



InstruTech, Inc.

IGM-401 Hornet Miniature-Ionization Vacuum Gauge Module

Wide measurement range
 1×10^{-9} to 5×10^{-2} Torr
 1.3×10^{-9} to 6.7×10^{-2} mbar
 1.3×10^{-7} to 6.7 Pa

Dual Hot Filament design
Rugged and compact metal construction.

Built-in digital display, RS-485 digital interface, set-point relay and log-linear analog output, are all included in the standard Hornet module.

Bright yellow organic LED graphical display allows easy viewing from a wide viewing angle.

Also a Low cost, direct drop-in plug-compatible replacement for the Granville Phillips Micro-Ion® module.

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



InstruTech IG Gauges

InstruTech IGM-401 "Hornet" Modules

The IGM-401 Miniature-Ionization vacuum gauge module provides the basic signal conditioning required to turn the gauge into a complete measuring instrument.

The built-in Controller is offered with a standard bright OLED display providing a convenient user interface for setup and operation of the vacuum gauge.

The IGM-401 gauge tube assembly is constructed of a compact all metal design with dual Yttria coated Iridium or optional dual Tungsten filaments.

The emission current can be set to automatically switch between 4 ma and 100 uA. This results in optimal and stable pressure readings over the entire measurement range from rough to high vacuum.

Lower cost without sacrificing quality or functionality

InstruTech has made numerous design enhancements to reduce cost and improve performance. The electrometer auto zeroes to ensure that the readings are not subject to temperature drift. This eliminates the need for unnecessary and expensive circuitry which further reduces the cost. The extremely bright, crisp OLED display increases functionality and ease of use.

Filament current, emission current, and ion current can be monitored in real time on the research screen. Sensitivity and degas time can be user adjusted.

Service screens can diagnose filament problems and monitor the filament life.

The display enables the user to select from 16 common gases without having to apply manual correction factors.

Setpoint relay can be manually toggled to test for correct wiring.

The gauge sensor assembly can be easily replaced in the field by simply removing four socket head cap screws.

Warnings will be displayed for all fault conditions

Dual Yttria Coated filaments are offered for general vacuum applications. The optional dual Tungsten filaments are available for use in applications not compatible with Yttria filaments such as those gases containing chlorine, fluorine, etc.

Direct drop-in plug-compatible replacement for the GP Micro-Ion®

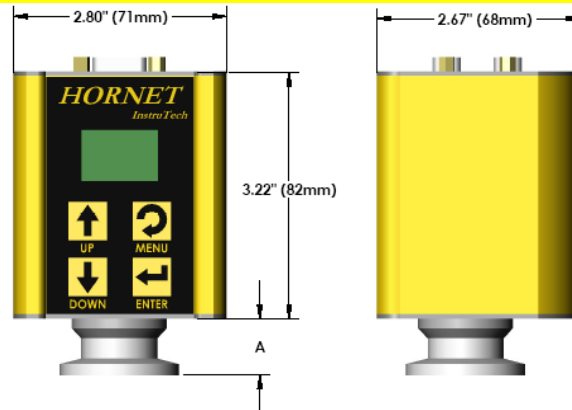
The IGM-401 module will also directly replace 2 different Granville Phillips Micro-Ion® modules. The InstruTech gauge provides equivalent or better performance throughout the range of 1×10^{-9} to 5×10^{-2} Torr.

One analog output, one setpoint relay and RS-485 digital communications are all included in the IGM-401. All are identical to their corresponding Micro-Ion® functions. Software commands are the same when using the RS-485 digital communication.

Specifications

| | |
|----------------------------|--|
| measurement range (signal) | 1 x 10 ⁻⁹ to 5 x 10 ⁻² Torr / 1.3 x 10 ⁻⁹ to 6.7 x 10 ⁻² mBar / 1.3 x 10 ⁻⁷ to 6.7 Pa |
| display | OLED Graphical Display, 3 digits plus 2 digits exponent, bright yellow |
| materials exposed to gases | Dual Filaments: Yttria Coated Iridium or optional Tungsten Ion Collector: Tungsten Grid: Tantalum Others: 316/304 SS, Glass, Nickel |
| sensitivity | Factory pre-set. Also user adjustable between 2 to 99 using the display |
| X ray limit | < 5 x 10 ⁻¹⁰ |
| emission current | 100 uA, 4 mA, or automatic switching between 100 uA and 4 mA |
| degas | 3 Watts e-beam |
| overpressure protection | Gauge turns off at factory default setting of 5 X 10 ⁻² Torr |
| internal gauge volume | 1.0 in ³ (16.4 cm ³) |
| operating temperature | 0 to + 40° C |
| bakeout temperature | 200° C (sensor only - electronics removed) |
| humidity | 0 to 95% RH non-condensing |
| weight | 0.6 Lbs (0.27 kg) with NW25 KF flange |
| mounting Orientation | Any |
| digital Interface | RS-485 |
| output signals | |
| analog Output | Log-linear 0 to 9 Vdc, 1V/decade |
| filament & Degas | Degas & Filament on/off status are determined by an open collector transistor or via RS-485 digital communications protocol |
| setpoint relay adjustment | Single-pole, double-throw (SPDT), 1A at 30 Vdc resistive, or ac non-inductive Adjust value using the display menu push buttons or RS-485 commands |
| input signal | Degas and Filament on/off & emission current are set by continuity to ground, via RS-485 commands or using the display menu push buttons. |
| filament selection | User selectable between filament 1 or 2 using the display menu push buttons or via RS-485 commands |
| input power | 20 to 28 Vdc, 13 W |
| RF/EMI protection | CE compliant |

| Fitting | dimension A |
|-----------------|---------------|
| NW16KF | 1.45" (37mm) |
| NW25KF | 1.45" (37mm) |
| NW40KF | 1.45" (37mm) |
| 1-1/3" Mini CF | 1.85" (47 mm) |
| 2-3/4" Conflat® | 1.70" (43 mm) |



Ordering Information

Part Numbers

| InstruTech IGM-401 Module -Fitting | With Yttria Filaments | With Tungsten Filaments | Replacement Sensor - Yttria | Replacement Sensor - Tungsten |
|------------------------------------|-----------------------|-------------------------|-----------------------------|-------------------------------|
| NW16KF | IGM 401 Y B D | IGM 401 T B D | IG4YB | IG4TB |
| NW25KF | IGM 401 Y C D | IGM 401 T C D | IG4YC | IG4TC |
| NW40KF | IGM 401 Y D D | IGM 401 T D D | IG4YD | IG4TD |
| 1-1/3"Mini-CF/NW16CF Mini-Conflat® | IGM 401 Y E D | IGM 401 T E D | IG4YE | IG4TE |
| 2-3/4" CF / NW35CF Conflat® | IGM 401 Y F D | IGM 401 T F D | IG4YF | IG4TF |

Micro-Ion® is a registered trade mark of Brooks Automation/Granville Phillips.
Conflat® is a registered trade mark of Varian Vacuum Technologies.



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