Series 385
Convectron® ATM Modules

The Convectron® ATM module combines control electronics with a piezo-resistive diaphragm sensor and the proven Convectron sensor to provide a continuous measurement from low vacuum to atmosphere. The compact design is easy to install and operate and includes a set point relay activation at a defined differential pressure from atmosphere. The Convectron ATM module eliminates the need for two sensors in those applications that require low pressure measurement and an accurate indication of differential pressure at atmosphere, such as vacuum system loadlocks.

The Convectron ATM module is available with DeviceNet™ interface. The Convectron heat loss sensor provides vacuum pressure measurement over seven decades from $1x10^{-4}$ Torr to atmosphere. The diaphragm sensor technology measures the differential pressure between the inside of the vacuum space and the outside environment and activates a set point relay when a defined differential pressure is achieved.

All units provide set points that are used to indicate a low vacuum level and when the defined differential pressure has been reached. The DeviceNet version is available with a local display that features a bright, 3-digit indication of the instantaneous pressure measurement.

Product Features

- Wide range of pressure measurement from atmosphere to 10^{-4} Torr
- Accurate and repeatable differential pressure set point at atmosphere
- Compact, rugged, RF and noise-immune module
- DeviceNet version includes a local display

Key Benefits

- Provides continuous measurement from low vacuum to atmosphere
- Easy to install and operate
- Includes a set point relay activation

The Series 385 Convectron Module contains a piezo-resitive diaphragm gauge which has silicone and epoxy seals that can be susceptible to permeation by helium gas. If a helium leak detector is used, it will register helium due to the permeation of the gas through these seals. When the module is saturated with helium, this permeation can contribute to base pressure readings below 10^{-7} Torr. For other common gases, including air, the leak rate is not measureable on a common leak detector.

- **Wide Measurement Range:** Allows for monitoring of vacuum system performance continuously from atmosphere to $1x10^{-4}$ Torr.
- **Differential Diaphragm Sensor Technology:** Outputs an accurate and repeatable indication of differential pressure at atmosphere through a set point relay.
- **All-Metal Packaging:** Provides a high level of immunity to RF noise
- **Process Set Point Relays:** Relay contacts are provided to control other vacuum equipment and provide a relay output at the defined atmospheric differential pressure set points.
- **DeviceNet Version:** Provides high-speed access to pressure measurement and easy integration with other sensors and controls.
- **Local Display:** The DeviceNet version provides a 3-digit green LED display programmed to display in Torr.
- **Low Power Requirements:** System integration is easy using standard low voltage DC power sources.

With over 35 years of successful field installations, the Convectron gauge has become an industry standard for low vacuum measurement. Unlike traditional thermocouple and Pirani gauges, Convectron gauges take advantage of heat loss due to convection cooling at higher pressure that extends the range of the Convectron's measurement to atmosphere. The performance of this module at atmosphere is now enhanced with the addition of a piezo-resistive diaphragm in the same package. This sensor provides a highly reliable, accurate, and repeatable indication of differential pressure at atmosphere to improve process efficiency and throughput.

Rear View Convectron® ATM Module

Specifications

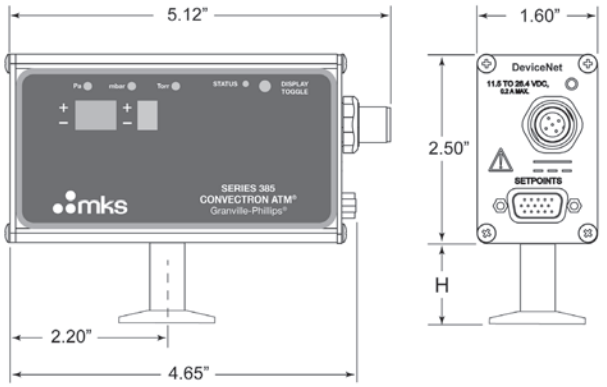
Absolute Pressure Measurement Range (for N_2)[1, 2]	
Torr	$1x10^{-4}$ to 1000
Absolute Pressure Set Point Range	$1x10^{-4}$ to 1000 Torr
Differential Pressure Measuring Range	750 Torr below atmosphere to 250 Torr above atmosphere
Differential Pressure Accuracy	±2.5 Torr +2.5% of Reading
Differential Pressure Set Point Range	750 Torr below atmosphere to 125 Torr above atmosphere
Operating Temperature	0° to 40°C (32° to 104°F) ambient, non-condensing
Storage Temperature	-40°C to 85°C (-40° to 185°F)
DeviceNet Version	ASCII format
Address	0-63 (63 default) switch selectable
Baud Rates	125k, 250k, 500k (Default) switch selectable
Number of Set Points	Four single-pole, single-throw, (SPST) normally open - each can be independently assigned to absolute or differential pressure
Local Display	3-digit green LED, automatic ranging
Units of Measure	Torr
I/O Connector	Male, 15-pin, high-density D-sub
Relay Rating	1A at 30 VDC resistive, or AC non-inductive
Power Required	11 to 26 VDC
DeviceNet Version	3.6 Watts maximum
Mounting Position	Horizontal preferred
Case Material	Aluminum extrusion with powder coat
Convectron Sensor Filament	Gold-plated tungsten
Other Materials Exposed to Vacuum	304 stainless steel, borosilicate glass, Kovar®, alumina, NiFe alloy, polyimide, pyrex, ceramic, silicon, epoxy, RTV, Viton®, and nickel
Internal Volume	35 cm^3 (2.14 $inch^3$)
Weight	340 gm (12 oz) with 1/8 NPT Fitting
Compliance	CE

Notes:
(1) Measurements will change with different gases and mixtures. Correction curves for common gases are provided in the instruction manual.
(2) Convectron ATM modules are not intended for use with flammable or explosive gases.

Ordering Information

Ordering Code Example: 385620-4-GD-T	Code	Configuration
Module		
DeviceNet interface, with display	385620	385620
Set Point Relay		
Four	4	4
Filament		
Gold-plated Tungsten	G	G
Vacuum Connection		
1/4 inch VCR-type female NW16KF NW25KF	Q D E	D
Measurement Units		
Torr	T	T

Ordering Code Example: 385200-GD	Code	Configuration
Replacement		
Gauge	385200	385200
Filament		
Gold-plated Tungsten	G	G
Vacuum Connection		
1/4 inch VCR-type female NW16KF NW25KF	Q D E	D

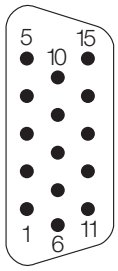


Vacuum Connection	Dim. H
1/4 inch 4VCR®-type female	3.0 (1.2)
NW16KF	3.1 (1.2)
NW25KF	3.1 (1.2)

Dimensional Drawing

Note: Unless otherwise specified, dimensions are nominal values in centimeters (inches referenced).

DeviceNet™ Version



No Connection	5	15	Relay #1 Common
No Connection	4	14	Relay #4 Common
No Connection	3	13	No Connection
No Connection	2	12	Relay #2 Common
No Connection	1	11	Relay #2 N.O.

10	Relay #1 N.O.
9	Relay #4 N.O.
8	No Connection
7	Relay #3 Common
6	Relay #3 N.O.

I/O Pinouts

Male 15-pin high density D-sub

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