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Find the *MKS Instruments 141AA* at our website: ***Click HERE***

Pressure & Vacuum Measurement Solutions

WWW.MKSINST.COM



141 Unheated
142 High Temperature

BARATRON® VACUUM PRESSURE SWITCHES

The 141 and 142 Vacuum/Pressure Switches offer fast, accurate, and reliable protection for vacuum equipment and processes. Designed for applications where a DC signal output is not required, the 141 and 142 provide relay outputs that are readily interfaced with alarms, valve actuators, computers, process controllers, or other protection devices.

Based on the well-known MKS Baratron® capacitance manometer principle of operation, the 141/142 sense the deflection of a diaphragm due to applied pressure, providing a switched output when pressure exceeds the chosen set point. An LED provides visual "above set point" indication, and facilitates adjustment of the set point. The dual electrode sensor is an all-metal, all-welded design, thus exposing only corrosion-resistant Inconel to the process gases.

The 142 is a heated (100°C) version of the 141, and is designed to help minimize process effluent buildup that can occur in LPCVD nitride, aluminum etch, and other types of processes.

Features & Benefits

- Ideal for protection of expensive equipment or processes: high vacuum pumps, mass spectrometers, lasers, plasma systems
- Fully adjustable set point: from 0.2% to 100% of Full Scale
- High accuracy set point: 0.5% of Full Scale
- Corrosion resistant: all-metal, all-welded construction exposes only Inconel® and stainless steel to gases
- Double pole, two Form C relay contacts
- Fast response switching: 20 msec
- Provide inexpensive process control for opening/closing slow pump and isolation valves, and for turning on/off various types of pumps

Specifications and Ordering Information

Full Scale Ranges	1, 2, 10, 100, 1000 Torr (mmHg) absolute[1] (Other engineering units available on special order, consult Applications Engineering.)
Set Point Range	0.2% to 100% of F.S.[2]
Accuracy	±0.5% of range (± temperature coefficients)
Temperature Coefficients	
Zero	141: ±0.04% of F.S./°C 142: ±0.015% of F.S./°C
Span	141: ±0.06% of set point/°C 142: ±0.03% of set point/°C
Ambient Operating Temperature	141: 0° to 50°C 142: 20° to 70°C; sensor is temperature controlled at 100°C
Response Time	< 20 msec from 0 to F.S.
Material Exposed to Process	Inconel and 316 S.S.
Internal Volume[3]	7.0 cc
Overpressure[4]	120% of F.S. or 35 psia (1000 mmHg), whichever is larger
Outputs	
Electromechanical relay	DPDT (isolated) contacts rated at 2 amps @ 30VDC or 1 amp @ 120VAC resistive. Relay is energized when pressure is above set point. Fail-safe operation provides for the relay to be energized when pressure is below set point. For compliance, voltages cannot equal or exceed either 50 VAC or 75 VDC.
Input Power Required	141: +20 to +30 VDC, 72 mA max. (60 mA @ 24 VDC) 142: +20 to + 30 VDC, 1.2 Amps max. (875 mA @ 24 VDC)
Fittings[5]	
Standard	0.5'' (12.7 mm) tubulation
Optional	Swagelok® 8 VCR® (female), mini-CF, NW 16 KF, Swagelok 8 VCO®

[1]If gauge pressure set point actuation is desired on the 141, 142, add SP110-89 to end of ordering code.
[2]Unit shipped with set point at 50% of F.S. unless otherwise specified.
[3]5K–25K Torr units have an 8.5 cc volume.
[4]1 and 2 Torr F.S. units have a max. overpressure of 25 psia.
[5]Ranges above 1000 Torr are available with certain fittings; consult Applications Engineering.

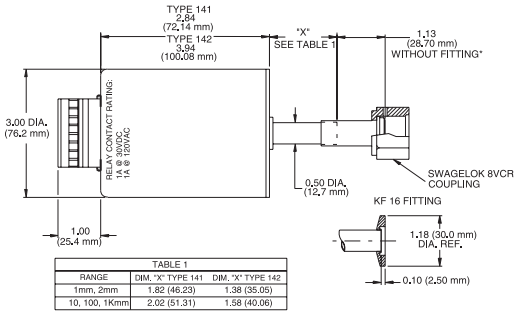
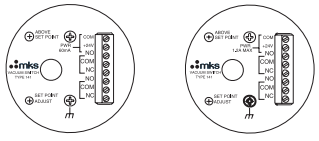


TABLE 1		
RANGE	DIM. "X" TYPE 141	DIM. "X" TYPE 142
1mm, 2mm	1.82 (46.23)	1.38 (35.05)
10, 100, 1Kmm	2.02 (51.31)	1.58 (40.06)



Dimensional Drawing —

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

Ordering Code Example: 141AA-00001AA

141 and 142	Code	Configuration
Numbers	141AA/142AA	141AA
Full Scale Ranges		
1 mmHg	00001	00001
2 mmHg	00002	
10 mmHg	00010	
100 mmHg	00100	
1000 mmHg	01000	
Fittings		
½" dia. tubulation	A	A
Swagelok 8 VCR (female)	B	
Mini-CF, rotatable	C	
NW 16 KF	D	
Swagelok 8 VCO (female)	E	
Relay Mode		
Standard operation (energizes above set point)	A	A
Fail-safe operation (energizes below set point)	B	

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