

# Gas Pressure Switch for DMV safety shutoff valves

GAO-A2...  
GMH-A2...  
GML-A2...

**DUNGS®**  
Combustion Controls



#### UL Listed

- UL 353
- File # MH 16628

#### CSA Certified

- CSA C22.2 No. LR 53222
- File # 201527

#### FM Approved

- Class 3510, 3530
- File # J.I. 1Y9A9.AF

#### Commonwealth of Massachusetts Approved Product

- Approval code G3-0106-191
- Gas pressure switch

#### Codes and Standards

This product is intended for installations covered by but not limited to NFPA 85, NFPA 86, UL 795, CSD-1, ANSI Z83.4, ANSI Z83.18, ANSI Z21.13, CSAB149.1, CSAB149.3 and CSA B149.6.

#### DUNGS is an ISO 9001 manufacturing facility.



#### Description

The GAO-, GMH-, and GML-A2... pressure switches are compact, ventless gas pressure switches for modular valve train components.

These pressure switches are suitable for making and/or breaking a circuit when the medium pressure changes relative to the set point. The set point can be set in the field by an adjustable dial with an integrated scale. The switches incorporate a vent limiter as per UL 353 and limits the escape of gas less than 1.0 CFH of natural gas at 7 PSI if internal switch diaphragm ruptures.

#### Application

The GAO-, GMH-, and GML-A2... pressure switches are recommended for industrial and commercial heating applications with DMV dual modular valves, SV safety valves, MBC multifunctional controls, and FRI modular pressure regulators. Various mounting options allow direct mounting on the housing.

The GAO-, GMH-, and GML-A2... pressure switch is suitable for dry natural gas, propane, butane, air and other inert gases. Suitable for up to 0.1 % by volume, dry H<sub>2</sub>S.

A “dry” gas has a dew point lower than +15 °F and its relative humidity is less than 60 %.

**GAO-A2...** SPDT pressure switch requires no auxiliary power to actuate. The GAO-A2... is suitable for making and/or breaking a circuit when the set point is exceeded or undershot. A tripped switch is indicated by a neon light after set point is exceeded or undershot. Automatic reset when pressure returns below or above set point.

**GMH-A2...** SPDT pressure switch requires no auxiliary power to actuate. The GMH-A2... is suitable for making and/or breaking a circuit when the set point is exceeded. A tripped switch is indicated by a neon light after set point is exceeded. Manual reset is required to reset the switch.

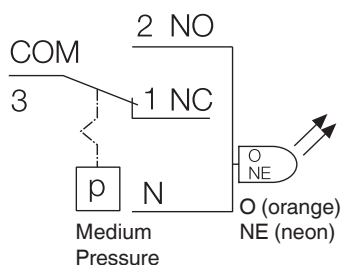
**GML-A2...** SPDT pressure switch requires no auxiliary power to actuate. The GML-A2... is suitable for making and/or breaking a circuit when the set point is undershot. A tripped switch is indicated by a neon light after set point is undershot. Manual reset is required to reset the switch.

## Specifications

Max. operating pressure	GAO-A2-4-2,3,5,6	7 PSI (500mbar)
	GMH- and GML-A2-4-4,6	7 PSI (500mbar)
	GAO-, GMH- and GML-A2-4-8	14 PSI (1000 mbar)
Pressure connection	O-ring flange connection on underside of pressure switch	
Temperature range:		
For series ending in -2,-3,-5, and -6	Ambient temperature	-40 °F to +140 °F (-40 °C to +60 °C)
	Medium temperature	-40 °F to +140 °F (-40 °C to +60 °C)
For series ending in -8	Ambient temperature	-22 °F to +140 °F (-30 °C to +60 °C)
	Medium temperature	-22 °F to +140 °F (-30 °C to +60 °C)
Materials	Housing	Aluminium
	Switch	Polycarbonate
	Diaphragm	NBR-based rubber
	Switching contact	Silver or Gold
Electrical ratings	AC eff.	min. 24 V max. 240 V
	DC	min. 24 V max. 48 V
Nominal current	Silver (Ag) contact ratings	Gold (Au) contact ratings
	AC 10 A resistive @ 120 VAC	
	AC 8 A inductive @ 120 VAC	
	DC min. 20 mA @ 24 VDC	DC max. 5 mA @ 5 VDC
	DC max. 1 A @ 12 - 48 VDC	DC max. 20 mA @ 24 VDC
Indication light	0.30 W energy consumption	
Electrical connection	Screw terminals via 1/2" NPT conduit connection	
Enclosure rating	NEMA Type 4	
Setting tolerance	±15% switching point deviation referred to set point. Adjusted as pressure rises or as pressure falls, vertical diaphragm position.	
Vent Limiter	Incorporates a vent limiter as per UL 353 and limits the escape of gas less than 1.0 CFH of natural gas at 7 PSI if internal switch diaphragm ruptures.	

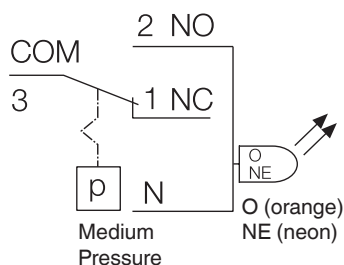
### GAO (Shown as a high gas limit)

**As pressure rises** above set point, 1 NC opens, 2 NO closes, Neon light ON (fault). **As pressure falls** below setpoint, switch resets: 1 NC closes and 2 NO opens, Neon light off.



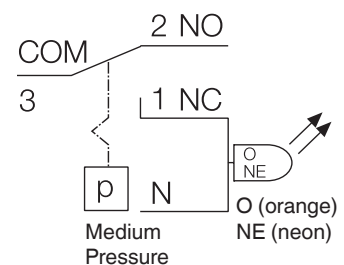
### GMH (Operating state shown)

**As pressure rises**, 2 NO closes, 1 NC opens, and Neon light ON (fault), switch trips and locks out.

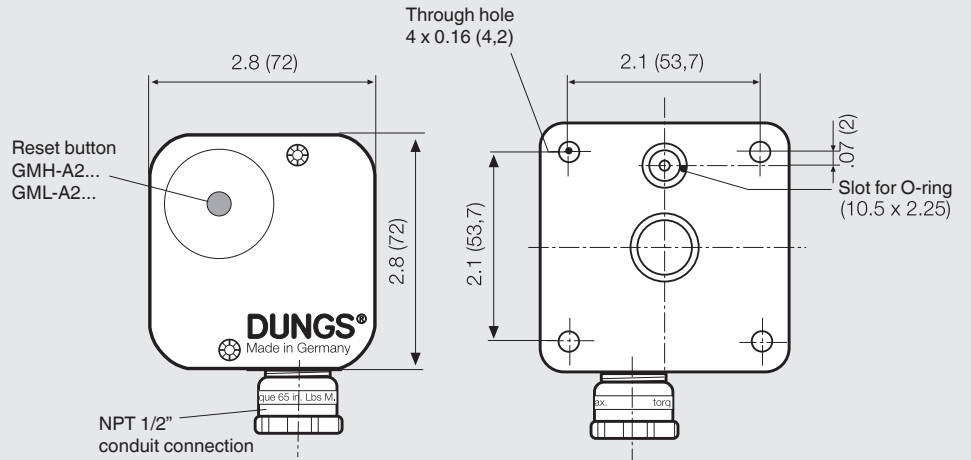
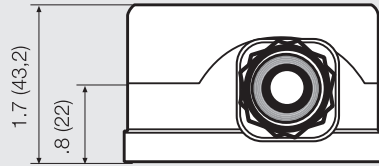


### GML (Operating state shown)

**As pressure falls**, 2 NO opens, 1 NC closes, Neon light ON (fault), switch trips and locks out.



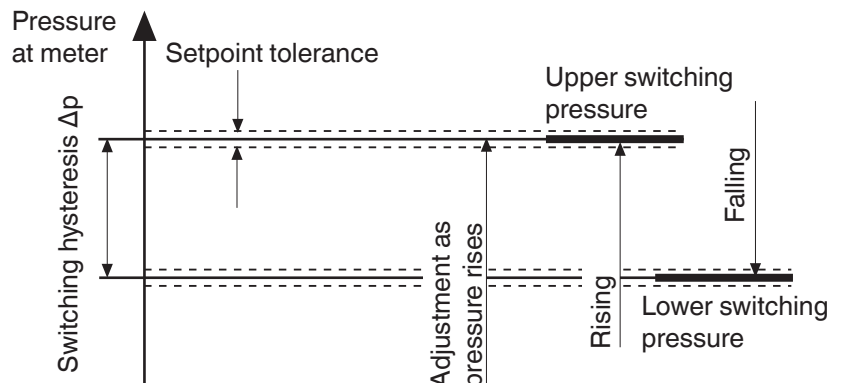
**Dimensions inch (mm)  
GAO-, GMH-, GML-A2...**



Adapters / Replacement parts / Accessories	Order No.	For equipment	Notes
A2 Mounting kit (included with switch)	226-188	GAO, GMH, GML	M4 Screws, 10.5 x 2.25 O-ring
DMV & MBC Port 3 adapter (side mount for high pressure switch)	214-975	DMV-D(LE) 701 - 703 MBC series 1000 - 4000	NPT 1/2" - NPT 2"
Replacement conduit adapter	220-566	GAO, GMH, GML	PG 11 to 1/2" NPT adapter
Replacement conduit adapter	240-671	GAO, GMH, GML	M 20 to 1/2" NPT adapter
Replacement cover	228-732	GAO	
Replacement cover	233-113	GMH, GML	
Screw for replacement cover	237-675		
Replacement light (standard)	244-156	GAO, GMH, GML	120 VAC, yellow bulb
Replacement light	244-157	GAO, GMH, GML Gold contact versions	24 VAC/VDC, yellow bulb
Electrical plug for A2 (For usw with 210-318)	219-659	GAO	
Electrical plug for A2 (For usw with 210-318)	227-644	GMH, GML	
DIN connector for A2 (For use with 219-659 or 227-644)	210-318	GAO, GMH, GML	

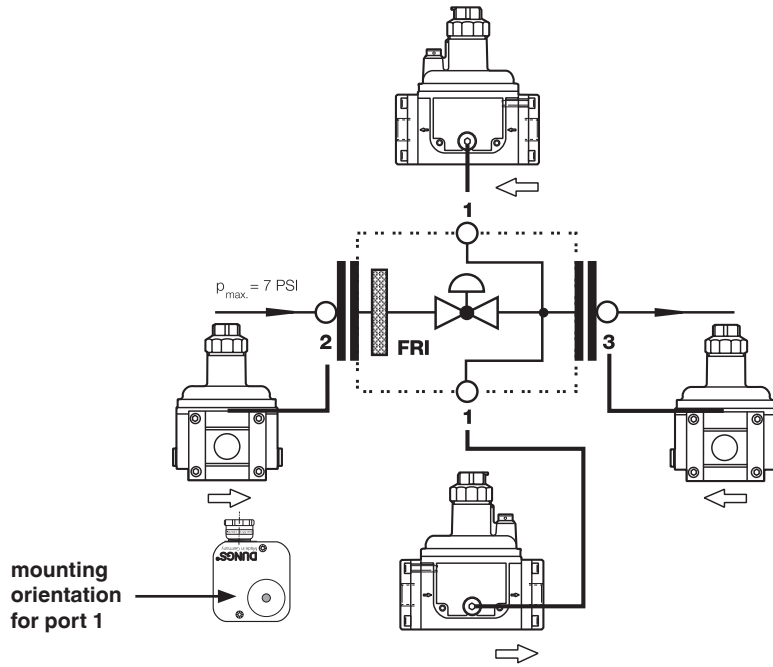
**Definition of switching hysteresis  $\Delta p$**

The pressure difference between the upper and lower switching pressures.



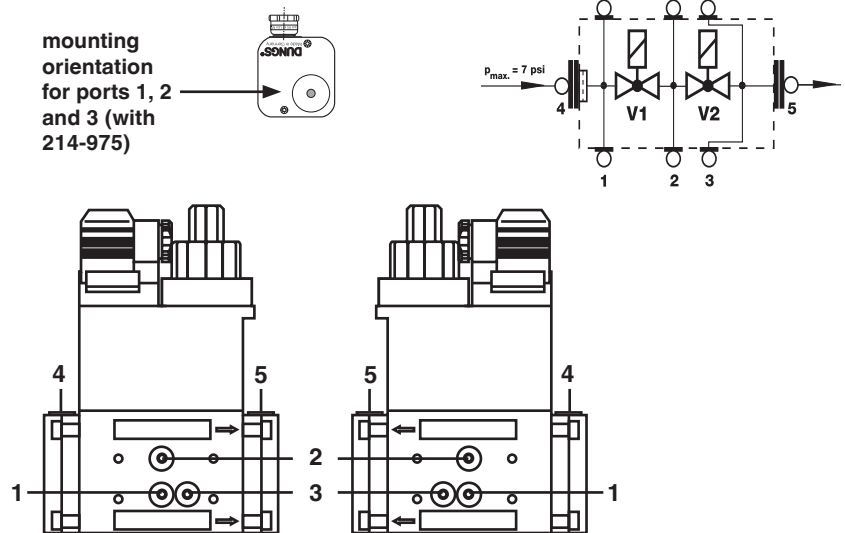
**A2 mounting options**  
**FRI gas pressure regulator**

Pressure tap	Mounting possible?
1	yes
2	yes
3	yes



**A2 mounting options**  
**DMV 701 - 703 Dual modular valve**

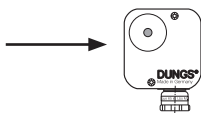
Pressure tap	Mounting possible?
1	yes
2	yes
3	yes, with # 214-975
4	yes, horizontal yes, vertical with #225-047
5	yes, horizontal yes, vertical with #225-047



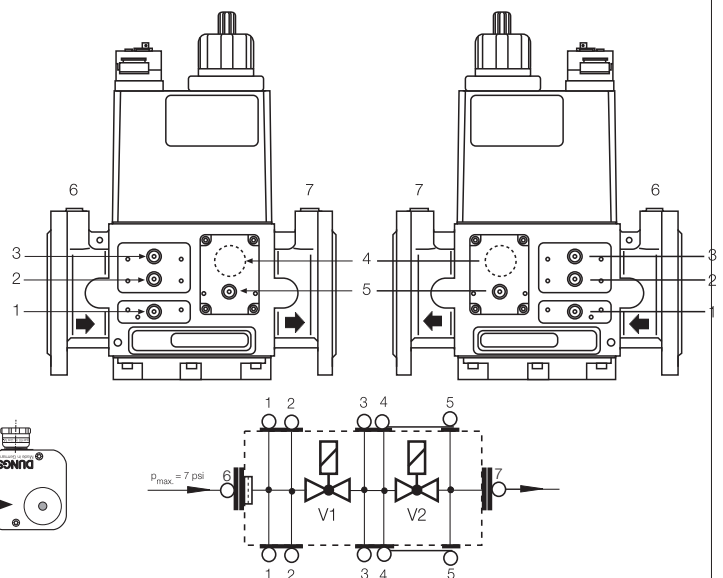
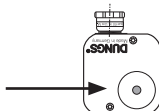
**A2 mounting options**  
**DMV 525,5040 - 5125/11**  
**Dual modular valve**

Pressure tap	Mounting possible?
1	yes
2	yes
3	yes
4	yes
5	no
6	no

mounting orientation for port 1



mounting orientation for ports 2, 3 and 4



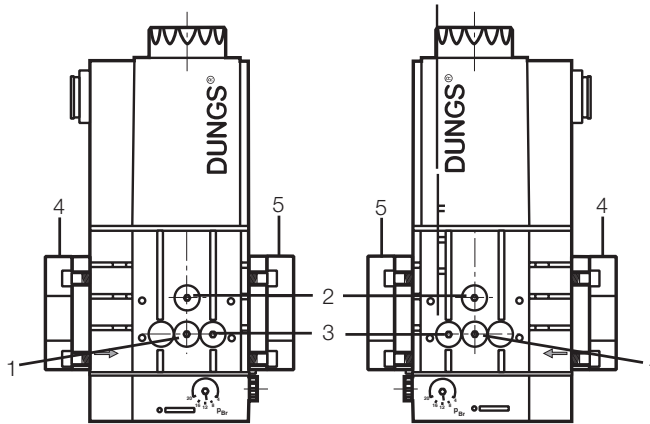
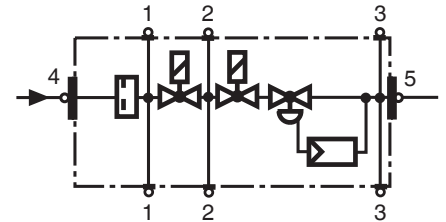
**A2 mounting options  
MBC series multifunctional control**

Pressure tap	Mounting possible?
1	yes
2	yes
3	yes, with # 214-975
4	yes, horizontal yes, vertical with #225-047
5	yes, horizontal yes, vertical with #225-047

mounting orientation for ports 1, 2 and 3 (with 214-975)



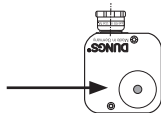
**MBC ports**



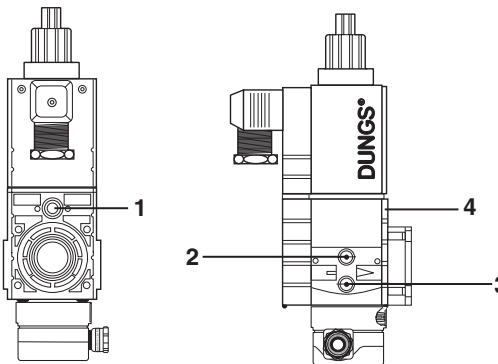
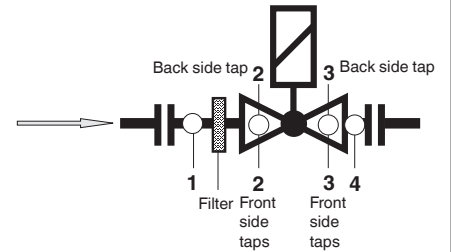
**A2 mounting options  
SV 1005 and SV 1007 series safety valve**

Pressure tap	Mounting possible?
1	no
2	yes
3	no
4	no

mounting orientation for port 2



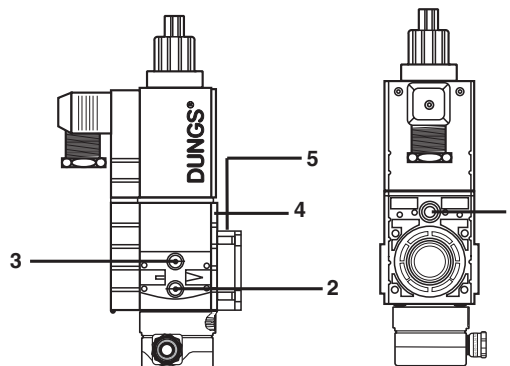
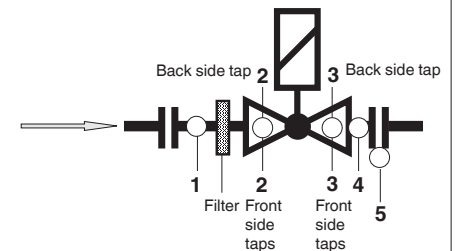
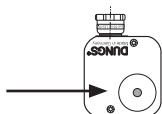
**SV 1005 and SV 1007 Series ports  
(pressure switch only mounts to upstream port #2)**



**A2 mounting options  
SV 1010, SV 1012, SV 1015, and SV 1020 series safety valve**

Pressure tap	Mounting possible?
1	yes
2	yes
3	yes
4	no
5	yes

mounting orientation for ports 2 and 3



**Gas Pressure Switch  
for DMV safety shutoff valves**

**GAO-A2...  
GMH-A2...  
GML-A2...**



Type	Version	Order No.	Setting range in. W.C.	Switching hysteresis in. W.C.	Factory Calibration
<b>GAO-A2... pressure switch</b>	GAO-A2-4-2	217-085A	0.16 - 1.20	≤ 0.12	
	GAO-A2-4-3	217-086A	0.40 - 4.00	≤ 0.20	
	GAO-A2-4-5	217-087A	2.00 - 20.00	≤ 0.40	
	GAO-A2-4-6	217-088A	12.00 - 60.00	≤ 1.2	
	GAO-A2-4-8	217-089A	40.00 - 200.00	≤ 4.0	
<b>GMH-A2... pressure switch</b>	GMH-A2-4-4	217-323A	1.00 - 20.00	--	
	GMH-A2-4-6	217-324A	12.00 - 60.00	--	
	GMH-A2-4-8	217-325A	40.00 - 200.00	--	
<b>GML-A2... pressure switch</b>	GML-A2-4-4	217-337A	1.00 - 20.00	--	
	GML-A2-4-6	217-338A	12.00 - 60.00	--	
	GML-A2-4-8	217-339A	40.00 - 200.00	--	
<b>All switches have 120 VAC neon lights factory installed</b>					

We reserve the right to make any changes in the interest of technical progress.



**Karl Dungs Inc.**  
3890 Pheasant Ridge Drive NE  
Suite 150  
Blaine, MN 55449, U.S.A.  
Phone 763 582-1700  
Fax 763 582-1799  
e-mail [info@karldungsusa.com](mailto:info@karldungsusa.com)  
Internet <http://www.dungs.com/usa/>

**Karl Dungs GmbH & Co. KG**  
P.O. Box 12 29  
D-73602 Schorndorf, Germany  
Phone +49 (0)7181-804-0  
Fax +49 (0)7181-804-166  
e-mail [info@dungs.com](mailto:info@dungs.com)  
Internet <http://www.dungs.com>