

## P-Series Temperature Switches



P-Series Remote Mount

### FEATURES

- *Explosion Proof and Watertight Enclosure – N7 Models*
- *Easy-to-read scale for approximate setpoint indication ( $\pm 5\%$  accuracy)*
- *Stainless steel internal parts*
- *Easy setpoint adjustment(s) capability*
- *Diaphragm-sealed piston actuator for long life is standard for most ranges*

Ashcroft Inc. supplies highly reliable Ashcroft® switches and controls for industrial and process applications. We begin with rock-solid designs, matching the most appropriate technology with the safety and reliability requirements of the applications. The materials of construction are specified to Ashcroft's exacting standards, and product is built to last in the toughest applications. Our modern, responsive manufacturing facility is supported by an extensive network of stocking distributors and factory sales offices located in virtually every part of the world. Special application assistance is always just a telephone call away.

The Ashcroft P-Series temperature switch line is designed to satisfy most switch requirements. Materials of construction have been selected for long life. A wide variety of precision switch elements are available to meet every application requirement, including hermetically sealed contacts for added reliability and safety. The thermal systems we use have been proven in more than 20 years of service in the world's plants and mills. Special designs are available for more stringent requirements. Simplicity and ease of use are stressed to improve reliability of the installation.

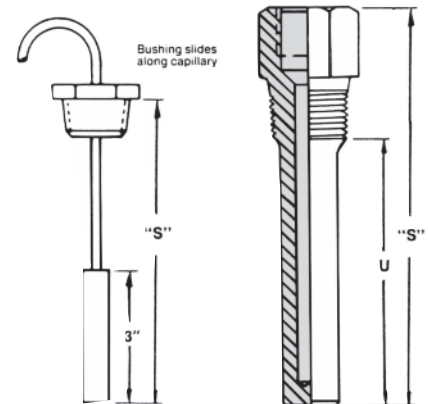
Applications include: pumps, compressors, washers, filters, degreasers, evaporators, recovery systems, food processing, ground support equipment, reverse osmosis systems, heat exchangers, hydraulic systems, lubrication systems, marine equipment, textile machinery, heating and air conditioning equipment.

### Thermowells

Thermowells must be used on any application where the stem of the temperature switch may be exposed to pressure, corrosive fluids or high velocity. Additionally, the use of a thermowell permits instrument interchange or calibration check without disturbing or closing down the process.

Ashcroft temperature switches have bulb diameters to match  $\frac{3}{8}$ " nominal bore thermowells. The bulbs have a sensitive portion length of 2" which can be used with 2½" "U" dimensioned thermowells or longer. For maximum accuracy, a thermowell's "U" dimension should be selected to permit complete immersion of the sensitive portion plus 1" when measuring the temperature of liquids; an extra 3" should be allowed when measuring the temperature of gases.

Thermowell bushings should be used with remote mount temperature switches. We recommend the standard 3" bulb and code 69 Series bushings for use with any thermowell "U" dimension. A split rubber grommet allows easy installation and "S" dimension adjustment.



# P-Series Temperature Switches

## Temperature Switches

P-Series temperature switches feature a SAMA Class II vapor pressure thermal system. This system provides quick, accurate response to process temperature changes with negligible ambient temperature effects. This is inherent in the design due to the precise relationship that exists between temperature

and pressure according to the vapor pressure laws. A wide selection of sensing bulb and armored capillary lengths are available. The vapor pressure system design features small bulb sizes, making installation easy and cost-effective.

All models feature  $\pm 1\%$  percent of

span set point repeatability with very high overtemperature ratings.

These standard designs perform well in applications where shock and vibration could be a problem and should be used with Ashcroft thermowells for bulb protection and ease of installation and maintenance.

### APPROXIMATE DEADBAND

NOMINAL RANGE		MAX. TEMP. °F	PTA <sup>(3)</sup>		PTS <sup>(4)</sup>				PTD <sup>(4)</sup>			
			J,H	G	J,H	K,F	P	GG	JJ,HH	KK,FF	PP	
°F	°C		SWITCH ELEMENT									
-40 to 60	-40 to 16	400	18-90	2-10	9-18	1-2	1-5	2-10	9-18	1-2	1-5	
0 to 100	-20 to 40	400	30-90	2-15	10-30	1-3	1.5-7	2-15	10-30	1.5-3	1.5-7	
75 to 205	20 to 95	400	34-120	2-17	10-34	1.5-3.5	1.5-8	2-17	10-34	1.5-3.5	1.5-8	
150 to 260	65 to 125	400	25-100	2.5-12	9-25	1-2.5	1-7	2.5-12	9-25	1-2.5	1-7	
235 to 375	110 to 190	500	35-130	2-18	10-35	1-3.5	1.5-8	2-18	10-35	1-3.5	1.5-8	
350 to 525 <sup>(6)</sup>	175 to 275	700	40-165	3-25	15-40	2-4.5	2.5-11	3-25	15-40	2-4.5	2.5-11	
500 to 750 <sup>(6)</sup>	260 to 400	900	50-200	20-36	36-60	5-10	6-21	20-36	36-60	5-10	6-21	

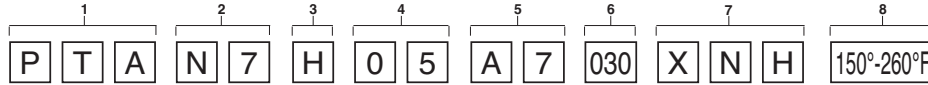
- NOTES:**
- 1 All deadbands are in °F.
  - 2 Switches can be set at increase or decrease throughout the nominal range.
  - 3 Deadbands for PTA models are adjustable between the values shown.

- 4 Deadbands for PTS and PTD models are fixed within the range of values shown. Manufacturing and parts variances result in variation from one unit to another as shown.
- 5 Available with remote mount thermal systems only.
- 6 Not available with 2 $\frac{3}{4}$ " stem.

# P-Series Temperature Switches

## P-SERIES TEMPERATURE SWITCH MODEL NUMBER:

To specify the exact switch desired select entries from appropriate tables as shown in example below.



1 – FUNCTION
<b>PTA</b> – Temperature control, single setpoint, adjustable deadband
<b>PTD</b> – Temperature control, two independently adjustable setpoints, fixed deadband
<b>PTS</b> – Temperature control, single setpoint, fixed deadband

2 – ENCLOSURE
N7-NEMA 7, 9, IP66 (explosion proof Div.1 & 2)

4 – LINE LENGTH <sup>(2)</sup>		
Direct Mount		
ORDER CODE	Line Length	Style
00	Not Applicable	Rigid
Remote Mount		
05	5	Capillary with Armor (Std.)
10	10	
15	15	
20	20	
25	25	

5- THERMAL SYSTEM SELECTION <sup>(1)</sup>	
LINE MATERIAL	
Direct Mount	
ORDER CODE	DESCRIPTION
	No Entry Required for Direct Mount
Remote Mount	
A7	SS Armor (Std.)

6 – BULB LENGTH SELECTION <sup>(3)</sup>		
Direct Mount		
ORDER CODE	“S” DIM.	MIN. <sup>(6)</sup> THERMOWELL “U” DIM.
027 <sup>(10)</sup>	2¾”	–
040	4”	2½”
060	6”	4½”
090	9”	7½”
120	12”	10½”
Remote Mount		
030	3”	2½”

7 – P-SERIES OPTIONS	
CODE	DESCRIPTION
XCH	Chained Cover
XC8 <sup>(9)</sup>	CSA Approval, N7
XFP	Fungus Proof
XFS	Factory Adjusted Setpoints
XJL	¾” to ½” Reducing Bushing
XK3	Terminal Blocks
XNH	Tagging Stainless Steel
XPK	Pilot Light(s)
XPM	¾” Sealed Conduit Connection with 16” Lead Wires
XBX	69 Series Bushing for Thermowell System. ½ Male NPT

8 – STANDARD TEMPERATURE RANGE SELECTION <sup>(4)</sup>
Select from Table on Page 2

3 – SWITCH ELEMENTS FOR PTA CONTROLS			
CODE	S.P.D.T. Switch Elements UL/CSA Listed		
H	General Purpose	10A, 125/250 Vac 1/2A, 125 Vdc 1/4A, 250 Vdc	
J	Hermetically Sealed Switch, General Purpose	11A, 125/250 Vac 5A, 30 Vdc	
SWITCH ELEMENTS FOR PTD AND PTS CONTROLS			
CODE	Single (PS)	Dual (PD)	Switch Elements UL/CSA Listed
C	CC		Heavy Duty – AC 22A, 125/250 Vac
E	EE		Manual Reset, Actuates on Decreasing Pressure 15A, 125/250 Vac 5A, 30 Vdc
F <sup>(4)</sup>	FF		Sealed Environment Proof 15A, 125/250 Vac
G <sup>(5)</sup>	GG		General Purpose 15A, 125/250/480 Vac 1/2A, 125 Vdc 1/4A, 250 Vdc
H	HH		General Purpose – AC-DC 10A, 125/250 Vac 10A, Vdc
J	JJ		Hermetically Sealed Switch, General Purpose 11A, 125/250 Vac 5A, 30 Vdc
K <sup>(4)</sup>	KK		Narrow Deadband 15A, 125/250 Vac
L	LL		Hermetically Sealed, Gold Contacts 1A, 125 Vac
M	MM		Low Level Gold Contacts 1A, 125 Vac
P <sup>(3)</sup>	PP		Hermetically Sealed – AC 5A, 125/250 Vac
U	UU		Manual Reset, Actuates on Increasing Pressure 15A, 125/250 Vac 6A, 130 Vdc
W	WW		Ammonia Service 5A, 125/250 Vac 6A, 30 Vdc
Y	YY		High Temperature 300°F Ambient 15A, 125/250 Vac
S	SS		Heavy Duty – DC 10A, 125 Vac or Vdc 1/8 HP, 125 Vac or Vdc

### NOTES:

- |  |   |
|--|---|
| <p>1 All thermal systems are 316 St. St.<br/>2 Additional line lengths available, consult factory.<br/>3 Additional bulb lengths available, consult factory.<br/>4 Additional ranges available, consult factory.<br/>5 Estimated dc rating, 2.5A, 28Vdc (not UL listed).</p> | <p>6 Estimated dc rating, .4A, 120 Vdc (not UL listed).<br/>7 Not UL listed at 480 Vac.<br/>8 See page 5 for thermowell application information.<br/>9 Standard on N4 enclosure.<br/>10 Not available in 350/5250F range.</p> |
|--|---|

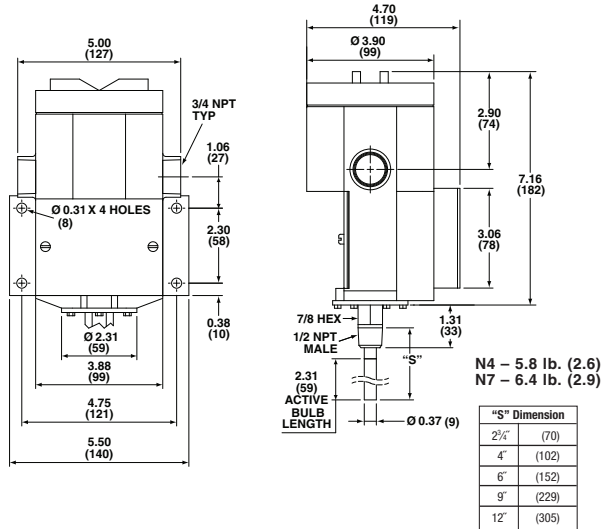
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# P-Series Temperature Switches

## Dimensions – P-Series

### Temperature Switch – Direct Mount



### Temperature Switch – Remote Mount

