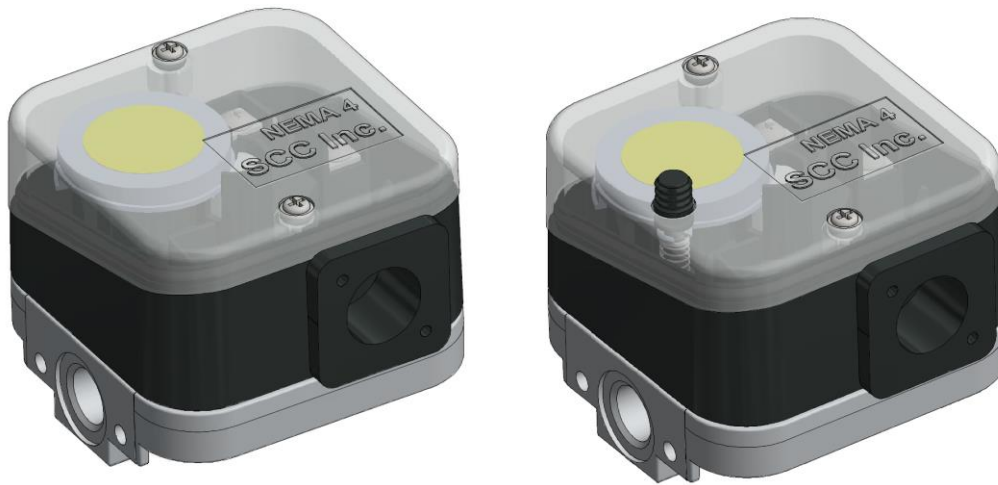


QPx32... Series

QPx32... Pressure Switches



Description

QPx32... series gas pressure switches detect high or low gas pressure conditions when used with natural gas, propane, butane, hydrogen, biogas, or air.

Features

- Maximum operating pressure of 15 psig (1 bar) for all models
- Ventless operation to 7 psig (500 mbar)
- cUL_{us} and FM approved for natural gas, propane, butane, or air
- Plastic used in switch body carries UL V0 flammability rating
- Compatible with hydrogen or hydrogen and natural gas mixtures
- Automatic reset and manual reset models available
- NEMA 4 rating for outdoor applications
- Temperature rating -40°F to 140°F (-40°C to 60°C) for most models
- Mounts 1/2" flexible conduit fittings without adapters
- Built-in side test connection for manometer / pressure gauge

Application

QPx... series pressure switches are used to detect high or low gas pressure by actuating Form C switch contacts.

The automatic reset versions of these switches may be used for valve proving or as an air pressure proving switch.

When using air, the vent port may be connected and the switch used as a differential air pressure switch.

Product Part Numbers

The part number structure for QPx... series pressure switches is shown below. The part number includes switch type, maximum setpoint range, and reset style.

QP		B	3	2	.	0	2	0	A	0	0
Switch Type		Maximum Setpoint Range		Reset Style		Additional Modifier					
QPB32		002		A		00					
QPB32		= High or low pressure, auto reset									
QPH32		= High pressure, manual reset									
QPL32		= Low pressure, manual reset									
002		= 2 in WC or 5 mbar									
004		= 4 in WC or 10 mbar									
020		= 20 in WC or 50 mbar									
060		= 60 in WC or 150 mbar									
200		= 200 in WC or 7.3 psig or 500 mbar									
A		= Automatic reset									
M		= Manual reset									
00		= Standard									

Product Part Numbers (continued)

All switch part numbers and ratings are tabulated below.

Table 1: Pressure Switch Part Numbers

Part Number	Setpoint Range				Maximum Operating Pressure		Switch Type	Reset Style
	in WC		psig		psig			
	Min	Max	Min	Max	Ventless	Vented		
QPB32.002A00*	0.2	2			7	15	High or Low	Auto
QPB32.004A00*	0.8	4						
QPB32.020A00	2	20						
QPB32.060A00	12	60						
QPB32.200A00**	40	200	1.5	7.3				
QPH32.020M00	2	20			7	15	High	Manual
QPH32.060M00	12	60						
QPH32.200M00**	40	200						
QPL32.002M00*	0.2	2			7	15	Low	Manual
QPL32.004M00*	0.8	4						
QPL32.020M00	2	20						
QPL32.060M00	12	60						
QPL32.200M00**	40	200	1.5	7.3				

NOTES:

* These switch models have a minimum operating temperature of -10°F. All other switches have a minimum operating temperature of -40°F. Also see Specifications section.

** The range printed on the dial for these switches is in psig units instead of in WC.

Table 2: Indicator Lamp Part Numbers

Part Number	Lamp Color	Nominal Voltage
AGG32.24G	Green	24 VAC/DC
AGG32.24R	Red	24 VAC/DC
AGG32.120G	Green	120 VAC
AGG32.120R	Red	120 VAC

Specifications

Materials	Lower body	Die cast aluminum
	Upper body	Fiberglass reinforced plastic
	Cover	Polycarbonate
	Diaphragm	HNBR rubber
	Switch contact	Gold plating over silver alloy
Connections	Pressure (+)	1/4" NPT
	Vent or pressure (-)	1/8" NPT
	Conduit	1/2" NPSM
	Test barb	0.354" OD (9mm) plugged with screw and O-ring
Gasses	1/4" NPT (+) connection	Dry gasses (non-condensing) Natural gas, propane, butane, hydrogen, biogas, air Less than 1.0% hydrogen sulfide (H ₂ S) Less than 1.0% ammonia (NH ₃)
	1/8" NPT (-) connection	Dry (non-condensing) air only
Electrical Ratings	Voltage range	24 VAC to 125 VAC 24 VDC to 48 VDC
	Switching current (for rated life)	Maximum resistive AC: 8A Minimum AC: 20mA (contact wetting current) Maximum DC: 100 mA Minimum DC: 20mA (contact wetting current)
	Maximum current	Maximum AC: 8A
Environmental	Operating temperature	
	- QPx32.002.../QPX32.004...	-10°F to 140°F (-23°C to 60°C)
	- All other models	-40°F to 140°F (-40°C to 60°C)
	Storage temperature	-40°F to 176°F (-40°C to 80°C)
	Protection class	NEMA 4 (IP66)
Rated Life	Automatic reset	100,000 cycles (5 seconds on / 5 seconds off)
	Manual reset	6,000 cycles (5 seconds on / 5 seconds off)
Standards Met		UL 353
		FM 3510
		CSA C22.2
Weight		8 ounces (235 grams)

Installation

The QPx... can be mounted in different orientations. The switch diaphragm can be mounted horizontally, vertically, or any angle in between. The switch may not be mounted inverted (upside-down).

The switching point will be the most accurate with respect to the numbers on the dial when the switch is installed with the diaphragm vertical. A horizontal orientation will result in the switching point occurring at a slightly higher pressure. This is due to the effect of gravity on the diaphragm assembly.

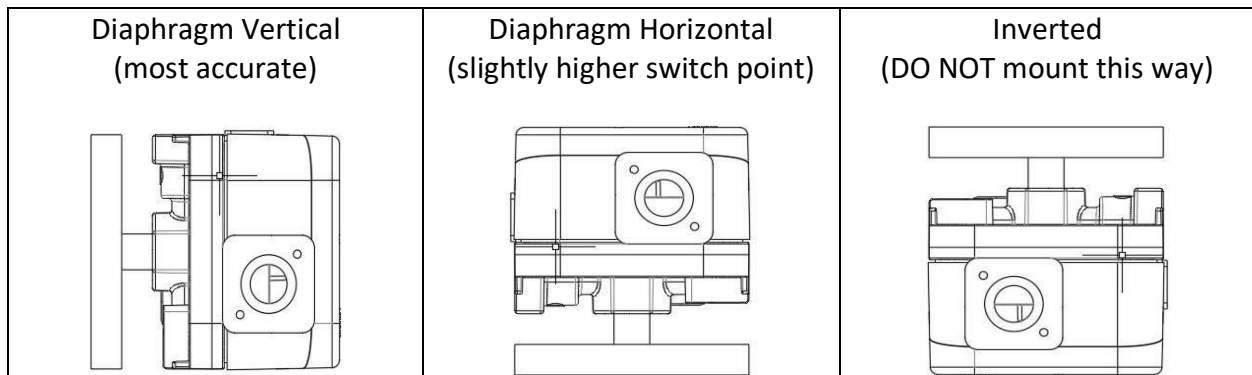


Figure 1: Switch Mounting Positions

- Use a suitable pipe thread sealant on NPT threaded connections.
- Use the wrench flats provided on the bottom of the aluminum switch base to tighten the switch onto a pipe nipple.
- Do not modify the pressure switch.
- All activities (mounting, installation, service work, etc.) must be performed by qualified personnel.
- Fall or shock can adversely affect the function of these pressure switches. Such pressure switches must not be put into operation, even if they do not exhibit any damage.
- No special tools are required.
- Ensure the installation complies with relevant local and national codes.
- QPx... pressure switches do not require maintenance.

Installation (continued)

The QPx... switches carry a NEMA 4 rating and have a rubber seal for the cover. Due to this seal, the cover must be removed and installed according to the following figures.

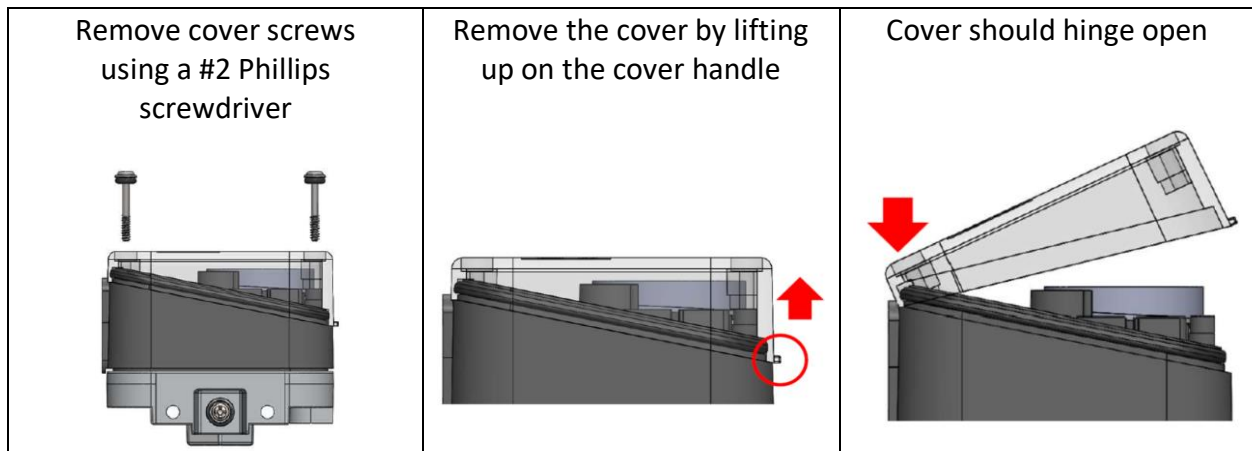


Figure 2: Removing the Cover

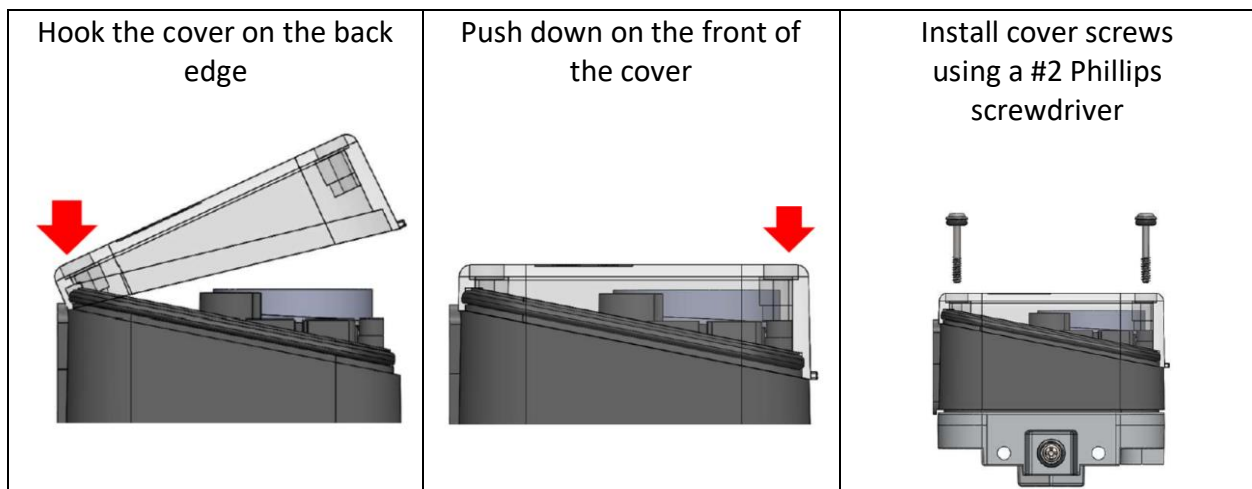


Figure 3: Installing the Cover

Installation (continued)

The QPx... switch's conduit connection is designed to accept 1/2" NPT or 1/2" NPSM threaded flexible conduit fittings directly. When installing flexible conduit fittings, the gasket (typically supplied with the conduit fitting) must be utilized. This is shown below.

NOTE: Switches not to be used with rigid metal conduit. Only flexible conduit is permitted.



Figure 4: Using a Gasket with Conduit Connections

The QPx... switch must be wired in accordance with all relevant national and local codes.

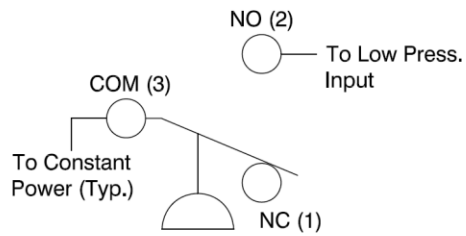
The QPB... switches (automatic reset) can be used as a high or a low gas pressure switch depending on how the switch is wired. These switches change state when the pressure is applied, and do not “lock” into a state. These switches are also used for automatic leak testing of safety shutoff valves.

The QPL... switches (low pressure, manual reset) are dedicated for use as a low gas pressure switch. If the pressure falls below setpoint, the switch changes state and locks into that state (COM to NC). It must be reset with the manual reset button when pressure is once again above setpoint.

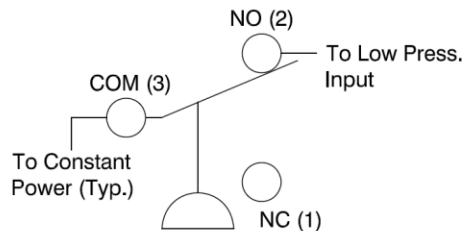
The QPH... switches (high pressure, manual reset) are dedicated for use as a high gas pressure switch. If the pressure rises above setpoint, the switch changes state and locks into that state (COM to NO). It must be reset with the manual reset button when pressure is once again below setpoint.

Installation (continued)

Wiring for a Low Gas Pressure Switch - Manual or Auto

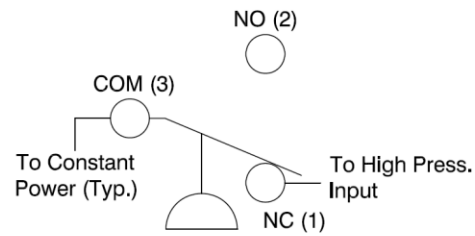


Pressure is below setpoint - a low gas pressure condition is shown.

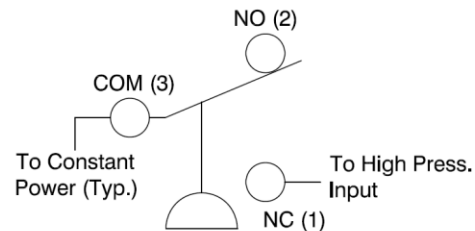


Pressure is above setpoint - normal operating condition for a low gas pressure switch.

Wiring for a High Gas Pressure Switch - Manual or Auto



Pressure is below setpoint - normal operating condition for a high gas pressure switch.



Pressure is above setpoint - a high gas pressure condition is shown.

Figure 5: Wiring and Operation of a QPx... Pressure Switch



Figure 6: Terminals of the QPx... Pressure Switch

Installation (continued)

Indicator lamps can be installed as a switch accessory. These lamps are installed under the clear plastic switch cover.

Table 3: Indicator Lamp Descriptions

Part Number	Lamp Color	Nominal Voltage	Allowable Voltage Range	Wire Leads	
				L (AC) or (+24VDC)	N (AC) or (-24VDC)
AGG32.24G*	Green	24 VAC/DC	20-28 VAC/DC	Red (with fork terminal)	Blue (with butt splice)
AGG32.24R*	Red	24 VAC/DC	20-28 VAC/DC	Red (with fork terminal)	Black (with butt splice)
AGG32.120G	Green	120 VAC	102-132 VAC	Blue (with fork terminal)	Blue (with butt splice)
AGG32.120R	Red	120 VAC	102-132 VAC	Red (with fork terminal)	Red (with butt splice)

NOTE: * When using these lamps for 24 VDC operation, the polarity outlined in Table 3 must be followed. The red wire is always positive (+), and the black or blue wire is always negative (-).

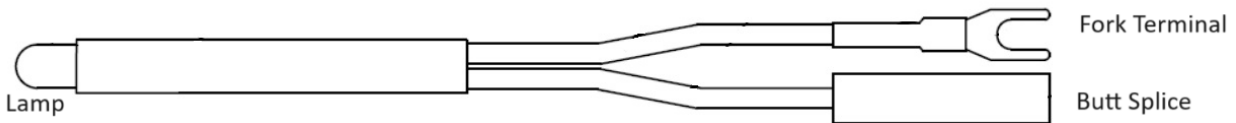


Figure 7: Indicator Lamp Assembly

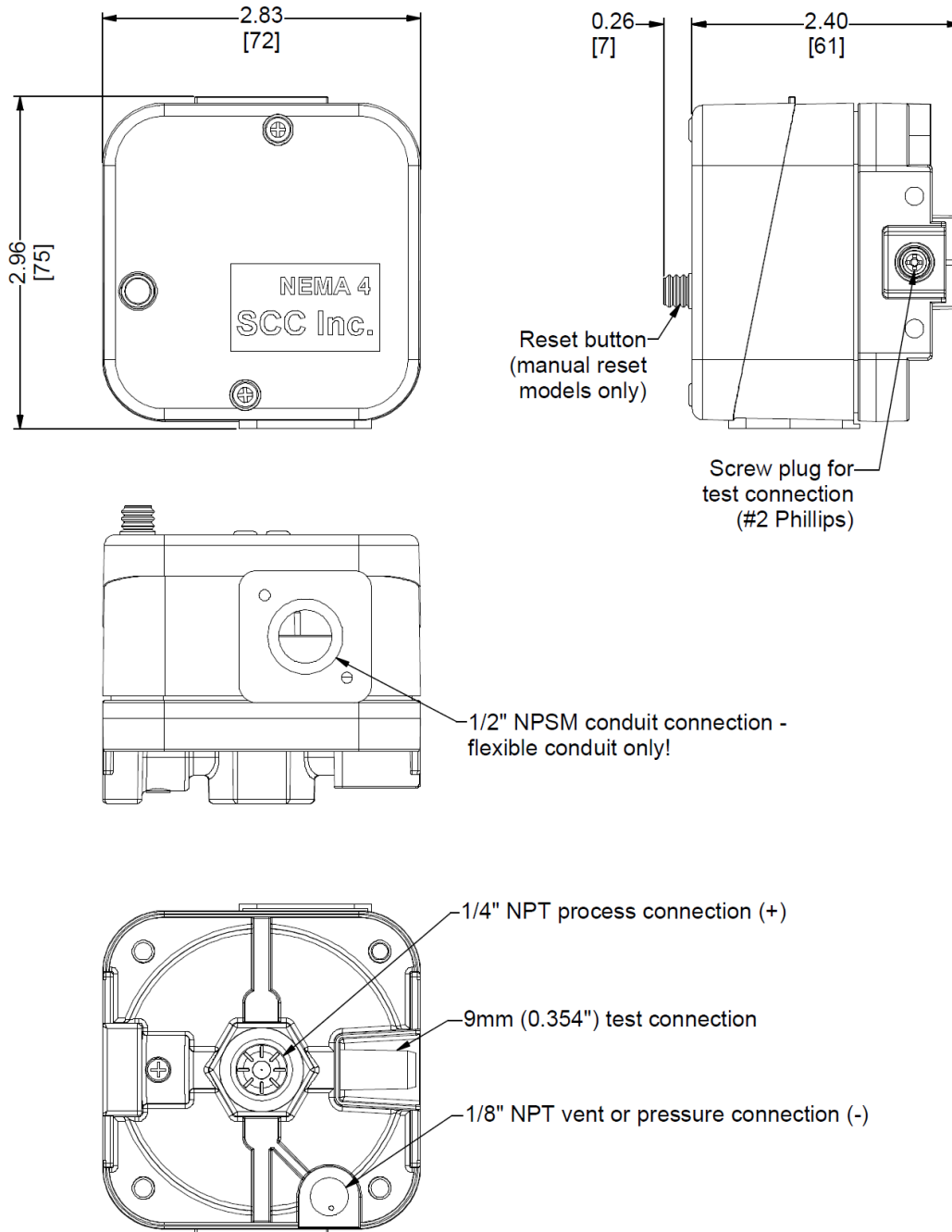
An additional neutral wire (120 VAC or 24 VAC) or a negative wire (-24 VDC) must be run to the switch if an indicator lamp is installed.

The indicator lamps can be wired to illuminate for a normal pressure condition or for an abnormal pressure condition. Referencing Figure 5 on the previous page:

- Low gas pressure switch - lamp illuminated when pressure is normal
 - Connect fork terminal to NO (2) terminal
- Low gas pressure switch - lamp illuminated when pressure is low
 - Connect fork terminal to NC (1) terminal
- High gas pressure switch - lamp illuminated when pressure is normal
 - Connect fork terminal to NC (1) terminal
- High gas pressure switch - lamp illuminated when pressure is high
 - Connect fork terminal to NO (2) terminal

Dimensions

Dimensions in inches [mm]



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