

# Pressure switch for gas and air

**GAO-A4...**  
**GMH-A4...**  
**GML-A4...**

**DUNGS®**  
Combustion Controls



## UL Listed

- UL 353
- File # MH 16628

## CSA Certified

- CSA C22.2 No. LR 53222
- Certification file # 201527

## FM Approved

- Class 3510, 3530
- File # J.I. 1Y919.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, and CSA B149.3.

## DUNGS is an ISO 9001 manufacturing facility.



## Description

The GAO-, GMH- and GML-A4... ventless pressure switches are adjustable pressure switches for automatic burner controls.

A4 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. Test nipple integrated in metal housing to verify set point.

## Application

The GAO-, GMH-, and GML-A4... pressure switch is recommended for industrial and commercial heating, ventilation and air-conditioning systems.

The GAO-, GMH-, and GML-A4... pressure switch is suitable for natural gas, propane, butane, air and other inert gases. Suitable for up to 0.1% by volume, dry H<sub>2</sub>S.

**GAO-A4...** SPDT pressure switch requires no auxiliary power. The GAO-A4... 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.

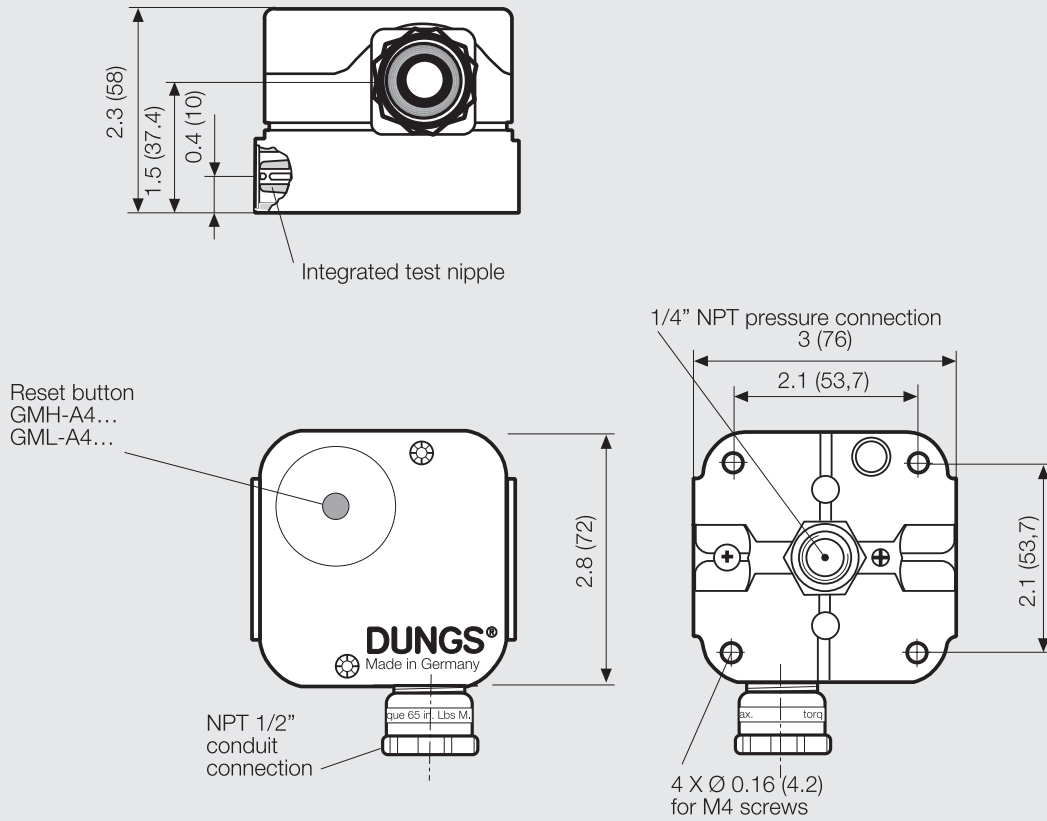
**GMH-A4...** SPDT pressure switch requires no auxiliary power. The GMH-A4... is suitable for making and/or breaking a circuit when the set point is exceeded. A tripped switch is indicated by a neon light after set point is exceeded. Manual reset is required to reset the switch.

**GML-A4...** SPDT pressure switch requires no auxiliary power. The GML-A4... 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-A4-4-2,3,5,6	7 PSI (500mbar)
	GMH-, GML-A4-4-4,6	7 PSI (500mbar)
	GAO-, GMH- and GML-A4-4-8	14 PSI (1000 mbar)
Max. body pressure	15 PSI (1033 mbar)	
Pressure connection	Standard: 1/4" NPT female thread centered underside of housing.	
Temperature range		
GAO-, GMH- and GML-A4-4	Ambient temperature	-40 °F to +140 °F (-40 °C to +60 °C)
	Medium temperature	-40 °F to +140 °F (-40 °C to +60 °C)
GAO-, GMH- and GML-A4-4-8	Ambient temperature	-20 °F to +140 °F (-30 °C to +60 °C)
	Medium temperature	-20 °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
Current ratings	Silver (Ag) contact ratings	Gold (Au) contact ratings
	AC 10A resistive @ 120 VAC	
	AC 8A inductive @ 120 VAC	
	DC min. 20mA @ 24 VDC	DC min. 5mA @ 5 VDC
	DC max. 2A @ 24 VDC	DC max. 20mA @ 24 VDC
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 to less than 1.0 CFH of natural gas at 7 PSI if internal switch diaphragm ruptures.	

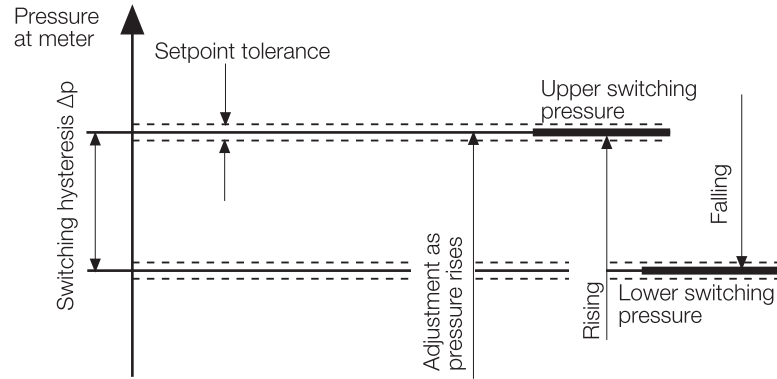
**Dimensions inch (mm)  
GAO-, GMH-, GML-A4...**



Replacement parts/Accessories	Order No.	For equipment	Notes
Replacement conduit adapter	220-566	GAO, GMH, GML	1/2" NPT
Replacement cover	228-732	GAO	
Replacement cover	233-113	GMH, GML	
Replacement light	244-156	GAO, GMH, GML	120 VAC, orange
Replacement light	244-157	GAO, GMH, GML Gold contact versions	24 V, orange
Replacement conduit adapter	240-671	GAO, GMH, GML	Pg 11 to 1/2" NPT adapter
Replacement conduit adapter	220-566	GAO, GMH, GML	M20 to 1/2" NPT adapter
Electrical plug for A4 (For use with 210-318)	219-659	GAO	
Electrical plug for A4 (For use with 210-318)	227-644	GMH, GML	
DIN connector for A4 (For use with 219-659 & 227-644)	210-318	GAO, GMH, GML	

## Definition of switching hysteresis $\Delta p$

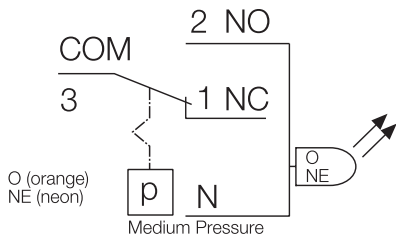
The pressure difference between the upper and lower switching pressures



## Switch Operation

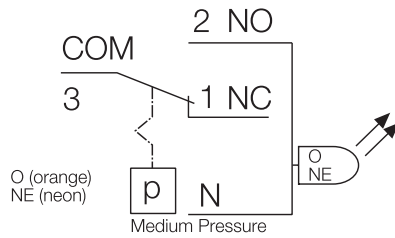
### GAO (Operation state shown as a high limit)

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



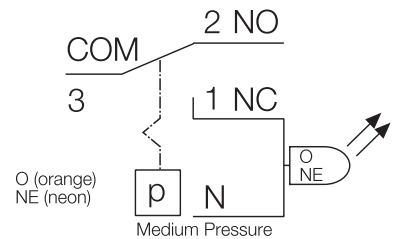
### GMH (Operating state shown)

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

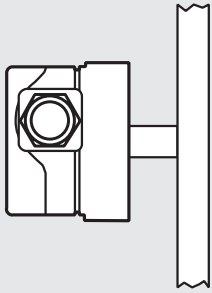


### GML (Operating state shown)

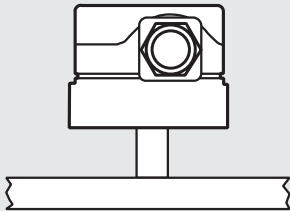
**As pressure falls**, 2 NO opens, 1 NC closes, Neon light ON (fault), switch trips and locks out.



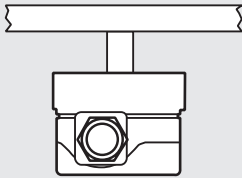
## Installation position



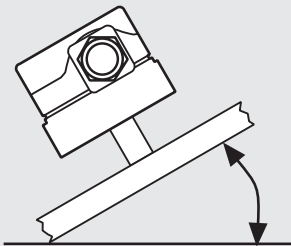
**Standard installation position**



**When installed horizontally, the pressure switch switches at a pressure higher by approximately 0.2 in. W.C. (0.5 mbar).**



**When installed upside down, the pressure switch switches at a pressure lower by approximately 0.2 in. W.C. (0.5 mbar).**



**When installed in other position the pressure switch switches at pressure deviating from the set reference value by max.  $\pm 0.2$  in. W.C. (0.5 mbar).**



**NOTE: Always calibrate the switch in the desired mounting position**

**Pressure switch  
for gas and air**

**GAO-A4...  
GMH-A4...  
GML-A4...**



Type	Version	Order No.	Setting range in. W.C.	Switching Hysteresis in. W.C	Factory Calibration
<b>GAO-A4... pressure switch</b>	GAO-A4-4-2	217-090A	0.16 - 1.20	≤ 0.12	
	GAO-A4-4-3	217-091A	0.40 - 4.00	≤ 0.20	
	GAO-A4-4-5	217-092A	2.00 - 20.00	≤ 0.40	
	GAO-A4-4-6	217-093A	12.0 - 60.0	≤ 1.2	
	GAO-A4-4-8	217-094A	40.0 - 200.0	≤ 4.0	
	GAO-A4-4-2 Gold	223-525A	0.16 - 1.20	≤ 0.12	
	GAO-A4-4-3 Gold	222-267A	0.40 - 4.00	≤ 0.20	
	GAO-A4-4-5 Gold	222-268A	2.00 - 20.00	≤ 0.40	
	GAO-A4-4-6 Gold	222-269A	12.0 - 60.0	≤ 1.2	
	GAO-A4-4-8 Gold	223-526A	40.0 - 200.0	≤ 4.0	
<b>GMH-A4... pressure switch</b>	GMH-A4-4-4	217-326A	1.00 - 20.00	--	
	GMH-A4-4-6	217-327A	12.0 - 60.0	--	
	GMH-A4-4-8	217-328A	40.0 - 200.0	--	
	GMH-A4-4-4 Gold	222-270A	1.00 - 20.00	--	
	GMH-A4-4-6 Gold	222-271A	12.0 - 60.0	--	
<b>GML-A4... pressure switch</b>	GML-A4-4-4	217-340A	1.00 - 20.00	--	
	GML-A4-4-6	217-341A	12.0 - 60.0	--	
	GML-A4-4-8	217-342A	40.0 - 200.0	--	
	GML-A4-4-4 Gold	222-272A	1.00 - 20.00	--	

**All switches with Silver contacts have 120 VAC neon lights factory installed**  
**All switches with Gold contacts have 24 V lights factory installed**

**Accessories for pressure switch    Order No.**

Replacement cover (screws not included)	228-732 (for GAO switches) and 233-113 (for GMH and GML switches)
Screw for replacement cover	237-675
PG11 - 1/2" NPT conduit adapter	220-566
120VAC neon light (orange)	244 156
24VAC/VDC light (orange)	244-157
DIN connector (female plug)	210-318
Male plug for DIN connector	219-659 (for GAO switches) and 227-644 (for GMH and GML switches)

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

**Karl Dungs Inc.**  
**524 Apollo Drive, Suite 10**  
**Lino Lakes, MN 55014, U.S.A.**  
**Phone 651 792-8912**  
**Fax 651 792-8919**  
**e-mail 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**  
**Internet http://www.dungs.com**