Model 4250 Series

Hazardous Duty Temperature / Pressure Switches

FEATURES

- EXPLOSION PROOF
- CSA APPROVED
- BASEEFA CERTIFIED
- SINGLE / DUAL TEMPERATURE
- SINGLE / DUAL PRESSURE
- PRESSURE / TEMPERATURE

APPLICATIONS

- JACKET WATER OVER-TEMPERATURE
- ENGINE / COMPRESSOR COOLANT LOSS
- ENGINE / COMPRESSOR OIL OVER-TEMPERATURE
- PROCESS ALARMS
  ~OVER-TEMPERATURE
  ~UNDER-TEMPERATURE

The 4250 Series is designed for use wherever explosion-proof switches are needed to sense pressure or temperature. Several types are available for sensing dual temperatures, dual pressures or single pressure and temperature points. Pressure ranges from 5-250 psi (35-1723 kPa) and temperature ranges from 60-245 °F (16-118 °C) are available.

The 4250 Series is ideal for providing a quick action switch at set points on engine and compressor coolants systems, process control points, lubrication systems and alarm systems in hazardous duty locations. Well established and long proven pressure and temperature sensing methods enable precise and reliable operation largely unaffected by changes in ambient conditions. These units are inexpensive and easy to install since multifunction and dual switching types share common housings.

Model Types

Model 4251 Pressure and Temperature Switch combination with two switches, one for the pressure set point and the other for temperature set point.

Model 4252 Pressure Switch with one pressure set point.

Model 4253 Temperature Switch with one temperature setpoint.

Model 4254 Temperature Switch with two switches, each independently adjustable, providing two temperature set points, within the limits of one chosen temperature range.

Model 4255 Pressure Switch with two switches, each independently adjustable providing two pressure setpoints within the limits of the chosen pressure range.

BASEEFA Certification

The 4250M Series has received certification from the British Approvals Service for Electrical Equipment in Flammable Atmospheres to meet the requirements of BS5501: Part 5: 1977 (EN50018) for Group IIB and Temperature Class T6. The BASEEFA approved 4250M series switches are furnished with screw terminals only, no wire installed.

A unique feature of the 4250 Series is that once the set point adjustments have been made, the individual switch and bracket assemblies may be removed from and returned to the housing without altering the settings. The switches must be removed from the BASEEFA versions for wiring.

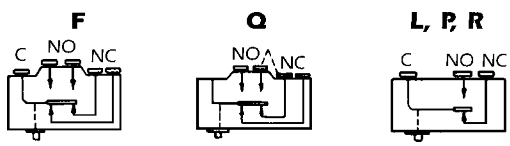
CSA Approval

The 4250A series has Canadian Standards Association approval as follows:

Class I, Group D; Class II, Group E, F, G; Class III, and Enclosure 4.

The CSA approved 4250A Series switches are furnished with wires installed only.

Switch Types, Ratings



Voltage	AC		DC	
	Resistive	Inductive	Resistive	Inductive
15			15.0	10.0
30			5.0	5.0
50			1.25	1.25
75			0.25	0.30
150	15.0	15.0	0.75	0.05
250	15.0	15.0	0.50	0.03
380	15.0	5.0	0.25	
480	15.0	4.0		

Pressure Range Falling Pressure in PSI	Pressure Differential in PSI		
	Type R, F, Q	Type P	Type L
5 - 25	4 ± 2	1.5 ± 1	6 ± 2
15 - 75	9 ± 3	4 ± 2	12 ± 3
45 -125	13 ± 4	7 ± 3	16 ± 4

Pressure ranges shown indicate switch settings on falling pressure. For rising pressure, add the particular switch differential to the falling range limits shown.

Installation

Temperature elements must be located well into the fluid stream. If the standard temperature element is too short extensions are available.

Apply a quality thread sealant such as Loctite pipe sealant to pipe thread connections. Avoid introducing chips, dirt or other abrasive material into the pressure bonnet as these may damage the diaphragm. On the dual-temperature (Model 4254) and dual-pressure (Model 4255) versions, the left-hand switch (as you face the open unit with well pointing down) is set at the factory for the lower of the 2 settings.

Adjustment

The 4250 Series Switches are set at the factory at the set point(s) stamped on the nameplate. Temperature adjustments within the range of the sensing element may be made by turning the adjusting screw clockwise to raise the setting, counter clockwise to lower it. One turn of the adjusting screw equals approx. 10 °F except in the 215-225 °F range where one turns equals approx. 6 °F. Pressure sensing types may be readjusted within their pressure range by turning the adjusting screw clockwise to raise the trip point, counterclockwise to lower it.

Specifications

Housing Material .... Cast Aluminum
Diaphragm Material .... Nitrile or Viton
Max. Pressure on Diaphragm .... 350 psi
Max. Pressure on temp. Element .... 800 psi
Max. Case Temp. (Type P & Q switches) ....250°F
(all other switches) ....180°F
Max. Met Weight .... 4.6 lbs (2.1 kg)
Max. Shipping Weight .... 5.4 lbs. (2.4 kg)

Temperature Range in °F	Temperature Differential In °F		
	Type R, F, Q	Type P	Type L
60 - 95	3 ± 2	2 ± 2	4 ± 2
96 - 130	4 ± 2	3 ± 1	5 ± 2
131 - 160	5 ± 2	4 ± 1	6 ± 2
161 - 180	5 ± 2	4 ± 1	6 ± 2
181 - 210	5 ± 2	4 ± 1	6 ± 2
215 - 225	4 ± 2	3 ± 1	5 ± 1
226 - 245	5 ± 1	4 ± 1	6 ± 1

1. Temperature ranges shown indicate setting on rising Temperature. For Falling temperatures subtract the particular switch differential from the given range.

2. Temperature differentials are generally greater at the low end of a Range.

Model Coding

Model 4251 M 1 1 R 1 A A 02 V ( ) ———— MTO

Code	Approvals
A	CSA Approvals
M	BASEEFA Certified

Basic Model	
Code	**Description**
4251	Pressure/Temperature (Pressure Ranges 1-3 Only)
4252	Single Pressure
4253	Single Temperature
4254	Dual Temperature
4255	Dual Pressure

Code	Pressure Range
1	5 - 25 psi(0.34 - 1.72 Bar)
2	15 - 75 psi (1.03 - 5.17 Bar)
3	45 - 125 psi (3.10 - 8.62 Bar)
4	80 - 250 psi (5.52 - 17.24 bar)
0	Non-Pressure version

Code	Material
1	Buna N
2	Viton

Code	Microswitch Type
F	Temperatures 1 - 6
L	Temperatures 1 - 6
P	AS R, Temperatures 1 - 7
Q	Temperatures 1 - 7
R	(Standard), Temperatures 1 - 6 only

Code	Temperature Without Well Range °F	°C	Temperature With Well Range °F	°C
1	60-95	15-35	70-105	21-40
2	96-130	35-54	106-140	41-60
3	131-160	55-71	141-170	60-76
4	161-180	71-82	171-190	77-88
5	181-210	83-99	191-220	88-104
6	215-225	101-107	225-235	107-113
7	226-245	108-118	236-255	113-124

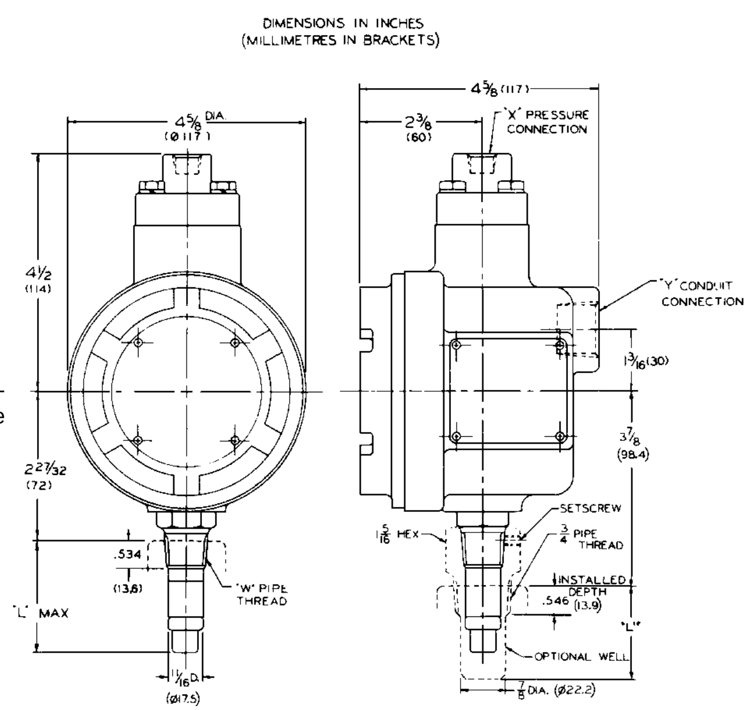
Calibration Option
V = Unit to be calibrated for use with a thermowell
N = Pressure version or not thermowell calibrated

Temperature Element Extension		
Code	**Installed Depth**	
00	2 3/16"	(55.56 mm)
01	3 1/16"	(77.78 mm)
02	3 5/16"	(84.14 mm)
03	3 13/16"	(96.84 mm)
04	4 5/16"	(109.54 mm)
05	4 13/16"	(122.24 mm)
06	5 5/16"	(134.94 mm)
07	5 13/16"	(147.64 mm)
08	9 7/16"	(239.70 mm)
99	Non-temperature Version	

Code	Conduit Thread
A	NPT
B	M20
C	PG 13.5
D	PG 16

Code	Thread	Finish
A	NPT	Standard Finish
B	NPT	Gulfproof Finish
C	BSP*	Standard Finish
D	BSP*	Gulfproof Finish

Note; BSP gives parallel thread on pressure bonnet, taper thread on temperature extension.



How to Order

To order a 4520 Series pressure or temperature switch, please construct the appropriate model number from the model coding table above, or specify the following information.

1) AMOT Model Number 4251, 4252, 4253, 4254, or 4255
2) Requested pressure range.
3) Buna N or Viton seals
4) Required microswitch type.
5) Required temperature range
6) Thread and finish type required.
7) Conduit thread type.
8) Temperature element extension length
9) Calibrated in a well or not
10) For any other special requirements please contact AMOT or your local representative.

Maintenance

Properly applied and installed, AMOT 4250 Series Switches require minimal maintenance. An inspection of the unit at yearly intervals is adequate to detect and make provision for normal wear. The diaphragm and O-rings should be checked for wear, damage, and hardness and replaced as necessary. Lightly coat the diaphragm and O-rings with Dow Corning No. 33 Grease (AMOT Part No. 911L001) before installing them. Other internal parts should be inspected for excessive wear or damage and replaced as necessary.

AMOT designs and tests all its products to ensure that high quality standards are met. For good product life, carefully follow AMOT's installation and maintenance instructions; failure to do so could result in damage to the equipment being protected or controlled.

When communicating with AMOT regarding operation or service of a control, always give the Model No. and Serial No. If ordering service parts include the Description & Part No. in addition, Please also include Form No., Revisions No., and date of this brochure.

Stainless Steel Well

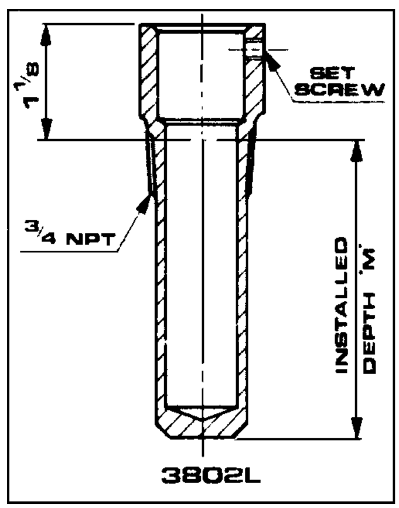
A stainless steel well may be ordered with the Type 4251, 4253 and 4254 switches as an option. The Model 3802L well is usable up to 5000 psi service and has a non-threaded bore with set screws for quick installation or removal of the switch. Wells and valves ordered at the same time will be assembled at the factory using AMOT 907L002 Silicon Heat Transfer Compound in the well. This is necessary to reduce the temperature lag experienced by controls when fitted to immersion wells. Lag will vary according to the fluid and flow conditions.

Model 2766L Well is also available for 10,000 psi service. Contact the factory for details.

Temp. Element Extension Code	Well Part No.	Length "M"
00	3802L001	1-13/16"
01	3802L003	2-9/16"
02	3802L004	3-9/16"
03	3802L005	3-9/16"
04	3802L006	4-9/16"
05	3802L007	4-9/16"
06	Not Available	
07	Not Available	
08	Not Available	

SERVICE PARTS

4250 Series		
Ref. No.	**Description**	**Part No.**
7	Diaphragm, Buna N	7818
	Diaphragm, Viton	7815L002
13	Switch, Type F	5280
	Type, L	5636
	Type P	5755
	Type Q	5993
	Type R	6607
34	O-Ring, cover	11042L001
39	Temperature Element,	
	Table D, Code 1	1981X55
	Table D, Code 2	1981X090
	Table D, Code 3	1981X120
	Table D, Code 4	1981X145
	Table D, Code 5	1981X175
	Table D, Code 6	1981X210
	Table D, Code 7	1981X220
46	O-Ring, element	207
49	O-Ring (for use on extensions only)	1625



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