to $1 \times 10^{-2}$ Torr; ± 30% of reading

**repeatability - (typical)**  
± 5% of reading

**materials exposed to gases**  
304 stainless steel, ceramic, Viton® O-ring

**sensitivity**  
factory preset to 10 Torr$^{-1}$ (also user adjustable between 2 to 99)

**overpressure protection**  
gauge turns off at factory default setting of $1 \times 10^{-2}$ Torr

**internal gauge volume**  
1.965 in$^3$ (32.2 cm$^3$)

**temperature**  
operating: 0 to + 40 °C  storage: -40 to + 70 °C

**bakeout temperature**  
150 °C (sensor only - electronics removed), limit to 5 hours with magnets installed

**humidity**  
0 to 95% relative humidity, non-condensing

**weight**  
1.7 lb. (0.77 kg) with NW25 KF flange

**housing (electronics)**  
aluminum extrusion

**mounting orientation**  
any

**analog output**  
alog output is available at the B-RAX or the FlexRax

**setpoint relay**  
relays available at the B-RAX or FlexRax

**status outputs**  
anode (sensor) on/off status is determined by LED on the CCM500 and also display messages and available user interface options on the B-RAX and FlexRax controllers

**input control signal**  
all CCM500 operations controlled from the B-RAX or the FlexRax

**input power**  
powered by either the B-RAX or FlexRax controller

**connector/cabling**  
InstruTech cable/connector assembly for connection to either B-RAX or FlexRax

**CE compliance**  

**environmental**  
RoHS compliant

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**Ordering Information**

<table>
<thead>
<tr>
<th>CCM500 Fittings / Flanges</th>
<th>Cold Cathode Module</th>
<th>Replacement Sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 in. Tube (1 in. O.D. O-ring compression)</td>
<td>CCM500TX</td>
<td>CCST</td>
</tr>
<tr>
<td>NW16KF</td>
<td>CCM500BX</td>
<td>CC5B</td>
</tr>
<tr>
<td>NW25KF</td>
<td>CCM500CX</td>
<td>CC5C</td>
</tr>
<tr>
<td>NW40KF</td>
<td>CCM500DX</td>
<td>CC5D</td>
</tr>
<tr>
<td>1 1/3 in. Mini-CF/NW16CF Mini-Conflat®</td>
<td>CCM500EX</td>
<td>CC5E</td>
</tr>
<tr>
<td>2 3/4 in. CF / NW35CF Conflat®</td>
<td>CCM500FX</td>
<td>CC5F</td>
</tr>
</tbody>
</table>

**B-RAX or FlexRax Controller & Gauge Cables**  
see B-RAX or FlexRax controller data sheet

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