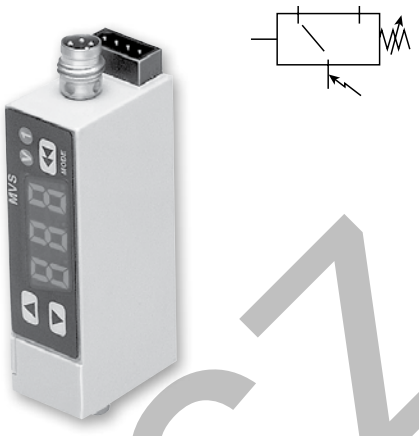
B

The MVS-201 is a winning combination with the MC2, CVR-2, and CVK vacuum generators. The MVS-201 automatically provides an output signal for the blow-off function without the need of an additional output from the PLC. Begin the vacuum cycle with an output signal from the PLC to the "201" sensor. The "201" sensor has one NPN or PNP output for vacuum confirmation and a control output that interfaces directly with the blow-off release pilot valve. With programmable time control features and a special chip driver, the sensor automatically activates the blow-off release when the NPN or PNP vacuum signal from the PLC is discontinued. This eliminates, THE PREVIOUSLY REQUIRED, PLC output to activate the blow-off release This technology eliminates PLC output requirements by 50% and reduces installation to a simple 4 wire system by wiring the sensor only. There are 3 modes of operation for various applications. The output response time of the sensor is less than 2.5 msec. Peak limit prevention maintenance feature is automatically recorded internally.

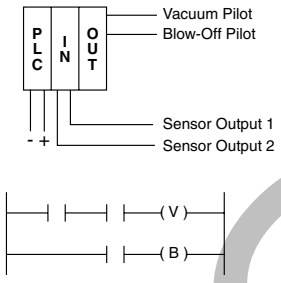


For use with MC22 / MC72 generators

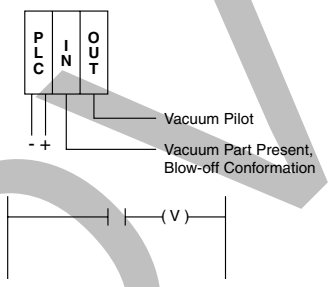
Features

- Time controlled sensor
- Intelligent simple 4-wire system
- Eliminate I/O for release valve
- 2 functions with one rung of code
- Automatic timer (0-9.9 Sec.) function by sensor control driver for vacuum generating and release valves
- Peak value preventative maintenance confirmation
- Response time less than 2 milliseconds

Basic PLC System



PLC System with 201 Sensor



Programming options

Outputs change N.O. / N.C.	✔
Units of measure change	✔
Hysteresis mode	✔
Lockout option	✔
Zero reset	✔
Energy savings mode	✔
Air conservation / blow-off timer	✔
Vacuum timer option	✔
Signal controlled vacuum	✔
Blow-off activation timer	✔
Blow-off timer	✔
Vacuum confirmation signal	✔
Blow-off confirmation signal	✔
Peak vacuum error message	✔
Vacuum response error message	✔
Blow-off time error message	✔

MVS-201 Ordering numbers

Pressure range	Output circuit	Input circuit	Electrical connector *	Part number
-1 to 5 bar	PNP sourcing	PNP sourcing	4 Pin, M8	MVS-201-PCP
	NPN sinking	NPN sinking		MVS-201-NC

* Requires sensor to valve electrical connector

Note:
Output Circuit provides vacuum and blow-off confirmation signal (Input Signal to PLC).
Input Circuit controls vacuum solenoid valve (Output Signal from PLC).

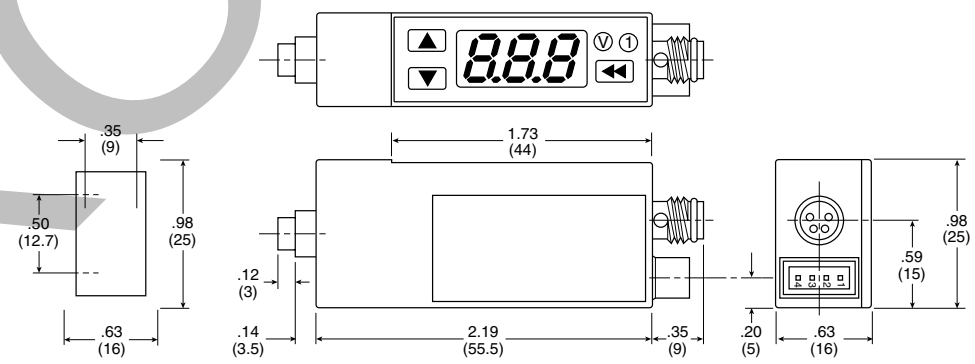
Sensor to valve electrical connector

Generator series	Sensor connection	Valve connection	Part number
MC22	5 Pin Clip Type	2 with clip type	MC22-C201G
MC72		2 wire leads	CVK-D201G

Specifications

Pressure range	Compound pressure: -1 to 5 bar (-14.7 to 72.5 PSI)
Units of measure **Display resolution**	bar: 0.01 kPa: 1 kgf/cm²: 0.01 PSI: 0.1
Media	Non-lubricated air and non-corrosive gases
Proof pressure	8 bar (116 PSI)
Operating temperature	0°C to 50°C
Storage temperature	-10°C to 60°C
Humidity	35 to 85% RH
Electrical connection	**(C)** 4-Pin, M8 connector
Power supply	10.8 to 30VDC, Ripple Vp-p 10% Max., Reverse voltage protection
Display	3-Digit, 7-Segment LED
Display frequency	5Hz
Circuit	NPN (Sinking), PNP (Sourcing) open collector transistor
Digital output	Individually selectable N.O. or N.C., max 125mA, 30V, with overcurrent protection
Mode	OP1, OP2, OP3 hysteresis: 0 to 100% of switch point
Response time	< 2ms
Repeatability	± 0.3% F.S.
Thermal error	±0.2% F.S. in temperature range: 0°C to 50°C
General protection	IP40, CE marked, EMC-EN55011 Class B, EN50082-1
Current consumption	< 45mA, < 25mA when utilizing screen saver option
Spike protection	350 Vp, 1, µs
Dielectric strength	1000 VAC 1 min.
Insulation resistance	> 100M ohms at 500VDC
Vibration resistance	10 to 55Hz, 1.5mm, XYZ, 2 hrs.
Shock resistance	10 G, XYZ
Material	Body: Polycarbonate
Mass	45g

Dimensions
M8, 4-Pin



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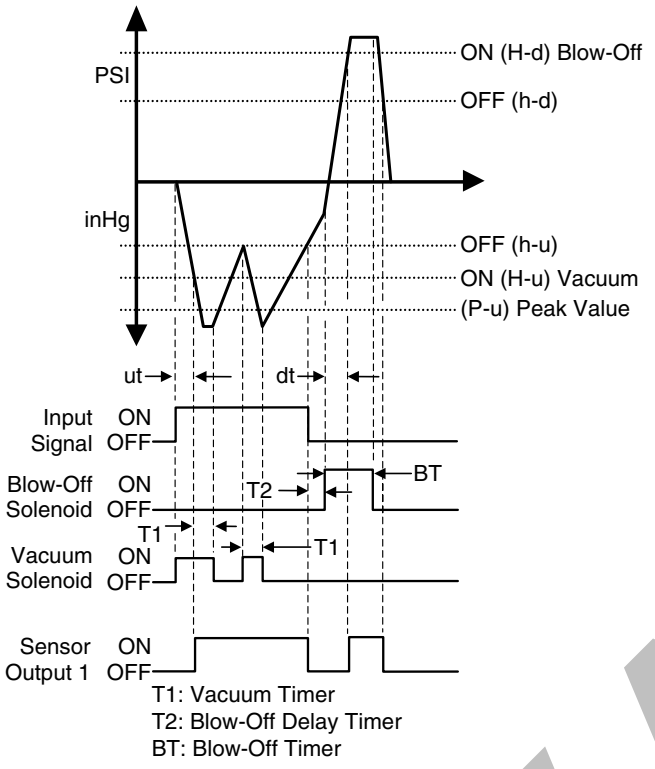
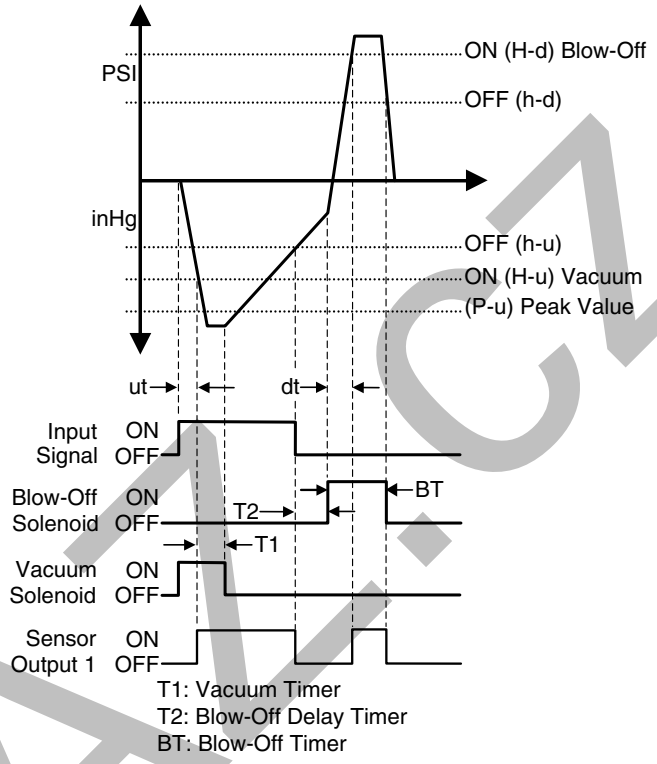
Operating modes

Mode: OP1 "Air Conservation / Timer



Mode: OP2 "Vacuum Timer Option"



Timer mode OP1

"Air conservation / Vacuum valve timer"
This Vacuum valve control with the use of timing features conserves air consumption via the vacuum generator non-return check valve and sensor hysteresis function. Vacuum time **(t1)** can be used to control the vacuum valve for a specific length of time (0.0-9.9 sec.) after output 1 vacuum level is reached. The vacuum timing function **(t1)** will remove the signal from the sensor to the vacuum valve allowing the generator check valve system to conserve air consumption and vacuum. The vacuum valve will re-open for the same length of time **(t1)** when the pressure level drops to the hysteresis setting **(h-v)**. The operation will continue until the input signal is stopped. Optional delay timer between vacuum / blow-off **(t2)** and blow-off **(bt)** timer is available. After selecting **OP1**, set **bt**, **t1**, and **t2** values by using arrow **"UP"** and **"DOWN"** keys. To bypass any of these timing function operations, simply enter 0.00 seconds and the sensor will automatically proceed to the next function.

Timer mode OP2

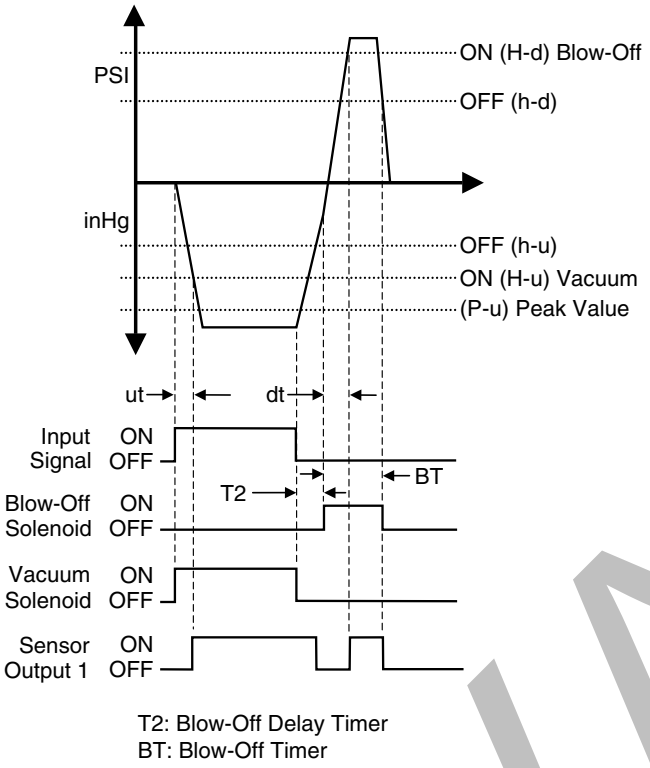
"Vacuum valve timer"
This mode is ideal for use with CONVUM generators without check valves. Vacuum timer **(t1)** can be used to control the vacuum for a specific length of time (0.00 – 9.9sec.) after output 1 is reached. Optional delay timer between vacuum / blow-off **(t2)** and blow-off **(bt)** timer is available. After selecting **OP2**, set **bt**, **t1**, and **t2** values by using arrow **"UP"** and **"DOWN"** keys. To bypass any of these timing function operations, simply enter 0.00 seconds and the sensor will automatically proceed to the next function.

Note:
Output Circuit provides vacuum and blow-off confirmation signal (Input Signal to PLC).
Input Circuit controls vacuum solenoid valve (Output Signal from PLC).

Operating modes

Mode: OP3 "Signal Controlled Vacuum"

H-V / H-d: Switchpoints
h-v / h-d: Switchpoints
P-V: Peak Value



T2: Blow-Off Delay Timer
BT: Blow-Off Timer

Timer mode OP3

"Signal controlled vacuum"
The vacuum timer option **(t1)** is omitted and the PLC controls the input signal time for the vacuum operation. The delay timer between vacuum / blow-off **(t2)** and the blow-off **(bt)** timers are still available. After selecting **OP3**, set **bt** and **t2** values by using arrow **"UP"** and **"DOWN"** keys. To bypass any of these timing function operations, simply enter 0.00 seconds and the sensor will automatically proceed to the next function.

Note:
Output Circuit provides vacuum and blow-off confirmation signal (Input Signal to PLC).
Input Circuit controls vacuum solenoid valve (Output Signal from PLC).

Additional sensor features

(Available in all operating modes)

Screen saver function
This reduces current consumption by 20mA and will activate after 10 seconds.

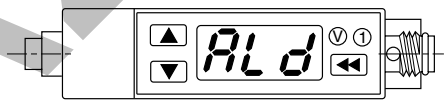
Peak value level (P-v)

The sensor records this value for preventative maintenace issues. If this value is not reached the sensor will display an error message **(ALP)** indicating leaks or wear in the system.

Vacuum level response time (ut)

The sensor records the time (sec) to reach Output 1 and will display an error message **(ALu)** indicating Output 1 has not been reached within the acceptable time (sec) set by the user.

Blow-off time (dt)



The sensor records the time (sec) to complete blow-off cycle and will display an error message **(ALd)** indicating (dt) has not reacting within the acceptable time (sec) set by the user.

B

B

Wiring diagram

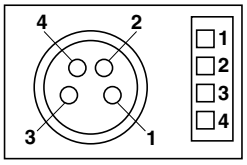
M8 Pin #

1 Brown: 24VDC
2 White: Input; NPN (0VDC) / PNP (24VDC)
3 Blue: 0VDC
4 Black: Output; NPN / PNP Open Collector Output

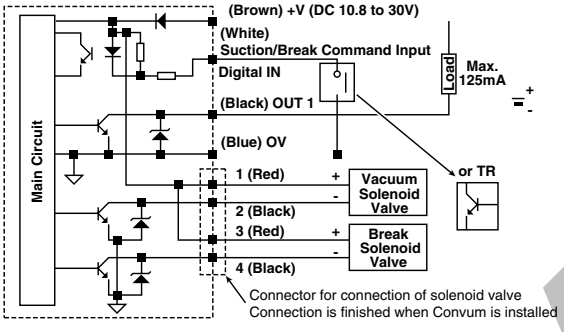
201 Pin #

1 Red: Vacuum Solenoid Valve + V
2 Black: Gnd
3 Red: Blow-Off Solenoid Valve + V
4 Black: Gnd

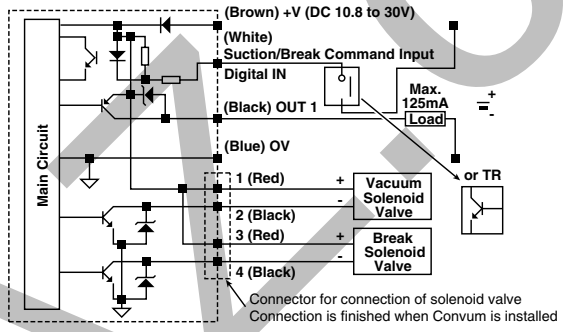
Sensor male pin out



Internal circuit



Output / Input NPN sinking



Output / Input PNP sourcing

⚠ Cautions

The MVS-201 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.

The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating environment

- Parker Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

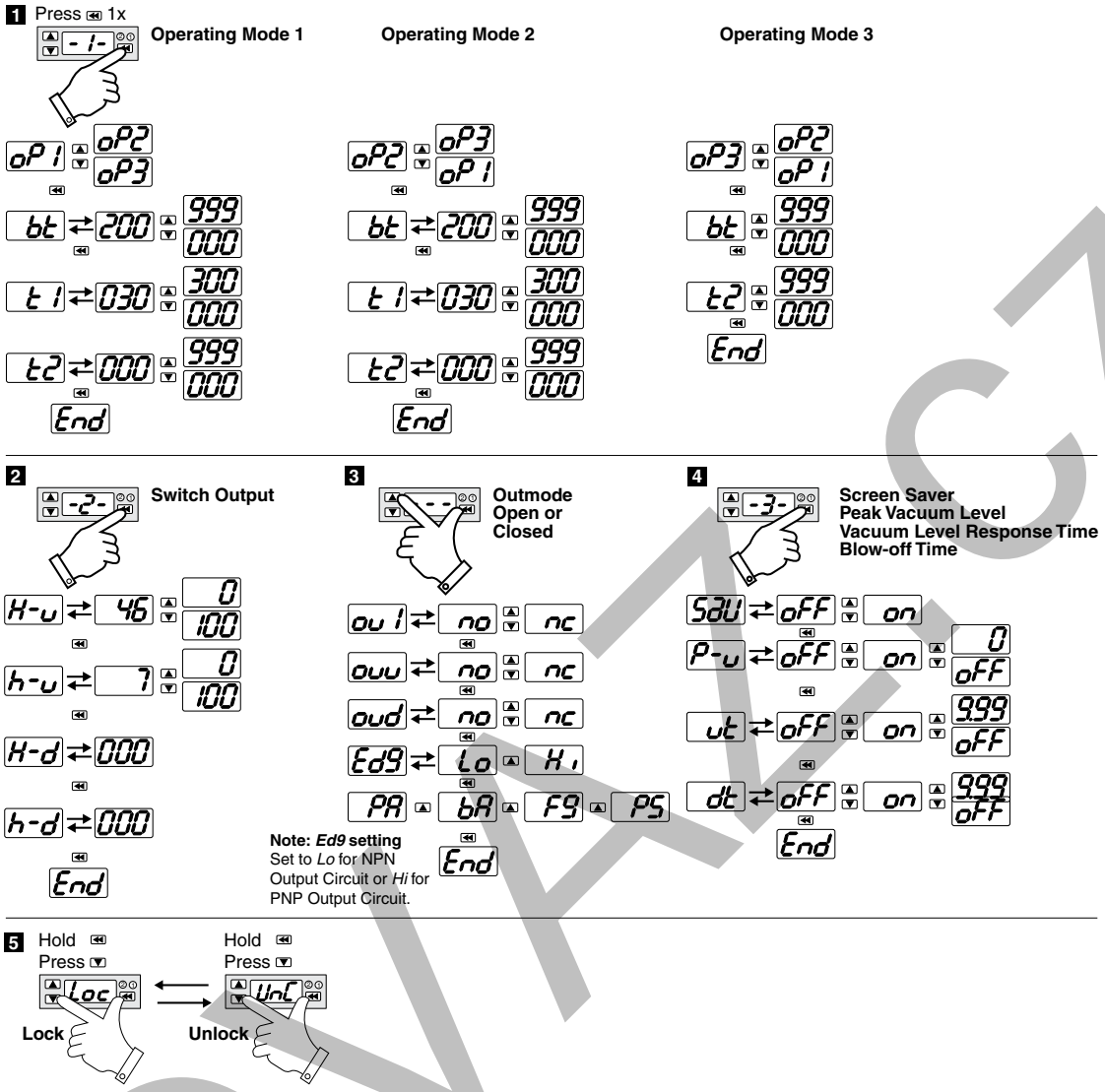
- Dedicate a power supply of 10.8 to 30VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.

Error messages

Display	Description	Solutions
Err	Zero reset error	Reset zero below 3% of F.S.
Er1	System error (Internal)	Contact factory
CE1	Over current of Output 1	Load current exceeds maximum 125mA.
FFF –FF	Applied pressure exceeds pressure range	Apply pressures within the rating of the sensor



Programming symbols legend

oP1	Operation 1: Air Conservation / Timer	ALd	Error Message - Blow-off Time
oP2	Operation 2: Vacuum Timer Option	ou1	Output 1
oP3	Operation 3: Signal Controlled Vacuum	ouu	Vacuum Valve (Leave NO)
bt	Blow-Off Timer	oud	Blow-off Release Valve (Leave NO)
t1	Controlled Vacuum Signal with Timer	Sdu	Screen Saver Function
t2	Blow-Off Activation Timer	P-u	Peak Vacuum Level Recorder (P-v)
Hu	Switch Output Value (H-v)	ut	Vacuum Response Time Recorder
hu	Switch Output Hysteresis Value (h-v)	dt	Blow-Off Time Recorder
Hd	Blow-off Output Value (H-d)	no	Normally Open
hd	Blow-off Output Hysteresis Value (h-d)	nc	Normally Closed
ALP	Error Message - Peak Vacuum Level	Ed9	Low or High Signal to Vacuum Valve
ALu	Error Message - Vacuum Response Time		