

## Series 355 *MICRO-ION*<sup>®</sup> Gauge and Cable Adapter



### ***MICRO-ION*<sup>®</sup> Gauges — Smaller, more rugged, wider range, more burnout resistant, and less heat generation than glass gauges**

#### **Installs easily in complex, tightly packed vacuum systems**

*MICRO-ION* — the world's smallest ionization gauge — occupies less than 5% of the volume of a glass gauge. Rather than being constrained to mounting locations dictated by a bulky glass gauge, you can mount a *MICRO-ION* almost any place on your system.



#### **Rugged, all-metal design eliminates costly downtime due to glass breakage**

Imagine having a glass gauge implode into your process or experiment, an event that can occur all too easily—shards of glass everywhere in your system while the clock ticks away on your schedule and your budget is consumed by “maintenance expense.”

#### **Wider Useable Range**

Unique dual ion collectors (patent pending) and a metal envelope help you measure up to  $5 \times 10^{-2}$  Torr compared to approximately  $5 \times 10^{-3}$  Torr for a glass gauge. You can control processes to higher pressures and get better pressure range overlap with our *CONVECTRON*<sup>®</sup> Gauge if you measure up to atmosphere. And, the *MICRO-ION* has an x ray limit equivalent to that of a glass gauge ( $3 \times 10^{-10}$  Torr).

#### **Increased Uptime**

Dual, burn-out resistant yttria-coated iridium filaments provide long life. Unscheduled downtime is avoided by using the second filament as a backup until the gauge can be replaced during regular maintenance procedures.

#### **Less Heat**

A *MICRO-ION* Gauge requires only 8% of the power of a glass gauge. Lower power means less heat to disturb a process or experiment, less chance of accidental burns, and less chance of melting wiring that may come in contact with the gauge.

#### **More Rapid response during pumpdown—Even The Very First One**

*MICRO-ION* Gauges are designed, constructed and processed to minimize outgassing. All components are vacuum fired and assembled in a Class 100 cleanroom environment.

#### **Switching to the *MICRO-ION* is easy**

You can use:

- Series 358 *MICRO-ION* Controllers with numerous optional features, or
- Series 354 Modules with integral gauge and electronics, or
- An existing Granville-Phillips or Varian controller (with Adapter), or
- Other ionization gauge controllers (please inquire about Adapter availability.)



If you're ready to move from the 1950's technology and drawbacks of a glass gauge to a modern alternative, the *MICRO-ION* is the right choice. This data sheet covers *MICRO-ION* Gauges and Cable Adapters. For more information about Series 354 and 358 see their respective data sheets.

# Specifications

## Physical Data

Mounting position	any
Materials	vacuum fired, UHV compatible
Envelope	304L stainless steel
Collector	tungsten
Grid	tantalum
Filaments	dual, yttria-coated iridium, or tungsten*
Weight	0.1 kg (4 oz) with 1.33 in ConFlat®-type flange (NW16CF)
Internal volume	10.8 cm <sup>3</sup> (0.66 in. <sup>3</sup> )

## Operating Data

X ray limit	3x10 <sup>-10</sup> Torr maximum
Sensitivity for N <sub>2</sub>	20/Torr
Electron bombardment degas	3 W at 250 to 330V
Bakeout temperature, non-operating with cable removed	200 °C maximum
Operating temperature	0 – 50 °C ambient, noncondensing
Cable bakeout temperature	150 °C maximum
Filament emission current	4 mA maximum, 15 mA for EB degas
Filament bias potential	+30 V
Filament heating voltage	1.2 V (2.3 V maximum)
Filament heating current	2.0 A (3 A maximum)
Collector potential	0 V
Grid potential	+180 V

## Cable Adapter

It is necessary to use an Adapter (Cat. No. 355002 or 355003) when using the *MICRO-ION* Gauge with controllers other than the Granville-Phillips Series 358 Controller.



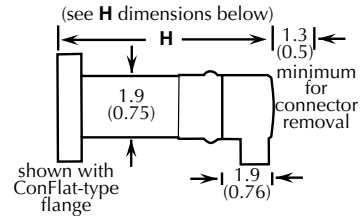
The *MICRO-ION* Adapter:

- Allows direct plug-in operation of the *MICRO-ION* Gauge to specified Controllers. (Granville-Phillips Series 303, 307, 330, 338, 340, and 350; Varian senTorr™)
- Protects the filament from being overpowered by limiting current from the Controller to 3 A maximum.
- Permits filament selection (filament 1, filament 2, or both.)
- Protects the grid from being overpowered by limiting the grid current from the Controller to 15 mA maximum.
- Automatically generates electron bombardment degas power when 10 mA emission current is sensed.
- Allows pressure measurement during degas.
- Indicates degas operation with LED indicator.





\* Tungsten filaments are for applications involving gases containing fluorine, chlorine or other gas species that poison yttria-coated iridium filaments. Tungsten filaments are not recommended for general vacuum applications because they may burn-out when exposed to high pressures.

dimensions are in cm (in.)

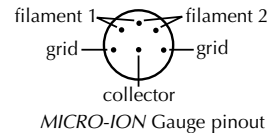
## MICRO-ION Gauge with connector



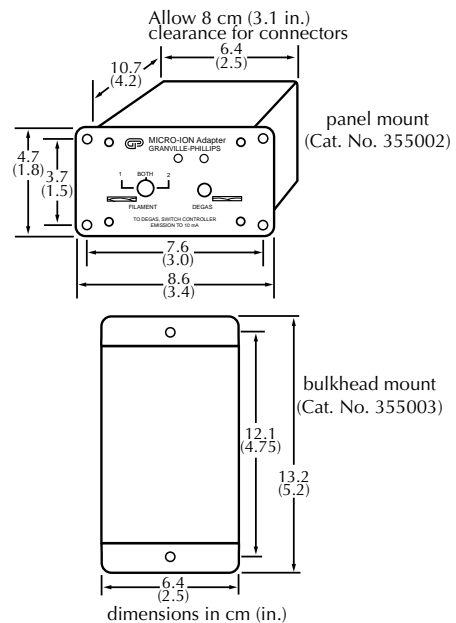
## Fittings for MICRO-ION Gauges

-  Compression fitting  
H = 9.4 (3.7)  
Port diameters: 0.75 in., 1.0 in., 15 mm, and 18 mm
-  KF flange  
H = 7.3 (2.9)  
NW16KF, NW25KF, and NW40KF
-  ConFlat-type flange  
H = 7.3 (2.9)  
1.33 in. (NW16CF)  
2.75 in. (NW35CF)
-  VCR-type male fitting, 1/2 in.  
H = 8.1 (3.2)

VCR & VCO are registered trademarks of Cajon Co.  
ConFlat is a registered trademark of Varian Associates.



## MICRO-ION Cable Adapter



## How to order

Before you order MICRO-ION Gauges be sure to consider the benefits of STABIL-ION Gauges for critical pressure measurement applications.

If pressure measurements are used to:

- 1) **Indicate**, without time delays, that a specified pressure setpoint has been reached, and/or...
- 2) **Replicate** a process that has a specified setpoint that must be reached without time delays, and/or...
- 3) **Control** a critical process variable,

then a calibrated gauge that maintains its calibration accuracy over time-in-use may be essential to meet these needs.

While the MICRO-ION Gauge is an ideal gauge for many applications, it may not be sufficiently stable for critical processes. For the most stable and reliable pressure measurements, use STABIL-ION Gauges.

For more information on STABIL-ION Gauges contact Granville-Phillips at the address listed on the back of this data sheet.

To specify a MICRO-ION Gauge and cable:

1. Select a Gauge from **A**.
2. If you are using the MICRO-ION Gauge with an existing controller (not Series 358), select a Cable Adapter from **B**.
3. Select a Cable from **C**.

### A MICRO-ION Gauges



To configure a MICRO-ION Gauge – specify a catalog number as follows:

1. Start with the basic Module 355001-
2. Select filament type.
3. Select vacuum connection.

For example, 355001-YD is a MICRO-ION Gauge with dual yttria-coated iridium filaments, and NW16KF flange.

355001-○○	0.75 in. port diameter	A
	1.0 in. port diameter	J
	15 mm port diameter	B
	18 mm port diameter	C
	NW16KF flange	D
	NW25KF flange	E
	NW40KF flange	K
	1.33 in. (NW16CF) ConFlat-type flange	F
	2.75 in. (NW35CF) ConFlat-type flange	G
	1/2 in. VCR-type male fitting	H
	yttria-coated iridium filaments	Y
	tungsten filaments	T

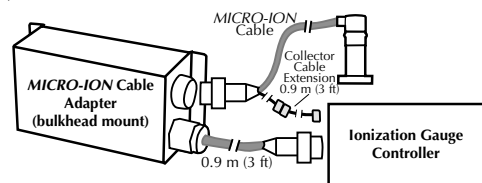
### B MICRO-ION Cable Adapter (includes control box with 0.9 m hardwired cable to connect to ionization gauge controller, and 0.9 m cable extension for collector.)

For use with Granville-Phillips Controller Series 303, 307, 330, 338, 340, and 350.

Panel Mount Cable Adapter	.....	355002
Bulkhead Mount Cable Adapter	.....	355003
3 m (10 ft) Collector Cable extension for use with	.....	355005
G-P Series 307 remote mounted Power Supply.		

For use with Varian senTorr™ Controller

Panel Mount Cable Adapter	.....	355007
Bulkhead Mount Cable Adapter	.....	355008



### C MICRO-ION Cables

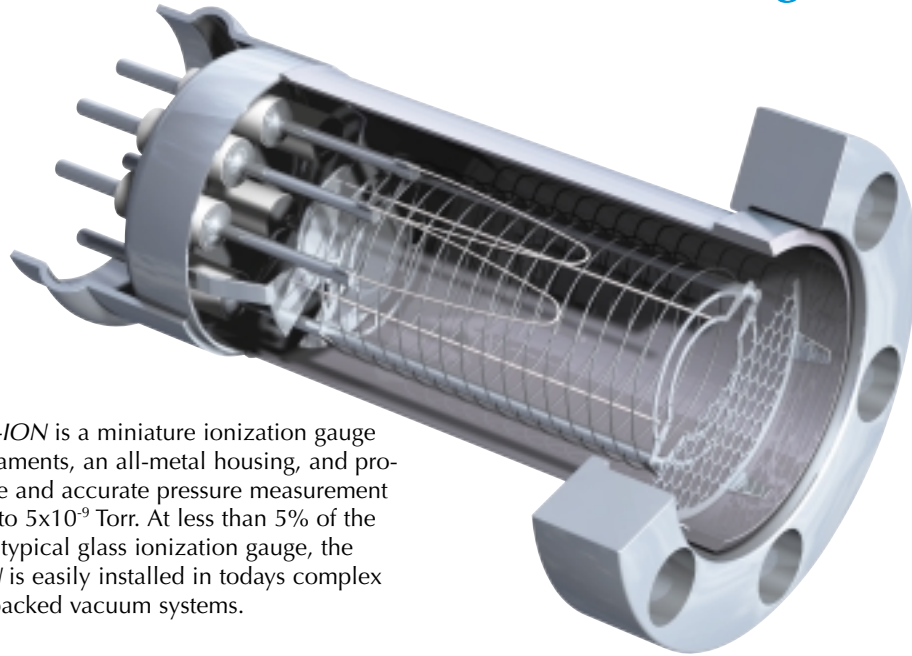
For use with all Cable Adapters and Series 358 Controllers

		One cable is required per MICRO-ION Gauge.
3 m (10 ft)	.....	358008
8 m (25 ft)	.....	358009
15 m (50 ft)	.....	358010



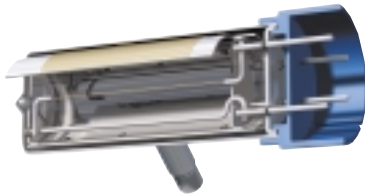
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## Series 355 *MICRO-ION*<sup>®</sup> Gauge



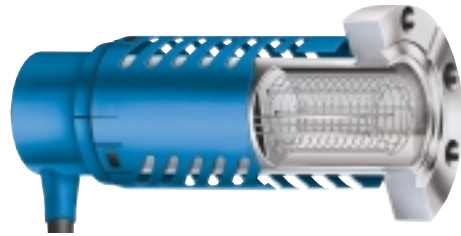
The *MICRO-ION* is a miniature ionization gauge with dual filaments, an all-metal housing, and provides reliable and accurate pressure measurement from  $5 \times 10^{-2}$  to  $5 \times 10^{-9}$  Torr. At less than 5% of the volume of a typical glass ionization gauge, the *MICRO-ION* is easily installed in today's complex and tightly-packed vacuum systems.

## Series 275 *CONVECTRON*<sup>®</sup> Gauge



The *CONVECTRON* Gauge provides reliable pressure measurement from atmosphere to the low millitorr range. Today they are used on hundreds of thousands of vacuum processes throughout the world.

## Series 370 *STABIL-ION*<sup>®</sup> Gauge



The *STABIL-ION* Gauge is the only high vacuum process control gauge that does not change calibration with time of use, which provides improved process replication and higher yield rates.

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### Terms and policy

F.O.B. plant, Boulder, Colorado, USA. Other terms will be quoted on request. Granville-Phillips reserves the right to change prices and specifications without notice.

### Application assistance

Granville-Phillips has specialized in high quality vacuum instrumentation since 1954. If you do research or process products in vacuum, we can most likely help improve your productivity. For expert application assistance, contact us at the location listed below.

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**GRANVILLE-PHILLIPS**  
HELIX TECHNOLOGY CORPORATION

*Advanced Vacuum Measurement Solutions*

5675 Arapahoe Avenue  
Boulder, Colorado 80303-1332, USA  
Telephone: (+1) 303-443-7660  
or toll free 1-800-776-6543 in USA  
FAX: (+1) 303-443-2546  
email: [marketing@granville.com](mailto:marketing@granville.com)  
[www.helixtechnology.com](http://www.helixtechnology.com)