

## Product Bulletin

**KLIXON**

# 20PS, 39PS, 40PS and 41PS Series Pressure Switches



## Key Features

- Snap-acting stainless steel, hermetically sealed sensor
- Environmentally sealed or vented switch
- Factory calibrated pressure setpoints from vacuum to 750 psig (52 Bar)
- Single-pole, single-throw switch, normally open or closed contacts
- High life cycle (>250)
- Gold contacts available

The 20PS series is an automatic reset device that has been designed to meet a broad variety of application requirements in the commercial and industrial sectors.

Attributes of this series are the wide range of pressure settings including vacuum capability as well as port fittings and electrical connection options such as gold contacts. Contingent upon the application needs, this series provides high cycle life and can be produced as a sealed or vented device.

## Applications

Primary applications include high and low limit controls on unitary and central air conditioning systems. Other applications include clutch disconnect and fan cycling switches for vehicle air conditioners, hydraulic and oil sensors for con-

struction and agricultural vehicles, and a variety of commercial and industrial applications.

## Operation

This compact, rugged switch utilizes a snap-acting stainless steel diaphragm that reverses its curvature when pressurized to a customer-specified actuation pressure. When the disc snaps, it opens or closes a set of electrical contacts by means of a transfer pin. Resetting the switch occurs automatically when pressure drops below the release value.

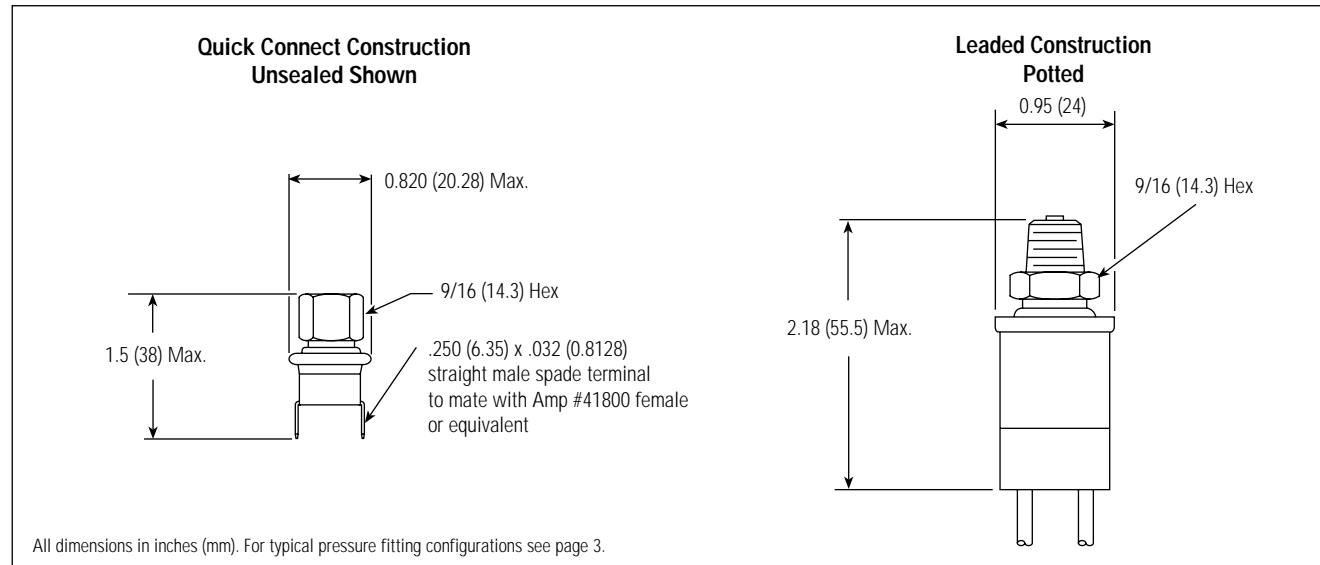
## Product Selection Matrix

Switch Life Cycles	Application Voltage	Environmental Package	Model Number – Termination
>250,000	5-28 Vdc	Sealed	40PS - Wire Leads or #8-32 Screw Terminals
		Unsealed	40PS - Wire Leads or #8-32 Screw Terminals
250,000	5-28 Vdc/120-240 Vac	Sealed	39PS, 41PS - Wire Leads or #8-32 Screw Terminals
		Unsealed	39PS, 41PS - Wire Leads or #8-32 Screw Terminals
		Unsealed	39PS - Wire Leads, #8-32 Screw Terminals, or 1/4" Quick Connects
100,000	5-28 Vdc/120-240 Vac	Sealed	20PS - Wire Leads
		Unsealed	20PS - Wire Leads or #8-32 Screw Terminals
		Unsealed	20PS - 1/4" Quick Connects

## Electrical Ratings

Device	Switch Type*	5-28 Vdc	120 Vac			240 Vac		
		Amps Inductive	FLA	LRA	VA Pilot Duty	FLA	LRA	VA Pilot Duty
20PS	NO/NC	5mA-2A	5.8	34.8	375	2.9	15	375
39PS	NO/NC	400 mA-2A	5.8	34.8	375	2.9	15	375
40PS	NO/NC	5-400 mA	—	—	—	—	—	—
41PS	NO/NC	400 mA-2A	5.8	34.8	375	2.9	15	375

## Typical Dimensional Drawings – 20PS, 39PS, 40PS, 41PS



## Design Specifications – 20PS, 39PS, 40PS, and 41PS

Operating Pressure: Vacuum to 750 psig (635 mm Hg to 52 Bar)

Proof Pressure: 250 psi (17 bar) for actuation up to 100 psi (6.9 bar),  
600 psi (41 bar) for actuation from 100-400 psi (7-28 bar),  
800 psi (55 bar) for actuation above 400 psi (28 bar)

Burst Pressure: 5000 psig (345 bar)

Life at rated Current: 100,000 Cycles (20PS)  
250,000 Cycles (all others)

Dielectric Strength: 750 Vrms across open contacts  
1554 Vrms terminals to fitting

Ambient Temperature: 20PS: -20°F to 150°F (-28.9°C to 65.6°C)  
All others: -40°F to 275°F (-40°C to 135°C)

Fluid Temperature: -65°F to 275°F (-53.9°C to 135°C)

Agency Approvals: UL Recognized File No. SA995  
U.S. Category SDFY2  
Canada Category SDFY8  
PED CE0035 Module B/D  
ENEC Certified  
IP65 & IP67 (leaded)

## Standard Pressure Ranges

Upper Setpoint**	Differential Range***	Minimum Tolerance
Vacuum	10" Hg Min.	Contact TI
12-50 psig	50-60%	±5 psig
51-120 psig	55-70%	±7 psig
121-350 psig	60-75%	±10 psig
351-500 psig	65-80%	±10 psig
501-750 psig	70-80%	±15 psig

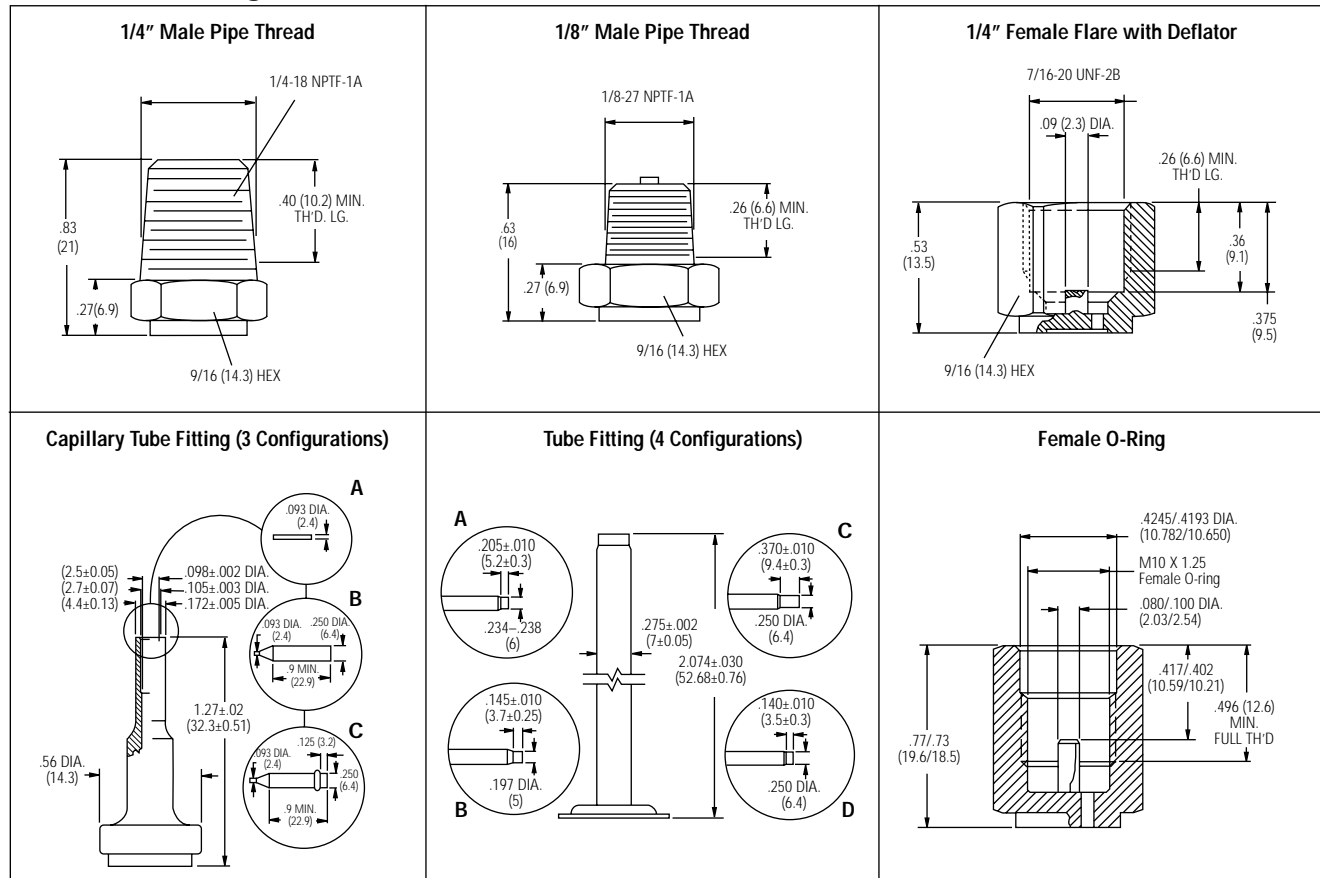
1 bar = 14.5 psi

\*Switch logic at atmospheric pressure. NO = normally open; NC = normally closed.

\*\*Maximum UL recognized pressure rating is 750 psig (52 bar); non-UL ratings to 1000 psig (69 bar).

\*\*\*Differential = (Lower setpoint/Upper setpoint) x 100.

## Standard Fittings



## Complete Product Directory of Texas Instruments Hermetic Pressure Switches

Model	Switch Operation	Switch Configuration	Application Voltage	Electrical Current	Switch Life Cycles (K)	Features
<b>DC Voltage (&lt;28V), Low Current</b>						
36PS	Auto Reset	SPST	5-28 Vdc	5-400 mA	1,000	Narrow differential, tight tolerance
40PS	Auto Reset	SPST	5-28 Vdc	5-400 mA	>250	Dry circuit capability, extended life cycle
20PS	Auto reset	SPST	5-28 Vdc	5-400 mA	>100	Dry circuit capability, extended life cycle
<b>DC Voltage (&lt;28V), High Current</b>						
36PS	Auto Reset	SPST	5-28 Vdc	400 mA-2 A	250	Narrow differential, tight tolerance
39PS	Auto Reset	SPST	5-28 Vdc	400 mA-2 A	250	Extended life cycle
41PS	Auto Reset	SPST	5-28 Vdc	400 mA-2 A	250	High current loads
25PS	Auto Reset	SPST, SPDT	28 Vdc	15 A	100	High current loads
42PS	Auto Reset	SPST, SPDT	28 Vdc	15 A	250	Extended life cycles at high current
44PS	Auto Reset	SPST, SPDT	28 Vdc	15 A	250	Extended life cycles, sealed configuration
45PS	Auto Reset	SPST, SPDT	28 Vdc	15 A	100	High current in sealed configuration
<b>AC Voltage (&lt;240V), Low Current</b>						
20PS	Auto Reset	SPST	120/240 Vac	5.8/2.9 A	100	High current loads
29PS	Manual Reset	SPST	120/240 Vac	6.0/2.9 A	10	Trip free manual reset
36PS	Auto Reset	SPST	120/240 Vac	5.8/2.9 A	100	Narrow differential, tight tolerance
PS80	Auto Reset	SPST	240 Vac	6.0 A	100	Small, lightweight
<b>AC Voltage (&lt;240V), High Current</b>						
25PS	Auto Reset	SPST, SPDT†	120/240 Vac	13/10 A	100	High current loads
42PS	Auto Reset	SPST, SPDT	120/240 Vac	13/10 A	250	Extended life cycles
44PS	Auto Reset	SPST, SPDT†	120/240 Vac	13/10 A	250	Extended life cycles, sealed configuration
45PS	Auto Reset	SPST, SPDT†	120/240 Vac	13/10 A	100	High current in sealed configuration
46PS	Auto Reset	SPST, SPDT†	120/240 Vac	13/10 A	1,000+	Extended cycle life†
<b>High AV Voltage (&lt;600V), High Current</b>						
44PS	Auto Reset	SPST	480/600 Vac	4.0/3.2 A	250	Extended cycle life at high voltage
45PS	Auto Reset	SPST	480/600 Vac	4.0/3.2 A	100	High voltage capability
46PS	Auto Reset	SPST	480 Vac	2 A	1,000+	Extended cycle life†

†Requires TI/Customer specification closure and validation testing.

†Normally open contact on double throw switch is rated 5.8/2.9 Amps. Contact Marketing for additional product information.

Sample Request Data Form *(Please complete as much as possible)*

Company Name and Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Contact \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

Description of Application \_\_\_\_\_  
\_\_\_\_\_

Exact Function of Switch in System \_\_\_\_\_

Cut In Pressure \_\_\_\_\_ Tolerance \_\_\_\_\_ Cut Out Pressure \_\_\_\_\_ Tolerance \_\_\_\_\_

Pressure Port Fitting \_\_\_\_\_ Switch Termination \_\_\_\_\_

Wire Lead Termination (e.g., 1/2 inch strip, 1/4 inch female Q.C, etc.) \_\_\_\_\_

Sustained System Pressure \_\_\_\_\_ Peak System Pressure \_\_\_\_\_

Switch Logic (Contacts to open / close on Pressure Rise) \_\_\_\_\_

Volts (AC/DC) \_\_\_\_\_ Amps \_\_\_\_\_ Inductive / Resistive \_\_\_\_\_

Cycle Life Requirement \_\_\_\_\_ Operating Temperature \_\_\_\_\_

Allowable Drift Over temperature / Life \_\_\_\_\_

Switch Environment (Protected/Unprotected) \_\_\_\_\_

Agency Approvals (UL, VDE, TUV, ?) \_\_\_\_\_ Estimated Annual Volume \_\_\_\_\_

**Important Notice:** Texas Instruments (TI) reserves the right to make changes to or to discontinue any product or service identified in this publication without notice. TI advises its customers to obtain the latest version of the relevant information to verify, before placing orders, that the information being relied upon is current.

Texas Instruments assumes no responsibility for infringement of patents or rights of others based on Texas Instruments applications, assistance or product specifications since TI does not possess full access concerning the use or application of customers' products. Texas Instruments also assumes no responsibility for customers' product designs.

**When completed please return to:**

**Texas Instruments Incorporated**

34 Forest Street, MS 23-10

Attleboro, MA 02703-0964

Phone: 508-236-3800

Fax: 508-236-2349

Email: [tisensors@ti.com](mailto:tisensors@ti.com)

or visit our website @: [www.tisensors.com](http://www.tisensors.com)

