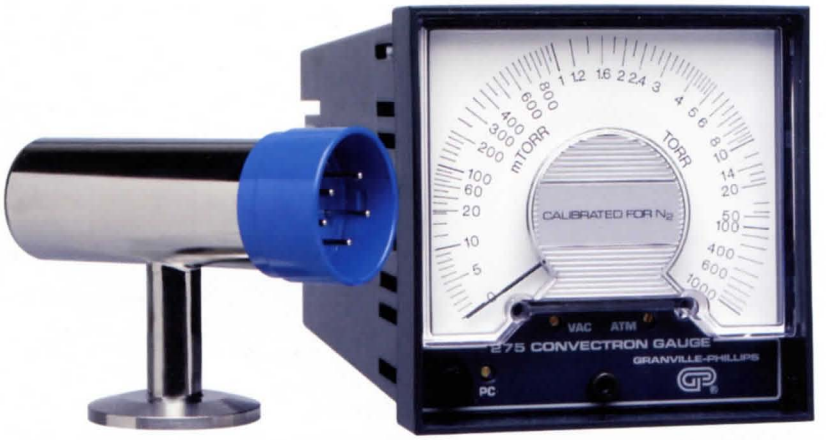
# 275 *CONVECTRON*® Analog Controller




## Pressure measurement from $10^{-3}$ to 1,000 Torr with a large, easy to read analog meter using proven *CONVECTRON*® Gauge technology

### Benefits & General Information

The Series 275 Analog Controller uses reliable, field-proven *CONVECTRON* Gauges to provide useful pressure measurement over 6 decades from 1 milliTorr to 1,000 Torr (1 x $10^{-3}$ mbar to 1,300 mbar.) The *CONVECTRON* Gauge contains a temperature compensated heat loss sensor, which uses conduction cooling to sense pressure at lower pressures. At higher pressures, it uses convection cooling in which gas molecules are circulated through the tube by gravitational force.

Their wide useful range, highly predictable performance and low price make *CONVECTRON* Gauges an excellent replacement for conventional thermocouple and Pirani gauges. They are also the measurement systems to consider in applications where conventional thermocouple and Pirani gauges have not been suitable because of limited range, drift, or slow response.

### Easy to Read Meter

The 7-inch (17.8 cm) scale is marked to optimize resolution over all 6 decades—including the upper decade.

### Fast Response Time

The sensor in a *CONVECTRON* Gauge operates in an electronic feedback loop, which keeps its temperature nearly constant.

The response time to a step function pressure change in $N_2$ at 1 millitorr is about 810 milliseconds to 90% of the final reading. At 1 Torr it is about 40 milliseconds to 90% of the final reading. Comparable response time for a typical "fast" thermocouple gauge is several seconds at low pressure.

### Process Control

Setpoint relay options provide the capability to turn valves, pumps, heaters, and other equipment on or off. Fast, accurate control can be achieved at one or two pressures anywhere within the six decade range.

To set a process control point, simply depress the button on the front panel and adjust the potentiometer until the meter pointer is at the desired pressure setpoint. Setpoints may be checked at any time without interrupting control because the setpoint relay circuits are independent of meter movement.

## Specifications

| | |
|---|---|
| **Measuring Range** | 1 x $10^{-3}$ Torr to 1000 Torr (1mbar to 1,300 mbar) for $N_2$. |
| **Ambient Operating Temperature Range** | +4 °C to +50 °C |
| **Gauge Tube Temperature Compensation Range** | +15 °C to +50 °C |
| **Bakeout Temperature** (non-operating) | +150 °C |
| **Output Voltage** | 0 to 9 volts non-linear, monotonically increasing pressure related signal is available on rear panel connector |
| **Setpoint Relay Output(s)** | SPDT relay(s), contact rating: 2 A, 230 Vac resistive load |
| **Electrical Power** | 105 to 125 Vac or 210 to 250 Vac, 50 to 60 Hz, 10 W. On/off switch not provided |
| **Weight** | 1.6 kg (3.5 lbs) |
| **Gauge Tube** | |
| **Internal Volume** | 40 $cm^3$ (2.5 $in^3$) |
| **Sensor Material** | Gold plated tungsten |
| **Weight (with standard fitting)** | .33 kg (12 oz) |

# Ordering Information

## Analog *CONVECTRON* Controller

| Operating Power | Readout Units | Catalog No. |
|---|---|---|
| No setpoint relays | | |
| 115 Vac | Torr | 275112-1 |
| 230 Vac | Torr | 275216-1 |
| 230 Vac | mbar | 275136-1 |
| 100 Vac | Torr | 275210-1 |
| 100 Vac | mbar | 275222-1 |
| With 1 setpoint relay | | |
| 115 Vac | Torr | 275114-1 |
| 100 Vac | Torr | 275211-1 |
| With 2 setpoint relays | | |
| 115 Vac | Torr | 275116-1 |
| 230 Vac | mbar | 275140-1 |
| 100 Vac | Torr | 275212-1 |

*Controllers have a black case. For a light gray case and silver front panel, delete the "-1" from the part number*

## Cable Assemblies with 6 ft. (2 m) power cord

**North American 115 Vac plug**

| | |
|---|---|
| 10 ft. (3 m) | 275117 |
| 25 ft. (7.5 m) | 275075 |
| 50 ft. (15 m) | 275076 |
| 100 ft. (30.5 m) | 275077 |
| up to 500 ft. (150 m) | 275078 |

**Universal European 220 Vac plug**

| | |
|---|---|
| 10 ft. (3 m) | 275150 |
| 25 ft. (7.5 m) | 275151 |
| 50 ft. (15 m) | 275152 |
| up to 500 ft. (150 m) | 275153 |

## *CONVECTRON* Gauges

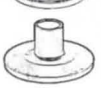
| | |
|---|---|
| 1/8 NPT pipe thread / 1/2 in. quick compression fitting | 275071 |
| 1/4 in. VCR-type female fitting | 275185 |
| 1/2 inch VCR-type female fitting | 275282 |
| 3/8 inch VCO-type male fitting | 275233 |
| 1.33 inch (NW16CF) ConFlat-type flange | 275256 |
| 2.75 inch (NW35CF) ConFlat-type flange | 275238 |
| Welded NW10 KF flange (threaded) | 275168 |
| Welded NW16 KF flange (threaded) | 275154 |
| Welded NW16 KF flange (welded) | 275203 |
| Welded NW25 KF flange (welded) | 275196 |

1/8 NPT pipe thread /
1/2 in. compression fitting
H = 6.4 (2.5)

VCR®-type female fitting
H = 8.1 (3.2)

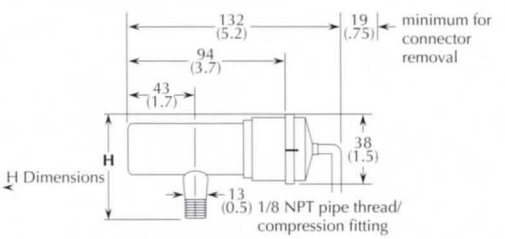
VCO®-type male fitting
H = 8.1 (3.2)

ConFlat® type flange
H = 6.4 (2.5)



KF flange
H = 6.9 ( 2.7)

Dimensions are in mm (in.)

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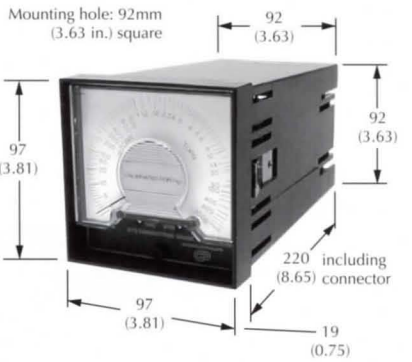
All dimensions are nominal. For tolerances, contact GPC.

Dimensions are in mm (in.)




### Terms and Price 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.

### Limited Warranty

This equipment is warranted for a period of one year to be free of defects in materials and workmanship subject to certain exceptions and limitations which are expressly stated in our Limited Warranty for this equipment, a copy of which is included in each instruction manual or which will be mailed to you upon request.

### Applications assistance

Granville-Phillips has specialized in high quality vacuum instrumentation since 1954. If you process products or do research in vacuum, we can most likely help improve your productivity. Call today for applications assistance or to order vacuum instrumentation that could significantly increase the productivity of your vacuum-based process.

### Call To Order: