

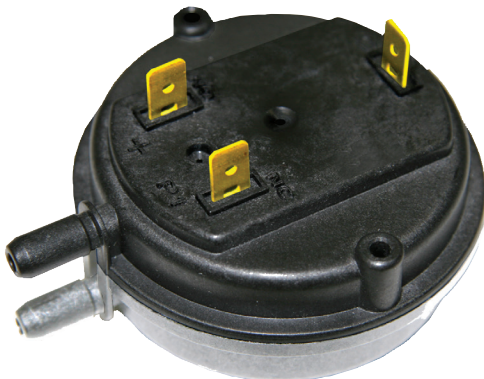
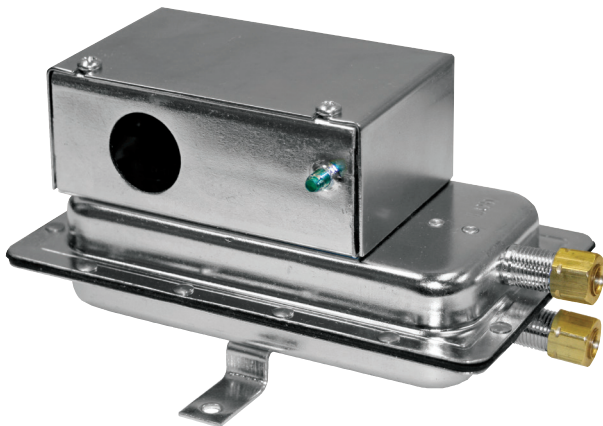


**CLEVELAND
CONTROLS™**

Product Catalog

Precision. *Every Day.*

2026



**Pressure Switches
Tubing & Accessories**

PLASTIC & METAL SENSING SWITCHES

Cleveland Controls designs and manufactures over one thousand thermoplastic and metal-body air pressure sensing switch models for airflow and pressure monitoring applications. Our switches are available in a wide range of configurations, including fixed set point (non-adjustable) and adjustable models, with options for switching action, mounting style, sample line connection, and terminal type. All of our products are life tested for 100,000 cycles minimum. NS2 Series models are tested to 250,000 cycles minimum.

We also offer a variety of standard features such as operation indicators and time-delay functions, as well as a complete line of accessories, including sensing probes, NEMA-rated housings, and tubing for air pressure sensing applications.

For specialized needs, our engineering team can readily design and quote custom solutions to meet your exact specifications.

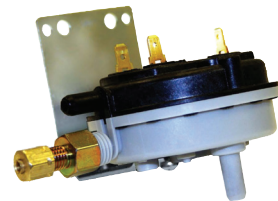
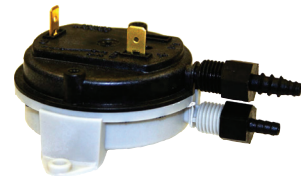
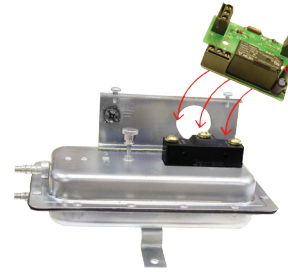
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OPTIONS & SERVICES

Cleveland Controls offers more air pressure sensing switch features and options than any other manufacturer:

- CSA, CE, UL approvals
- Name branding
- Individual and custom packaging
- Factory-calibrated and factory-fixed set points
- Visual set point indicators
- Operation Indicators (mechanical and visual)
- NEMA-rated housings
- Field-adjustable replacement kits
- Sample line probes
- Adapters for flexible tubing
- Restricting orifices
- Barbed fittings
- Manual reset
- Gold Contacts
- Two-year factory warranty
- Salt Spraying and other special coatings
- Indicator light
- Time delay relays
- Interposing relay for electronic "DPDT" applications



ANS2 SERIES

FIELD ADJUSTABLE SET POINT

AIR PRESSURE SENSING SWITCH

The ANS2 Series is a next generation universal field adjustable air pressure switch designed for use as a universal aftermarket replacement switch, and use in many OEM applications. Each switch features an adjustment cover that is removeable and a durable glass-filled polycarbonate housing that encloses a sensing diaphragm and an integral snap-acting switch that responds accurately to pressure, vacuum, or differential pressure.

It offers simple calibration by turning the key on the adjustment cover with an Allen wrench and using the scale to select the desired set point. Three models with different set point ranges are available making the ANS2 an ideal and versatile switch for a variety of applications.

ANS2 Models & Set Point Ranges	
ANS2 1000:	0.08" wc to 1.0" wc
ANS2 2000:	0.15" wc to 2.0" wc
ANS2 3000:	2.0" wc to 10.0" wc

The ANS2 kit includes a bracket, orifices, and 3/16" ID silicon cured tubing (2 ft.).

Please note that the ANS2 adjustment cover can be removed for mounting where clearance is limited, giving the unit the same footprint as the NS2 switch.

Warning: If the adjustment cover is removed the scale becomes invalid and can no longer be used to adjust the set point. If further adjustment is required, use a PVG and Manometer.



Product Specifications	
Measured Media:	Air and byproducts of combustion that will not degrade silicone or polycarbonate
Mounting Position	Mount with the diaphragm in a vertical plane
Life Cycle:	250,000 cycles minimum
Operating Temperature Range:	-40 °F to 190 °F (-40 °C to 88 °C)
Electrical Connections:	Quick-connect copper-alloy terminals; ¼" x 0.032
Electrical Rating:	Fine Silver Contacts; SPDT
Electrical load:	1/10 HP @120 to 277 V ac 28 VA pilot duty @ 24 V ac 125 VA pilot duty @ 120 V ac
Sample Line Connections:	Black is positive, gray is negative
Sample Line Connectors:	Integral slip-on connectors, ¼" OD, accepts 3/16" ID flexible tubing
Contact Arrangement:	SPDT
Approvals:	CE, cURus
Shipping Weight:	< 1 lb; varies with configuration
Accessories (separate purchase):	Sample line probes Tubing for HVAC applications

ANS2 Kit: Includes bracket, orifices, 3/16" ID silicon cured tubing (2 ft.)

NS2™ SERIES ADJUSTABLE SET POINT AIR PRESSURE SENSING SWITCH

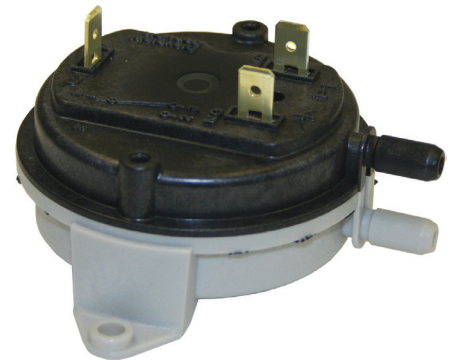
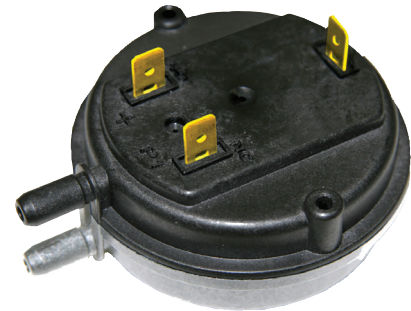
The NS2™ Series is a versatile family of compact, economical air pressure sensing switches designed for a wide range of applications, including high-volume OEM systems and factory-set replacement needs.

Built for precision and reliability, the NS2 delivers a narrow switching differential and low set point tolerance across a broad operating temperature and pressure range. Each switch features a durable glass-filled polycarbonate housing that encloses a sensing diaphragm and an integral snap-acting switch that responds accurately to pressure, vacuum, or differential pressure.

The NS2's design ensures long-term stability and supports a variety of sample line connection, terminal, and mounting options. Color-coded high and low pressure ports simplify installation and identification. Air sample line connectors can be located on either or both sides of the diaphragm to suit any system layout. An optional bleed hole is available for specific applications.

Mounting options include integral mounting feet or a wide selection of separate brackets, which can be oriented in nearly any position. Numerous standard configurations are offered, and our engineering team readily provides custom designs to meet unique application requirements.

Product Specifications	
Material	Glass-filled polycarbonate body with silicone diaphragm
Mounting Position:	Standard diaphragm position: vertical or custom angle: provide requirement with request for quota
Set Point Range	0.05" wc to 10.0" w
Compatible Media:	Air and byproducts of combustion that will not degrade silicone or polycarbonate
Life Cycle:	250,000 cycles minimum
Maximum Pressure:	14" wc
Operating Temperature Range:	-40 °F to 190 °F (-40 °C to 88 °C)
Electrical Rating	• Standard Silver Contacts: SPDT, SPST Electrical load: 1/10 HP @120 to 277 V ac; 28 VA pilot duty @ 24 Vac, 125 VA pilot duty @ 120 V ac • SPST Electrical load: 5 Amps resistive @ 24,120 to 277 V ac. • Optional Gold Contacts: 0.15 Amp resistive @ 24V ac or V dc
Contact Arrangement	SPNO, SPNC, SPDT
Electrical Connections	• Standard quick-connect copper-alloy terminals; 1/4" x 0.032 • Optional quick-connect copper-alloy terminals; 3/16" x 0.032
Sample Line Connectors	Many types available; consult factory
Sample Line Connections	Black is positive, Gray is negative. Many configurations available
Approvals	UL, CUL, CSA, CE, AGA
Shipping Weight:	< 1 lb; varies with configuration
Accessories (Purchase Separately)	• Adapters for slip-on flexible tubing: Valox, female threaded / male duo-barb, suitable for 3/16" or 1/4" ID tubing. Consult factory for additional types. • Sample Line Probes • Orifice Plugs (Pulsation Dampers)



Pressure Switch

DNS2™ SERIES

ADJUSTABLE SET POINT

AIR PRESSURE SENSING SWITCHES

The DNS2™ Series is an ideal choice for applications requiring dual set points. These switches detect positive, negative, or differential air pressure, using integral snap-acting switches that respond reliably to pressure, vacuum, or differential pressure.

DNS2™ switches are commonly used in two-stage furnace systems, where both high-fire and low-fire set points are critical. Engineered for precision and long-lasting performance, the DNS2™ offers a range of mounting, terminal, and sample line connection options, providing a flexible solution for demanding air pressure sensing applications.

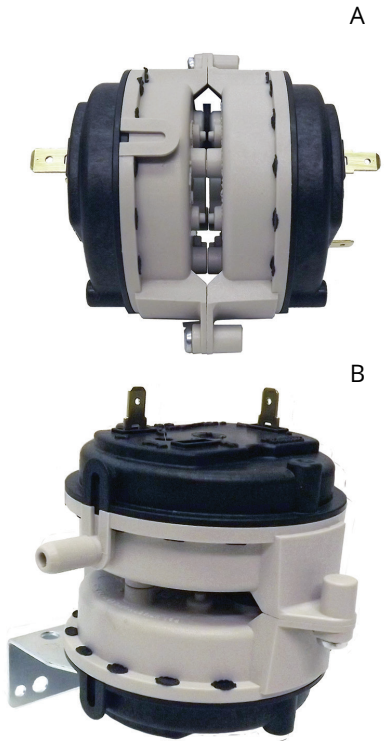
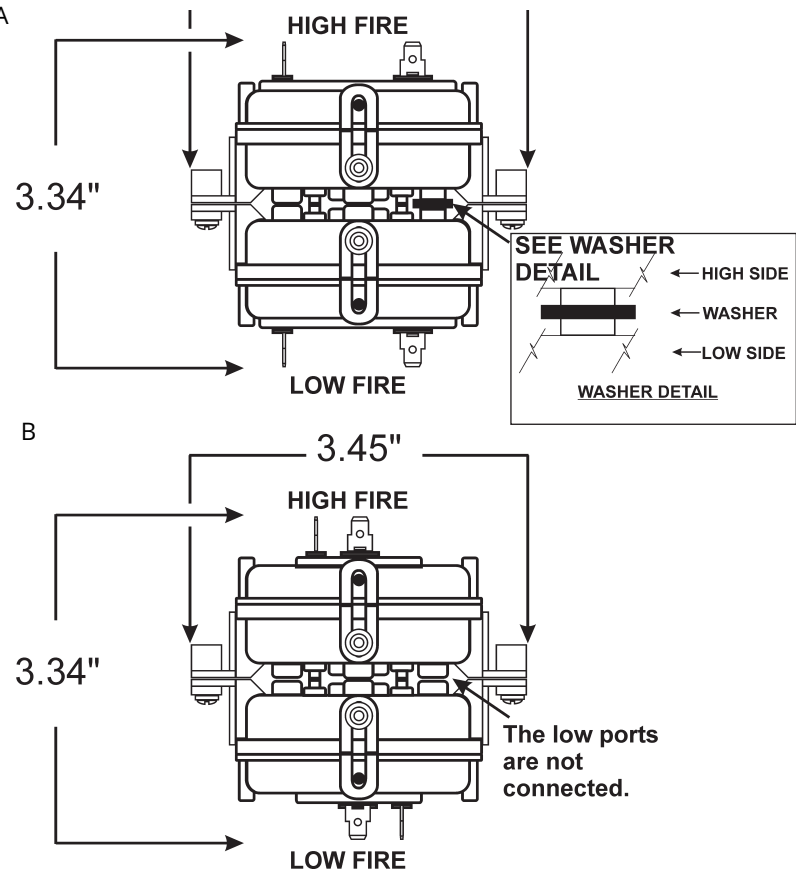
Available in all the configurations offered for the single NS2™ switches, the DNS2™ features integral snap-acting mechanisms in SPNO, SPNC, and SPDT terminal arrangements. Custom mounting brackets are also available to accommodate unique OEM requirements and ensure seamless installation. Two configurations are available for the DNS2™ Series to suit different application needs:

Interconnected Models

These models feature a single inlet, requiring only one pressure or vacuum connection. The cavities of the two switch pans are internally joined, providing a compact and efficient solution as shown in photo and drawing A.

Independent Models

These models consist of two completely separate switches joined externally, offering the convenience of a single, compact mount as shown in photo and drawing B. Independent models are ideal for any application that requires two separate switches.

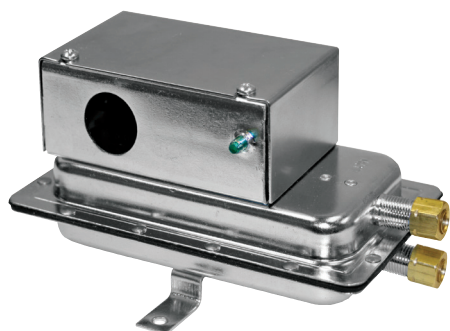


Product Specifications	
Specifications	Specifications for the DNS2 switch are the same as the specifications for the NS2™ switch.
Life Cycle:	250,000 cycles minimum
Factory Set Point Range	The set point of each module is factory calibrated and sealed to meet customer requirements. Each set point must have a value between 0.05" wc and 10.0 ± 0.05" wc.
Options	Most NS2™ options can be provided by DNS2™ models
Accessories	Please consult the factory for more information on in-line orifices, mounting bracket kits, sensing probes and more
Approvals	UL, CUL, CSA, CE, and IAPMO-R&T Oceana
Shipping Weight	1/4 lb., approximately

ADJUSTABLE SET POINT/ MANUAL RESET SET POINT AIR PRESSURE SENSING SWITCH

AFS™ Series Switches are a family of general-purpose air pressure sensing switches designed for HVAC, DDC, and Energy Management applications. These switches accurately sense positive, negative, or differential air pressure. All AFS™ models feature a plated housing that encloses a diaphragm, calibration spring, and snap-acting SPDT switch. Sample connections are located on both sides of the diaphragm for flexible installation. A wide range of standard switch configurations is available, along with numerous mounting brackets, sample line connectors, and terminal options, including open or enclosed spade, screw, or wire lead terminals. Standard features include an enclosure cover with ½" conduit knockout, gold contacts, set point indication, alarm light, timer delay, electronic dual set point, salt spray protection, and NEMA-rated enclosures.

AFS™ Series Manual Reset Switches are general-purpose air pressure sensing switches designed for HVAC, DDC, and Energy Management applications that require the operator to manually reset the switch after actuation. These switches accurately sense positive, negative, or differential air pressure and are available with factory-sealed or field-adjustable set points. Each AFS™ Manual Reset switch features a plated housing containing a diaphragm, calibration spring, and snap-acting switch with a manual reset button. Set point ranges of 0.40" to 12.0" WC are available with SPST-NC switches, while dual set point SPST-NC and DPDT contacts for 24 V DC or 120 V AC applications are also offered. Sample connections are located on both sides of the diaphragm and accommodate a wide variety of rigid or flexible tubing. The switch enclosure cover accepts a 0.5" conduit connection, and dual set point models accept two 0.5" conduit connections. Numerous standard and custom mounting brackets are available to meet diverse installation requirements.



AFS Series Switch



AFS Series Manual Reset Set Point Switch

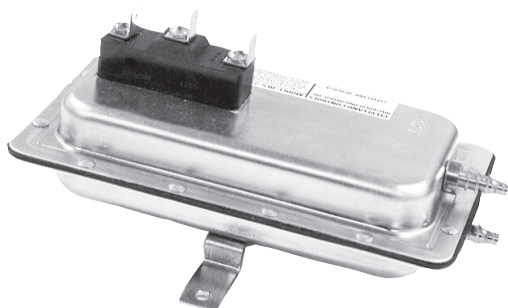
Product Specifications

Set Point Range:	General: 0.03 ± 0.02" wc to 12.0" wc Manual Reset: 0.40 ± 0.06" wc to 12.0" wc
Approximate Switching Differential:	General: Progressive, increasing from 0.02± 0.01 "wc at minimum set point to 0.8 " wc at maximum set point. Manual Reset: Progressive, increasing from approximately 0.06± 0.01" wc at minimum set point, to approximately 0.8" wc at maximum set point.
Compatible Media:	Air, or combustion by-products that will not degrade silicone.
Maximum Pressure:	General: ½ psi (0.03 bar). Manual Reset: 0.5 psi (0.03 bar)
Operating Temperature Range	-40 °F to 180 °F (-40 °C to 82 °C).
Life Cycle	General: 100,000 cycles minimum at ½ psi maximum pressure each cycle and at maximum rated electrical load. Manual Reset: Exceeds UL-recognized mechanical endurance test of 6,000 cycles minimum at 0.5 psi maximum pressure each cycle and at maximum electrical load.
Electrical Rating:	General: 300 VA pilot duty at 115 to 277 V ac, 15 Amps noninductive to 277 V ac, 60 Hz. Manual Reset: @ 60 Hz., 15 Amp 125, 250, or 277 V ac ¼ hp 125 V ac, ½ hp 250 V ac, ½ Amp 125 V dc, ¼ Amp 250 V dc.
Contact Arrangement:	General: SPDT or custom. Manual Reset: SPST-NC; DPDT; Dual SPST-NC.
Conduit Opening (optional; on or two):	⅝" diameter opening accepts ½" conduit.
Electrical & Sample Line Connectors:	See Selection Guide (pp.16 -17) for available styles
Approvals	UL/UR, CE and CSA. See specific models for additional approvals.

DFS & FS SERIES

FACTORY SET NONADJUSTABLE SET POINT AIR PRESSURE SENSING SWITCH

These simple, economical, and reliable switches feature a standard factory-fixed set point that actuates on a pressure rise as low as 0.03" wc. DFS switches are ideal for duct heaters, ovens, and energy management systems where a non-adjustable set point is required. Multiple configurations are available, including various mounting options, sample line connector styles, and open or enclosed switch terminals. Additional options include manual reset, set point indication, alarm light, time delay, electronic dual set point, salt spray protection, and NEMA-rated enclosures.



Product Specifications	
Set Point:	Fixed to operate on pressure rise or fall at 0.05±0.02" wc or 0.03" wc, + 0.02" wc
Switch Differential (Approximate):	0.02±0.01"wc (0.508±0.254 mm wc).
Maximum Pressure:	½ psi (0.03 bar).
Electrical Rating:	300 VA pilot duty at 115 to 277 V ac; 15 amp noninductive to 277 V ac, 60 Hz.
Contact Arrangement:	SPDT
Conduit Opening (optional):	7/8" diameter opening accepts ½" conduit.
Operating Temperature Range:	-40 to 180 °F (-40 to 82 °C).
Mounting Position:	Diaphragm in any vertical plane to obtain specified operating set point.
Electrical & Sample Line Connectors:	See Selection Guide (pp. 16 -17) for available styles.
Shipping Weight:	1.2 lbs.
Approvals:	UL/UR, CE and CSA. See specific models for additional approvals.

DDP SERIES

ADJUSTABLE DUEL SET POINT AIR PRESSURE SENSING SWITCH

Series DDP Switches deliver dual switching action for HVAC and energy management applications. Two independently adjustable SPDT snap-acting switches are mounted on a common foot bracket, allowing precise control of differential pressures ranging from 0.05 ± 0.02 to 12.0" wc. Because each switch is set independently, an adjustable "dead band" can be established for circuits requiring both high and low actuation points.

Each plated housing contains a diaphragm, a calibration spring, and an SPDT snap-acting switch. Two low-pressure sample connections (one per switch) and a common high-pressure sample connection, located on the foot bracket between the low-pressure ports, accept any rigid or flexible tubing. Several types of sample line connectors are available. Optional switch enclosure covers, compatible with ½" conduit connections, can be provided for each switch assembly.

A variety of terminal styles and materials are offered, including screw terminals with cup washers, wire leads, and spade terminals. The Series DDP switch can be surface-mounted using the two ¾" diameter holes in the integral mounting bracket, spaced 7" apart.

Product Specifications

General

Operating Temperature Range: -40 to 176 °F (-40 to 80 °C).

Shipping Weight: 1.5 lb. approx.

Common Foot Bracket Material: Cylolac® T4500.

For Switching Elements "A" and "B"

Set Point Range: 0.05 ± 0.02 " wc to 12.0"wc

Approximate Switching Differential: Progressive, increasing from 0.02 ± 0.01 "wc at minimum set point to 0.1"wc at maximum set point.

Compatible Media: Air, or combustion by-products that will not degrade silicone.

Maximum Pressure: ½ psi (0.03 bar).

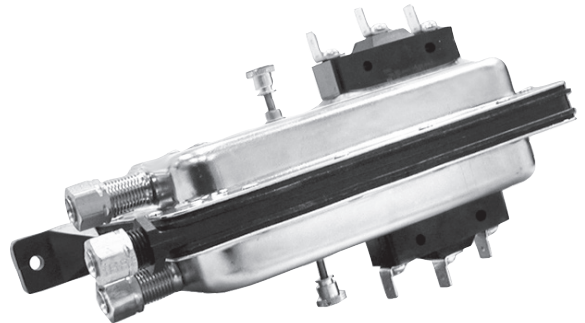
Electrical Rating: 300 VA pilot duty at 115 to 277 V ac, 15 amps noninductive to 277 V ac, 60 Hz.

Contact Arrangement: SPDT or custom.

Conduit Opening (optional): 7/8" diameter opening accepts ½" conduit.

Electrical & Sample Line Connectors: See Selection Guide (pp.16-17) for available styles.

Approvals: UL/UR, CE and CSA. See specific models for additional approvals.

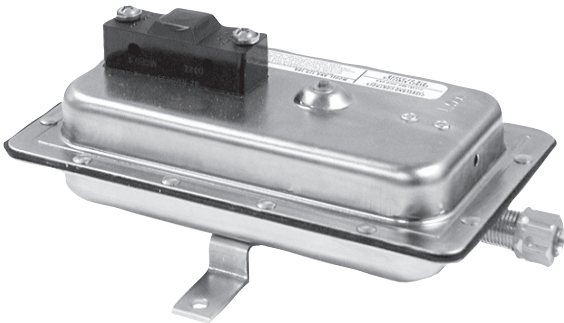


ANA SERIES

FACTORY SET SET POINT AIR PRESSURE SENSING SWITCH

ANA Series switches are rugged, economical models specifically designed for OEM applications. They can sense positive, negative, or differential air pressure. Each plated switch housing contains a diaphragm and an SPDT or SPST snap-acting switch. The fixed set point, ranging from 0.05" wc to 12.0" wc, is factory-calibrated and sealed. The switch actuates when a pressure rise or fall produces sufficient diaphragm movement.

Sample line connections, located on either or both sides of the diaphragm, accept rigid or flexible tubing, and a wide variety of common connectors and adapters are available. Terminal options include screw terminals with cup washers, wire leads, and spade terminals. An optional switch enclosure cover accommodates a ½" conduit connection. Custom mounting brackets are available in addition to the standard foot bracket. Additional options include alarm light, time delay, NEMA-rated housings, and brand labeling.



Product Specifications

General

Set Point Range:	0.05"± 0.02" wc to 12.0" wc
Switch Differential:	Progressive, from 0.02" ± 0.01" wc at minimum set point, to approximately 0.80" wc at maximum set point
Maximum Pressure:	½ psi (0.03 bar)
Electrical Rating:	300 VA pilot duty at 115 to 277 V ac; 15 Amp noninductive; to 277 V ac, 60 Hz
Electrical Switch:	Snap-action switch
Contact Arrangement:	SPDT, SPST/NO or SPST/NC logic
Electrical & Sample Line Connectors:	See Selection Guide (pp. 16-17) for available styles
Operating Temperature Range:	-40 to 180 °F(-40 to 82 °C)
Mounting Position:	Diaphragm in any vertical plane to obtain specified operating set point.
Approvals:	UL/UR, CE and CSA. See specific models for additional approvals.

ADJUSTABLE SET POINT COMPACT METAL AIR PRESSURE SENSING SWITCH

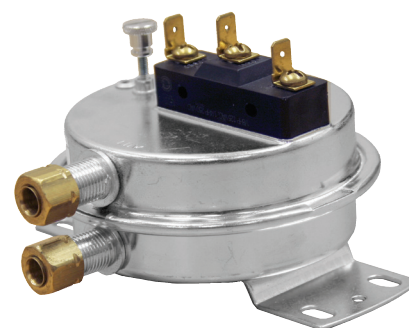
RFS Series switches are compact, general-purpose proving switches designed for HVAC and Energy Management applications. They can sense positive, negative, or differential air pressure, and are available with adjustable or fixed set points.

The plated housing contains a diaphragm and a snap-acting switch. Sample line connections on either side of the diaphragm accept rigid or flexible tubing. A variety of mounting options, sample line connectors, and electrical terminations are available, as shown on page 9 of this catalog.

An optional enclosure cover protects against accidental contact with live switch terminals and features five knockouts to accommodate ½" conduit connections.

Product Specifications

Mounting Position:	Diaphragm in any vertical plane
Standard Set Point Ranges	0.15 ±0.02" wc to 2.0" wc 0.15 ±0.02" wc to 5.0" wc
Approximate Switch Differentials:	
For 2.0"wc set point range:	progressive, increasing from 0.05±0.02" wc at minimum set point to approximately 0.2" wc at maximum set point.
For 5.0"wc set point range:	progressive, increasing from 0.05±0.02" wc at minimum set point to approximately 0.3" wc at maximum set point.
Compatible Media:	Air or combustion by-products that will not degrade silicone.
Maximum Pressure:	½ psi (0.03 bar)
Operating Temperature Range:	-40 to 180 °F (-40 to 82 °C).
Life:	100,000 cycles minimum at ½ psi maximum pressure each cycle and at maximum rated electrical load.
Electrical Rating:	300 VA pilot duty at 115 to 277 V ac; 15 Amp noninductive to 277 V ac, 60 Hz.
Contact Arrangement:	SPST-NO, SPST-NC, SPDT
Electrical Connections:	¼", 90° quick-connect spade terminals or screw terminals with cup washers
Sample Line Connectors	See Selection Guide (pp 16-17ww) for available styles.
Approvals:	UL/UR, CUL, CE, CSA
Shipping Weight:	< 1 lb.



GRFS SERIES

FACTORY SET OR ADJUSTABLE LOW PRESSURE
GAS FLOW SENSING SWITCH

GRFS Series switches are compact, economical switches designed for use with natural, manufactured, or LP gas in furnaces, package burners, and other fuel-burning equipment. They are ideal for low gas pressure proving or flow proving applications. Models are available with either field-adjustable set points or fixed set points ranging from 0.10" wc to 20" wc.

The plated housing contains a diaphragm and a snap-acting switch. The gas inlet is located on the high-pressure side of the diaphragm, while the vent is on the low-pressure side. Both the gas inlet and vent accept a pipe nipple or coupling suitable for gas flow applications.

Various electrical configurations are offered. Standard models feature screw terminals with cup washers or ¼" 90° quick-connect spade terminals. SPDT and SPST switch configurations are available. An optional enclosure cover protects against accidental contact with live switch terminals and includes five knockouts for ½" conduit connections.



Product Specifications	
Mounting Position:	Diaphragm in any vertical plane. Neither the gas connection nor the vent connection should point upward.
Standard Fixed Set Point (Non-adjustable) Models:	0.18±0.05" wc
Adjustable Set Point Models:	5 standard set point ranges; see specific model literature.
Approximate Switch Differentials:	progressive, increasing from 0.05±0.02" wc at minimum set point, to value determined by range: See specific model literature.
Measured Media:	Air or natural, manufactured, LP, or other gas that will not degrade nitrile.
Maximum Pressure:	½ psi (0.03 bar)
Operating Temperature Range	0 to 190 °F (-18.0 to 88 °C)
All Other Specifications:	Same as RFS Series, above.

STATIC PRESSURE SENSOR FOR OUTDOOR COMMERCIAL APPLICATIONS

The Outdoor Static Pressure Sensor from Cleveland Controls is designed to provide a stable outdoor pressure reference for building pressure controls. It is engineered for long lasting performance and resistance to outdoor environmental wear.

Functional Purpose

Provides a smooth, averaged outdoor pressure reference for:

- Building pressurization systems
- Air handler control
- Pressure gauges and switches

Features

- Outdoor-rated static pressure reference
- Minimizes wind caused fluctuations
- Mounts on exterior walls or rooftops
- Includes long tubing for protected indoor routing
- Compatible with low differential pressures, gauges, switches, and transmitter
- No calibration required
- No moving parts; low maintenance

Installation Summary

- Mount outdoors in a location free of wind turbulence
- Keep level and unobstructed
- Run tubing indoors; avoid kinks; coil access tubing

Included Components

- Outdoor static pressure sensor housing
- 50 ft of 1/4" OD vinyl tubing
- Mounting bracket and hardware

Mechanical Specifications

- Housing: Durable molded plastic
- Tubing size: 1/4" OD vinyl
- Tubing length: 50 ft
- Mounting: wall or rooftop bracket
- Connection port: 1/4" tubing barb

Operating Specifications

- Media: Air
- Operating temperature: -20 to 140 °F
- Environment: Outdoor
- Function: Passive air pressure averaging chamber

Dimensions

Approx. housing size: ~6 in x 6 in x 3 in

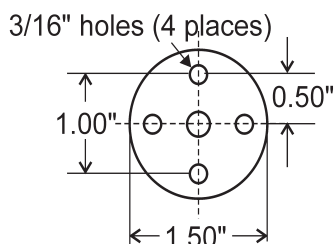


SENSING PROBES

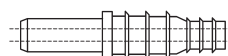
FOR AIR PRESSURE SENSING SWITCH APPLICATIONS

STATIC PRESSURE PROBES					TOTAL PRESSURE (IMPACT) PROBES				
Dimension A	Smooth OD Dimension B	Part Number	Barbed End Dimension B	Part Number	Dimension A	Smooth OD Dimension B	Part Number	Barbed End Dimension B	Part Number
1.5	1.0	21397	1.75	21397-112	1.5	1.0	21401	1.75	21401-112
2.0	.5	21116	1.25	21116-112	2.0	.5	21120	1.25	21120-112
3.5	1.0	21398	1.75	21398-112	3.5	1.0	21402	1.75	21402-112
4.0	.5	21117	1.25	21117-112	4.0	.5	21121	1.25	21121-112
5.5	1.0	21399	1.75	21399-112	5.5	1.0	21403	1.75	21403-112
6.0	.5	21118	1.25	21118-112	6.0	.5	21122	1.25	21122-112
7.	1.0	21400	1.75	21400-112	7.5	1.0	21404	1.75	21404-112
8.0	.5	21119	1.25	21119-112	8.0	.5	21123	1.25	21123-112
					10.0	.5	28527	1.25	28527-112
					12.0	.5	28528	1.25	28528-1

MOUNTING FLANGE

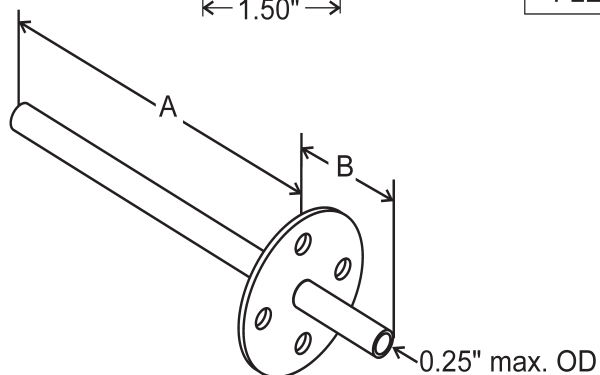


FACTORY-INSTALLED BARBED ADAPTER FOR HOSE CONNECTION

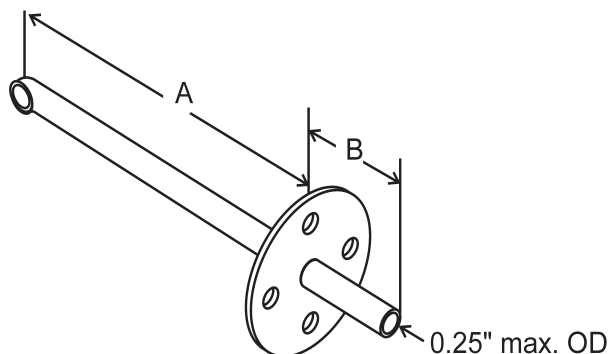


45° BARB 6 PLACES.

BARBED END WILL ACCEPT 1/8" and 1/4" ID FLEXIBLE PLASTIC TUBING.



STATIC PRESSURE PROBE
(ASPIRATION)

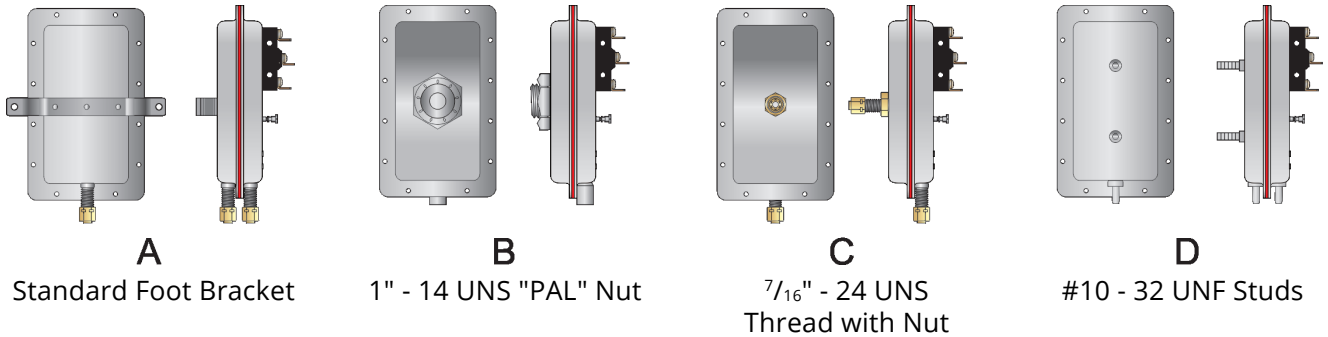


TOTAL PRESSURE PROBE
(IMPACT)

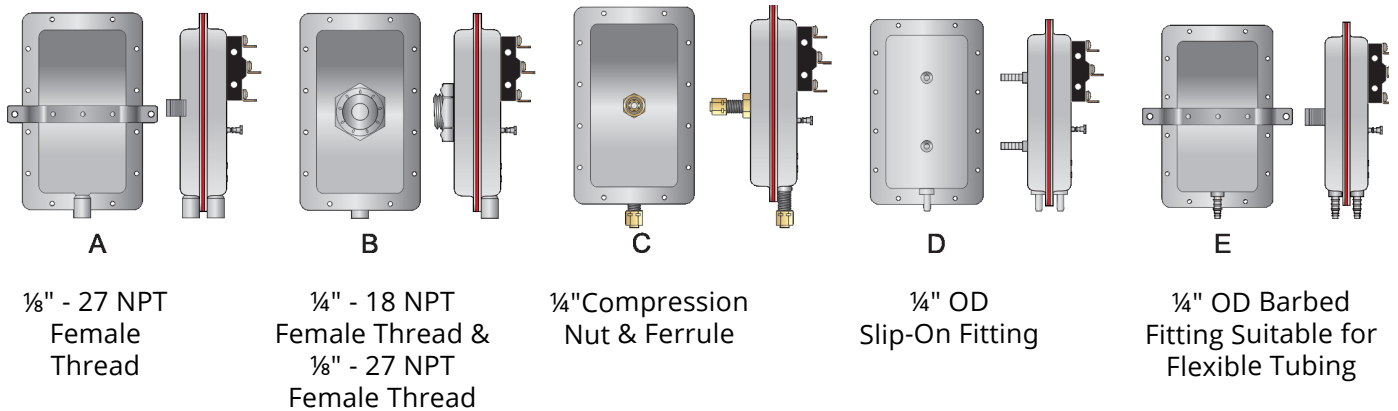
TYPICAL METAL SENSING SWITCH FEATURES

Cleveland Controls manufactures hundreds of sensing switch models. The most common switch configuration variables are mounting style, sample line connections, terminal style, and electrical rating. In addition to the standard styles shown below, we offer custom variations to suit any application. Note that the alphabetic designations for each option below refer to the Selection Guide Tables on pages 16 and 17 of this catalog.

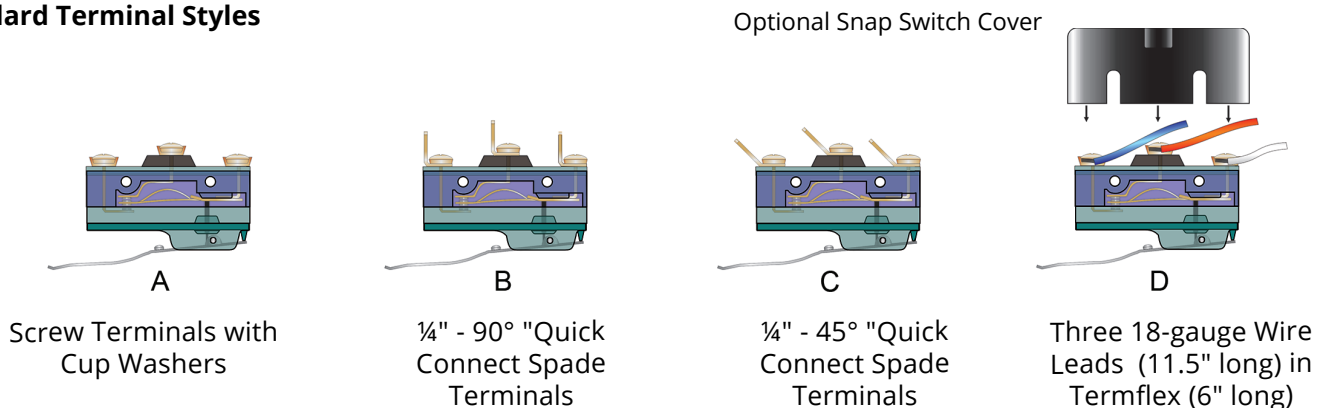
Mounting Styles



Sample Line Connectors



Standard Terminal Styles



Optional Snap Switch Cover

Electrical Specifications

A. Standard Contacts:
15 A noninductive to 277 V ac;
300 VA pilot duty at 115 or 277 V ac

B. Gold Contacts:
300 va pilot duty at 115 or 277 v ac;
15 a noninductive to 277 v ac;
10 ma at 5 v dc

C. Manual Reset Switch:
15 A noninductive to 277 V ac (60 Hz);
1/4 hp 125 V ac, 1/2 hp 250 V ac.
1/2 A 125 V dc, 1/4 a 250 V dc

METAL BODY SENSING SWITCH SELECTION GUIDE

(Alphabet codes refer to illustrations on page 9)

SET POINT RANGE, INCHES WC	MODEL	ENCLOSED SWITCH MODULE (•)	MOUNTING BRACKET	SAMPLE LINE CONNECTORS	TERMINATION STYLES	CONTACT TYPE	ELECTRICAL RATING	APPROVALS, LISTINGS, RECOGNITION UL CSA CE		
AFS SERIES: AIR PRESSURE SENSING SWITCHES WITH FIELD-ADJUSTABLE SET POINTS										
.03-2.0" wc	AFS-398	•	A	C	A	SPDT	A	•	•	•
.05-2.0" wc	AFS - 148		A	A	B	SPDT	A	•	•	•
	AFS-150-112		D	E	C	SPST-NO	A	•	•	•
	AFS - 155		A	A	A	SPDT	A	•	•	•
	AFS - 156		LEFT-SIDE	C	C	SPST-NO	A	•	•	•
	AFS - 179		B	B	C	SPST-NO	A	•	•	•
	AFS - 181	•	A	A	A	SPDT	A	•	•	•
	AFS - 202	•	LEFT-SIDE	C	C	SPST-NO	A	•	•	•
	AFS - 219		A	C	C	SPST-NO	A	•	•	•
	AFS - 232		B	A	D	SPDT	A	•	•	•
	AFS - 246		RIGHT-SIDE	C	B	SPST-NO	A	•	•	•
	AFS-249-112		A	E	C	SPST-NO	A	•	•	•
	AFS - 262	•	A	C	A	SPDT	A	•	•	•
	AFS - 271		A	C	B	SPDT	A	•	•	•
	AFS - 273		C	C	B	SPDT	A	•	•	•
	AFS-275-112		A	E	B	SPDT	A	•	•	•
	AFS - 299		D	C	C	SPST-NO	A	•	•	•
	AFS-399-112		D	E	B	SPDT	A			
	AFS - 414		A	C	D	SPST-NO	A	•	•	•
	AFS - 432	•	C	C	A	SPDT	A	•	•	•
	AFS - 438	•	B	B	A	SPDT	A	•	•	•
	AFS - 440		B	B	A	SPDT	A	•	•	•
	AFS - 442	•	A	A	A	SPDT	A	•	•	•
	AFS - 447	•	RIGHT-SIDE	C	A	SPDT	A	•	•	•
	AFS - 449	•	NONE	C	A	SPDT	A	•	•	•
	AFS - 477	•	A	C	A	SPDT (Gold)	B	•	•	•
.05 - 12.0" wc	AFS - 145	•	A	A	A	SPDT	A	•	•	•
	AFS - 222	•	A	C	A	SPDT	A	•	•	•
	AFS - 227		A	C	A	SPDT	A	•	•	•
	AFS - 228		A	C	B	SPDT	A	•	•	•
	AFS - 236	•	B	B	A	SPDT	A	•	•	•
	AFS - 238		C	C*	A	SPDT	A	•	•	•
	AFS - 240	•	C	C*	A	SPDT	A	•	•	•
	AFS-298-112		A	E	B	SPDT	A	•	•	•
	AFS - 405	•	A	C	A	SPDT (Gold)	B	•	•	•
	AFS - 409	•	C	C*	A	SPDT	A	•	•	•
	AFS - 410		Flat Strap	C	A	SPDT (Gold)	B	•	•	•
	AFS - A	•	B	B	A	SPDT	A	•	•	•
AFS-D-AO		B	B	B	SPDT	A	•	•	•	
.40-12.0" wc	AFS - 460	•	A	C	A	SPST-NC (manual reset)	C	•	•	•
1.25-12.0" wc	AFS-460-DSS	•	A	C	A	DUAL SPST-NC (manual reset)	C	•		

METAL BODY SENSING SWITCH SELECTION GUIDE

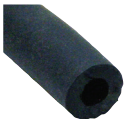
(Alphabet codes refer to illustrations on page 9)

SET POINT RANGE, INCHES WC	MODEL	ENCLOSED SWITCH MODULE (•)	MOUNTING BRACKET	SAMPLE LINE CONNECTORS	TERMINATION STYLES	CONTACT TYPE	ELECTRICAL RATING	APPROVALS, LISTINGS, RECOGNITION UL CSA CE		
AFS 900 SERIES AIR PRESSURE SENSING SWITCHES IN NEMA-RATED HOUSINGS										
.05-12.0" wc	AFS-951	•	CUSTOM	B	SCREW	SPDT	A	•	•	•
	AFS-952	•	CUSTOM	B	SCREW	SPDT	A	•	•	•
	AFS-952-55	•	CUSTOM	B	SCREW	SPDT	A	•	•	•
	AFS-953	•	CUSTOM	B	SCREW	SPDT	A	•	•	•
ANA SERIES AIR PRESSURE SENSING SWITCHES										
.05-2.0" wc	ANA-101	•	B	B	A	SPDT	A	•	•	•
	ANA-122		A	C	C	SPST-NO	A	•	•	•
DDP SERIES: DUAL DIFFERENTIAL PRESSURE SENSING SWITCHES (INDEPENDENT SET POINTS)										
.05-2.0" wc	DDP-106		MANIFOLD	C	B	SPDT	A	•	•	•
	DDP-109	•	MANIFOLD	C	A	SPDT	A	•	•	•
.05-12.0" wc	DDP-105		MANIFOLD	C	A	SPDT	A	•	•	•
	DDP-111	•	MANIFOLD	C	A	SPDT	A	•	•	•
DFS SERIES: AIR PRESSURE SENSING SWITCHES WITH FIXED SET POINTS										
SET @ 0.03" wc	DFS-301-112		A	E	B	SPDT	A	•	•	•
SET @ 0.05" wc	DFS-221-112		A	E	B	SPDT	A	•	•	•
	DFS-231		C	C	B	SPDT	A	•	•	•
	DFS-243		A	C	B	SPDT	A	•	•	•
	DFS-423-112		A	E	A	SPDT	A	•	•	•
	DFS-458		A	C/VENT TO ATM.	C	SPST-NO	A	•	•	•
	FS-751	•	A	C	A	SPDT	A	•	•	•
SET @ 0.2" wc	DFS-292	•	A	C	A	SPDT	A	•	•	•
	DFSL-CO	•	B	B	A	SPDT	A	•	•	•
SET @0.4" wc	DFS-411	•	A	C	A	SPDT	A	•	•	•
	DFSH-CO	•	B	B	A	SPDT	A	•	•	•
PAS SERIES: PNEUMATIC AIR PRESSURE SENSING SWITCHES										
0.15-2.0" wc	PAS-2100		A	C	N/A	PNEUMATIC	E			
0.15-12.0" wc	PAS-2200		A	C	N/A	PNEUMATIC	E			
RFS SERIES: COMPACT METAL AIR PRESSURE SENSING SWITCHES										
0.15-5.0" wc	RFS-4150		A	E	A	SPDT	A	•		
0.15-5.0" wc	RFS-4100		A	C	A	SPDT	A	•		
GRFS: GAS SENSING SWITCH FOR AIR, NATURAL GAS, LP, OR ANY GAS THAT WILL NOT DEGRADE SILICONE										
0.18-20.0" wc	Adjustable	•	Any	Any	Any	SPDP or SPST				
0.18±0.005" wc	Std. Fixed SP	•	Any	Any	Any					

TUBING FOR HVAC APPLICATIONS

Cleveland Controls offers many types of standard tubing for connecting an air sample probe to an air flow sensing switch. Different tubing specifications meet different application requirements for temperature and flexibility.

Disclaimer: The user is responsible for ascertaining the suitability and safety of these products for a given intended use. Specifications have been provided to Cleveland Controls by our suppliers, and to the best of our knowledge they are accurate at the time they are published. Cleveland Controls is not responsible for subsequent changes to the specifications.

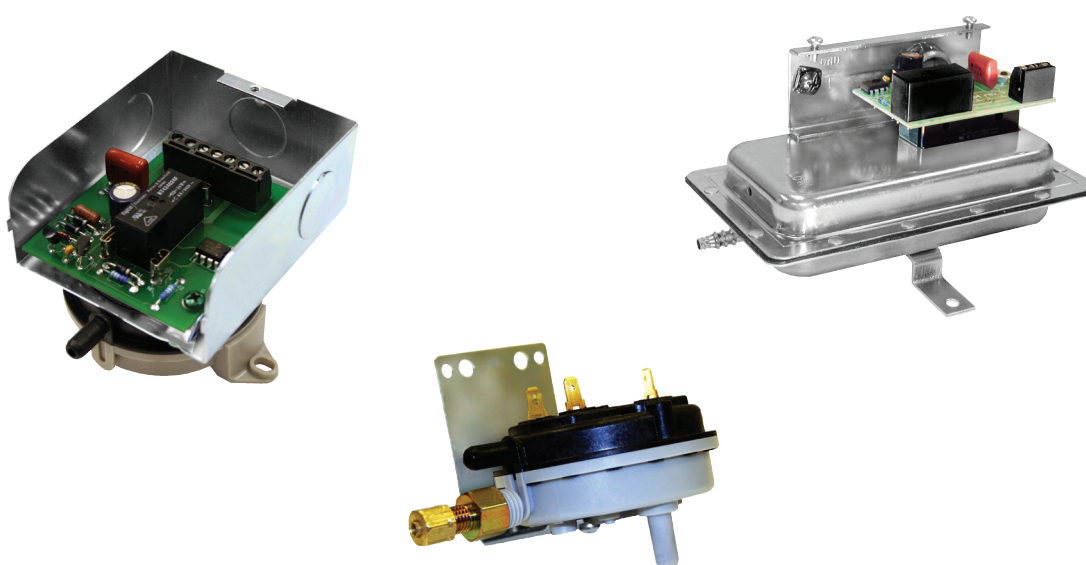
Cross-section	Description	Typical Application
Type 1: Standard Flexible, Transparent PVC Tubing		
	This odorless, tasteless tubing is our most flexible and transparent tubing. A special non-toxic formulation of polyvinyl chloride and special plasticizers without extenders or fillers, it offers clear water-transparency and absolute flexibility with dimensional stability. It can be gas or radiation sterilized and meets FDA standards. Approved by UL94HB, NSF 51 and USP VI. Hardness rating is Durometer Shore Type A 68. Temperature range is 0 °F to 140 °F.	Ideal for many applications in general laboratories and chemical or industrial plants.
Type 2: Semi-rigid Polyethylene Tubing		
	This economical thermoplastic tubing is excellent for environments where temperatures and pressures are moderate. It is suitable for use with compression fittings. Meets ASTM D-1248, Type 1, Class A, Category 4 Federal Specification LP-390C, Type 1, Class L, Grade 2, Category 4. Temperature range is -40 °F to 150 °F.	Suitable for applications with moderate temperature and pressures, especially if compression fittings are used.
Type 3: Flexible, Unreinforced Peroxide-cured Silicone Tubing		
	This tubing is ideal for applications requiring FDA sanctioned ingredients. The material is odorless, tasteless and inert. The translucent, natural color permits visual monitoring of the flow. It is resilient, stretchable and resistant to compression. It has excellent electrical and weatherability properties, withstands extreme temperature variations, resists UV radiation, ozone, gases and moisture. National Sanitation Foundation listed (NSF 51). Hardness rating is Durometer Shore Type A 50 ± 5. Temperature range is -100 °F to 500 °F.	Suitable for many applications where FDA monitored applications including appliances, beverages and food processing. Clean room computer manufacture, insulation sleeves, laboratory and medical use. Hot water feeds, peristaltic pumps, thermal protection and more..
Type 4: High Temperature, Flexible Silicone Rubber Tubing		
	This tubing is excellent for environments with wide temperature ranges. It weathers well, and resists UV radiation, ozone, gases, and moisture. Odorless and tasteless, it is FDA-approved for food applications. Meets specifications of ZZ-R-765D, Class 2A and ASTM D-2000 M1FC 507. This tubing is not recommended for concentrated solvents, acids, oils, or diluted sodium hydroxide. Hardness rating is Durometer Shore Type A 50 ±5, medium. Temperature range is -80 °F to 450 °F.	Ideal for food applications or wherever wide environmental temperature range and weathering are considerations. Not suitable for solvents, acids, oils, sodium hydroxide.
Type 5: Norprene® Industrial Grade Black Tubing		
	This industrial grade tubing outperforms general purpose tubing under harsh conditions. It withstands UV, ozone and inorganic fluids. Hardness rating is Durometer Shore Type A 61. Temperature range is -75 °F to 275 °F.	Outperforms general purpose tubing under harsh conditions. Withstands UV radiation, ozone and inorganic fluids.
Type 6: Black EPDM 12RC194 Square Tubing		
	This pure, opaque EPDM 12RC194 (ethylene propylene diene monomer, M-class rubber) tubing has excellent resistance to UV radiation and ozone. It is tougher than silicone rubber, resists kinking, and has a higher resistance to diluted acids. Meets ASTM D2000. Hardness rating is Durometer Shore A 65 ±5. Maximum pressure is 1800 psi. Temperature range is -40 °F to 300 °F.	Use outdoors in gravity-flow applications with water and ethylene glycol.

**Additional tubing types and sizes are available:
Please check with your Cleveland Controls Sales Representative.**

Material	Temp Range °F	Max PSI	Durometer (Shore Type A)	Approvals	OD (In)	ID (In)	Wall (In)
Flexible, transparent polyvinyl chloride	0 °F to 140 °F	55 psi @ 70 °F	68	Meets FDA standards; approved by UL94HB, NSF 51 and USP VI.	$\frac{3}{8}$ (0.38)	$\frac{1}{4}$ (0.25)	$\frac{1}{16}$ (0.06)
Semi-rigid polyethylene thermoplastic	-40 °F to 150 °F	187 psi @ 75 °F	95	ASTM D1248, Type 1, Class A, Category 4 Federal Specification LP-390C, Type 1, Class L, Grade 2, Category 4.	$\frac{1}{4}$ (0.25)	$\frac{17}{100}$ (0.17)	$\frac{1}{25}$ (0.04)
Unreinforced silicone tubing, peroxide cured	-100 °F to 500 °F	20 psi @ 70 °F	50 ± 5	FDA, NSF51, ASTM D1599	$\frac{1}{4}$ $\frac{1}{8}$ $\frac{5}{16}$ (0.312)	$\frac{3}{8}$ $\frac{1}{4}$ $\frac{3}{16}$ (0.187)	$\frac{1}{16}$ $\frac{1}{16}$ $\frac{1}{16}$ (0.06)
Flexible silicone rubber	-80 °F to 450 °F	20 psi @ 72 °F	50 ± 5	FDA, ZZ-R-765D, Class 2A; ASTM D2000 M1FC 507	$\frac{1}{4}$ (0.25)	$\frac{1}{8}$ (0.13)	$\frac{1}{16}$ (0.06)
		5 psi @ 72 °F			$\frac{3}{8}$ (0.38)	$\frac{1}{4}$ (0.25)	$\frac{1}{16}$ (0.06)
Flexible black Norprene®	-75 °F to 275 °F	12 psi @ 180 °F	61	ASTM D41298; ASTM D1599; ASTM D2240-97; ASTM D1004 -94; D792-98; D570-98; D395-98 Method B; D746-98; D149-97	$\frac{3}{8}$ (0.38)	$\frac{3}{16}$ (0.19)	$\frac{3}{32}$ (0.09)
Flexible black EPDM 12RC194	-40 °F to 300 °F	1800 psi	65 ± 5	ASTM D2000	$\frac{9}{25}$ 0.360 (Square)	$\frac{179}{100}$ 0.179	$\frac{63}{1000}$ 0.063



Precision. *Every Day.*



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