

TEMPERATURE

ANC4B 316 stainless steel or black anodised aluminium switchcase to IP66 standards.

Calibrated adjustment scale.

Capillary version 2m to 10m stainless steel armoured

Settings from -40 to 250°C.

Single or dual microswitch option.

Wetted parts NACE MR-01-75 compliant.

ATEX Flameproof Version
 CE Ⓢ II2GD EExd IIB + H₂ T6 & T5
 T6 Tamb -55 to +60°C, T6 +75°C
 T5 -55 to +90°C

ATEX Intrinsically Safe Version
 CE Ⓢ II1GD EEx ia IIC T6, T5 & T4
 T6 Tamb -50 to +78°C, T5 +93°C
 T4 -50 to +128°C

TF171 & TF172 TITAN ATEX EExd, EExia CERTIFIED & INDUSTRIAL TEMPERATURE SWITCH



The standard range represents the basic models to cover temperature applications from -40 to +250°C. TF171 is supplied fitted with a screwed thermowell, TF172 has no thermowell but is supplied with a screwed stem. For specification and introduction to the Titan switch range refer to pages 46 and 47.

Thermowell and stem material :
 316 stainless steel.

Thermowells can be provided flanged or screwed to suit the application. All exotic metals can be catered for. Material certificates and wake frequency vibration analysis calculations can be provided

Max working pressure :
 35 Bar - standard
 420 Bar - high pressure

ADJUSTMENT RANGE (°C)	MAXIMUM TEMPERATURE (°C)	DEADBAND - FIXED WITH THERMOWELL (°C)	TEMPERATURE CODE	THERMOWELL "U" DIMENSIONS IN MM
-40 TO +10	70	<5	EL	38, 45, 50, 60*,
-10 TO +40	100	<4	LT	75*, 100, 125,
0 TO 50	100	<4	LT	150, 175, 20, 225, 250,
20 TO 70	120	<4	MT	300, 350, 400, 600,
50 TO 100	150	<4	MT	660, 800, 1000 & 1200
70 TO 120	150	<8	MT	
100 TO 180	230	<8	HT	*STANDARD LENGTHS
150 TO 230	280	<8	HT	

Repeatability : +/-1.5% of range (at operating temperature up to 40°C).

Temperature limitations :
 Ambient : -30 to +86°C
 Storage : -60 to +80°C

Calibration rate : 2°C per minute rate of change.

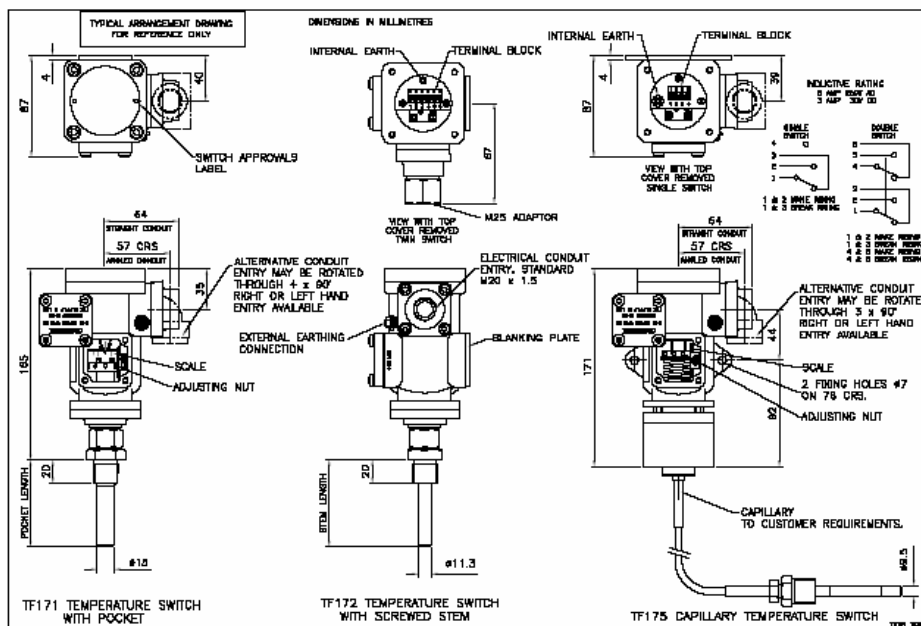
Manufacturer catalogue page 58

PART NUMBER BREAKDOWN		
B = ATEX EExd CERTIFIED O = ATEX EExia CERTIFIED A = INDUSTRIAL U = UL A = ALUMINIUM CASE S = ST. STEEL CASE	P = WITH THERMOWELL S = LESS THERMOWELL TEMPERATURE ELEMENT CODE (REFER TO TABLE) "U" DIMENSION (REFER TO TABLE)	ELECTRICAL ENTRY A = M20 STRAIGHT B = M20 ANGLED C = 1/2" NPT STR. F = M25 STRAIGHT
T F 1 7 1 S 1 B / 0 6 0 M T / P A 1 X A		
1 = WITH THERMOWELL 2 = LESS THERMOWELL 1 = 1 x SPDT SWITCH 2 = 2 x SPDT SWITCH DUAL SWITCHES ARE MECHANICALLY LINKED TO PROVIDE DPDT SWITCHING ACTION	PROCESS CONNECTION A = 1/2" BSP.P B = 1/2" NPT C = 3/8" BSP.P D = 3/4" BSP.P E = 3/4" NPT F = 1" BSP.P	X = BLANKING PLATE STD. E = 2" STANDPIPE BRACKET A = MOUNTING BRACKET
THERMOWELL STEM 1 = 316 ST.ST 4 = HIGH PRESSURE 8 = SLIDING GLAND 0 = FLANGED (SPECIAL THERMOWELL)		

CAPILLARY ACTION

All switches can be provided with 316 stainless steel armoured capillary between 2 and 10 metres in length with insertion lengths between 100 and 600mm. Full part number will be advised by our sales office upon receipt of your specification.

RANGE (DEG. C)	TEMP. CODE	MAX. TEMP
-46 TO 0	40	40
-20 TO +20	41	70
0 TO 45	42	80
20 TO 90	45	120
60 TO 120	43	145
100 TO 180	44	200
160 TO 250	46	290



Manufacturer catalogue page 59

TITAN (XPB) ATEX EExd, EExia INDUSTRIAL SWITCHES

INTRODUCTION

The Titan **pressure, differential pressure, temperature, level and flow** switches are designed for use in environments where explosive gases and dust can be present (e.g. Gas fields, oil rigs and chemical plants etc.) and have been ATEX certified for CAT 1 EExia IIC T6, T5 & T4 and CAT 2 EExd IIB +H₂ T & T5.

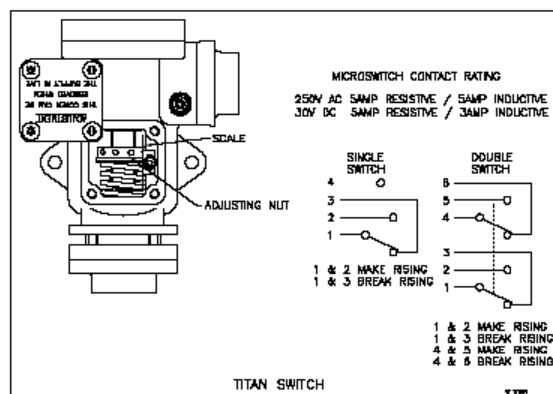
Please note, our EExd switches are available with three maximum ambient temperature options, T6 + 60°C which is standard, T6 + 75°C & T5 + 90°C. Cable selected by customer upon installation should be suitable for ambient temperature, label for + 75°C states cable suitable for 85°C must be used and + 90°C states a 100°C requirement for cable.

These switches are manufactured from a high quality casting which offers robust construction and protection to IP66 for use within heavily polluted industrial and marine environments. A special feature of the instruments is the separation of the flameproof and adjustment compartments allowing for safe on-site adjustment of the set point with power on and the switch in operation.

The Titan range has been certified for mounting against a flush wall or bulkhead via the fitted bracket, therefore the flamepath minimum distances specified in BS EN60079-14:1997 are not applicable.

CALIBRATION

The design features a simple form of calibration adjustment against a scale plate. This allows users to either order units with a specific setting, or stock a mid range setting and then adjust to suit the application. This can be set safely with the switch supply live. On removal of the adjustment cover the adjusting ring can be turned with a small Tommy bar or Allen key. The setting is read from the centre of the red pointer ring against the calibrated scale plate. Rotation to the left will increase the set point and to the right decrease the set point. The adjustment mechanism incorporates a friction device to ensure set point will not change under vibration conditions.



When we are requested to supply switches set at a specific point we can guarantee setting accuracy of less than 2%.

Manufacturer catalogue page 46

TECHNICAL SPECIFICATION

Switchcase and covers : ANC4B 316 stainless steel or black anodised aluminium switchcase.

Microswitch : 1 x SPCO/SPDT or 2 x SPCO/SPDT mechanically linked to provide DPDT switching action, reset of switches could be up to 3% apart, dual microswitches may increase deadband by a factor of two.

Contact material : Gold plated silver contacts.

Microswitch rating :

5 Amps @ 250 VAC resistive and inductive.

5 Amps @ 30VDC resistive, 3 Amps @ 30 VDC inductive.

Electrical connections : Terminals suitable for cable 0.5 - 2.5 mm².

Electrical Conduit Entry : M20 x 1.5 or 1/2" NPT.

Environmental Protection : Switches have been tested and certified by an external test house to IP66 in accordance with BS EN 60529 : 1992.

Vibration and shock parameters : Switches were subjected to Ministry of Defence Type Approval System Test Vibration DGS 350 Paras 0602 & 0603. Shock – BR3021.

Temperature Limitations : Pressure, Vacuum and Differential Pressure

Ambient : -40 to +125°C (standard) -50 to 85°C (special)

Process : Diaphragm actuated -50 to +90°C (Nitrile) or -20 to +150°C (Viton).

Piston actuated -40 to 120°C (Nitrile) or -20 to +150°C (Viton).

Storage : -60 to +80°C

(for temperature, level and flow switches please refer to specific pages).

Certification : All switches are CE certified and marked in accordance with the following EU directives

Industrial : 73/23/EEC Low Voltage Directive

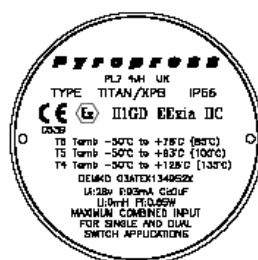
EExia : 94/9/EC ATEX coded CE II 1GD EExia IIC for CAT 1 (Zone 0) areas

EExd : 94/9/EC ATEX coded CE II 2GD EExd IIB + H₂ for CAT 2 (Zone 1) areas

Accuracy : +/-1% at 20°C



XPB XPB/R T6



IS



Manufacturer catalogue page 47