

## TITAN TEMPERATURE

# TF171 & TF172 TITAN ATEX/IECEX Exd, Exia CERTIFIED & INDUSTRIAL TEMPERATURE SWITCH

The standard range represents the basic models to cover temperature applications from -10 to +240°C. TF171 is supplied fitted with a threaded thermowell, TF172 has no thermowell but is supplied with a threaded stem.

**Thermowell and stem material :** 316 stainless steel.  
**Max working pressure :** 35 bar - standard, 420 bar - high pressure. Thermowells can be provided flanged or threaded to suit the application. All exotic metals can be catered for. Material certificates and wake frequency analysis calculations can be provided.

## FEATURES

- ✓ Rigid stem 316 stainless steel or black anodised aluminium switchcase to IP66 standards.
- ✓ Capillary version available (see TF175 & TF176 data sheet).
- ✓ Single or dual microswitch option.
- ✓ ATEX/IECEX Flameproof version  
CE II2G Exd IIB + H2 T6...T2 Gb  
Ta-60 to +75°C...90°C
- ✓ Internal adjustment scale.
- ✓ Settings from -10 to 240°C.
- ✓ Wetted parts NACE MR-01-75 option.
- ✓ ATEX/IECEX Intrinsically safe version  
CE II1G Exia IIC T6...T2 Ga  
Ta -50 to +78°C...128°C



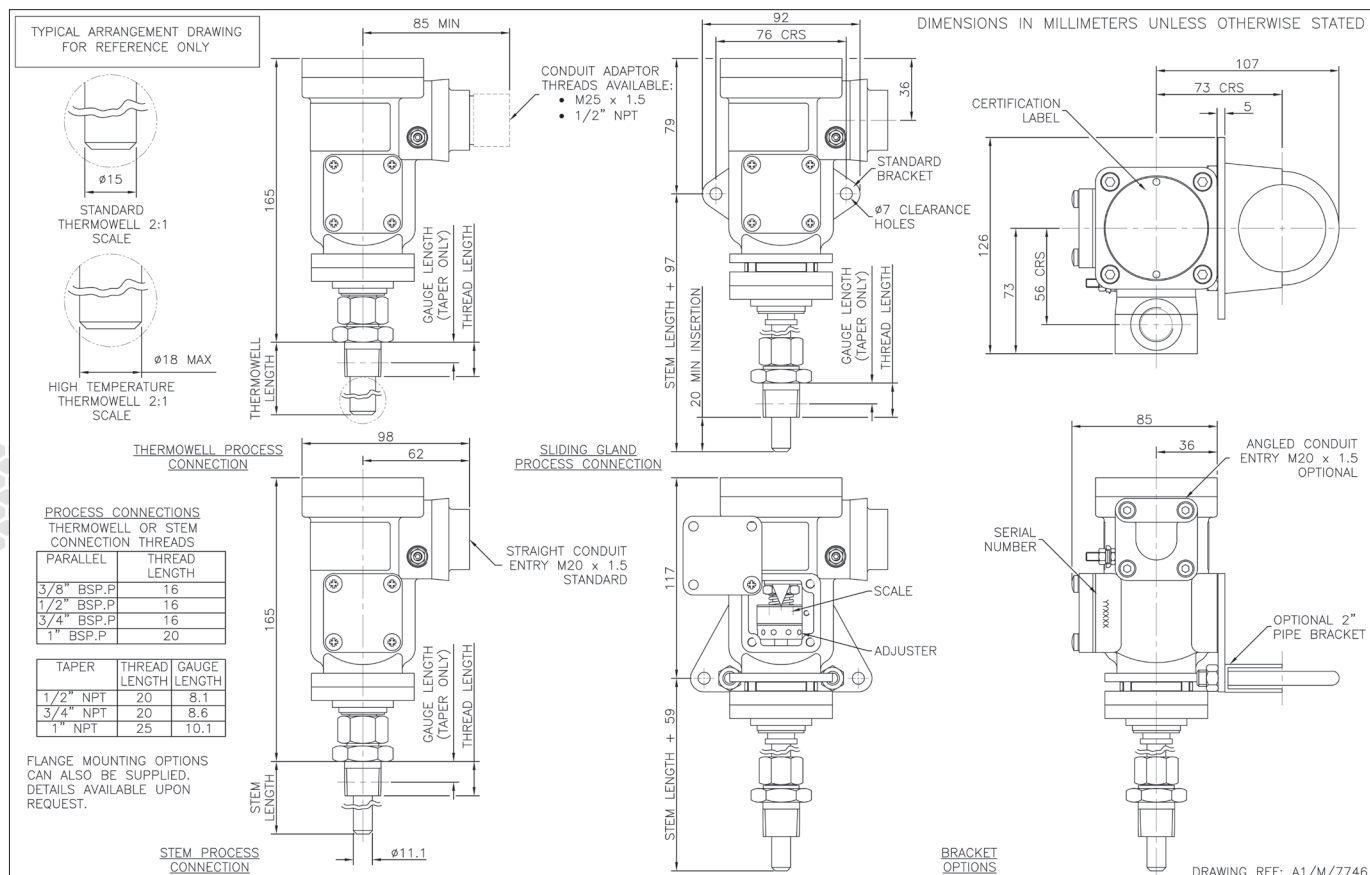
## TEMPERATURE

ADJUSTMENT RANGE (°C)	MAXIMUM TEMPERATURE (°C)	DEADBAND - FIXED WITH THERMOWELL (°C)	TEMPERATURE CODE	THERMOWELL "U" DIMENSIONS IN MM
-10 TO +40	100	<10	L1	38, 45, 50, 60*, 75*, 100, 125, 150, 175, 20, 225, 250, 300, 350, 400, 600, 660, 800, 1000 & 1200 *STANDARD LENGTHS
0 TO 50	100	<10	L2	
25 TO 75	125	<10	M1	
50 TO 100	150	<10	M2	
75 TO 125	175	<10	M3	
100 TO 150	200	<10	M4	
125 TO 175	200	<10	M5	
150 TO 200	250	<10	H1	
175 TO 225	280	<10	H2	
200 TO 240	280	<10	H3	

**Repeatability** : +/-1.5% of range (at operating temperature up to 40°C).  
**Temperature limitations** : Ambient : -20 to +85°C, Storage : -20 to +85°C.  
**Calibration rate** : 2°C per minute.

## PART NUMBER BREAKDOWN

<b>B</b> = ATEX/IECEX Exd CERTIFIED <b>O</b> = ATEX/IECEX Exia CERTIFIED <b>A</b> = INDUSTRIAL	<b>P</b> = WITH THERMOWELL <b>S</b> = LESS THERMOWELL	<b>ELECTRICAL ENTRY</b> <b>A</b> = M20 STRAIGHT <b>B</b> = M20 ANGLED <b>C</b> = 1/2" NPT STR. <b>F</b> = M25 STRAIGHT
<b>A</b> = ALUMINIUM CASE <b>S</b> = ST. STEEL CASE	<b>TEMPERATURE ELEMENT CODE</b> (REFER TO TABLE)	
	<b>"U" DIMENSION</b> (REFER TO TABLE)	
<div style="text-align: center; font-size: 2em; font-weight: bold; letter-spacing: 0.5em;">T F 1 7 1 S 1 B / 0 6 0 M 2 / P A 1 X A</div>		
<b>1</b> = WITH THERMOWELL <b>2</b> = LESS THERMOWELL	<b>PROCESS CONNECTION</b> <b>A</b> = 1/2" BSP.P <b>B</b> = 1/2" NPT <b>C</b> = 3/8" BSP.P <b>D</b> = 3/4" BSP.P <b>E</b> = 3/4" NPT <b>F</b> = 1" BSP.P <b>G</b> = 1" NPT <b>J</b> = 1.1/4" BSP.T <b>K</b> = 1/2" BSP.T <b>O</b> = SPECIAL CONNECTION (E.G. FLANGE, SCREWED THERMOWELL OR BRACKET)	<b>X</b> = BLANKING PLATE STD. <b>E</b> = 2" STANDPIPE BRACKET <b>A</b> = MOUNTING BRACKET
<b>1</b> = 1 x SPDT SWITCH <b>2</b> = 2 x SPDT SWITCH  DUAL SWITCHES ARE MECHANICALLY LINKED TO PROVIDE DPDT SWITCHING ACTION		<b>THERMOWELL/STEM</b> <b>1</b> = 316 STAINLESS STEEL <b>4</b> = HIGH PRESSURE <b>8</b> = SLIDING GLAND <b>9</b> = BRACKET MOUNTED <b>0</b> = SPECIAL CONNECTION (E.G. FLANGE OR SCREWED THERMOWELL)



# TITAN (XPB) ATEX & IECEx Exd, Exia

## INDUSTRIAL SWITCHES

### INTRODUCTION

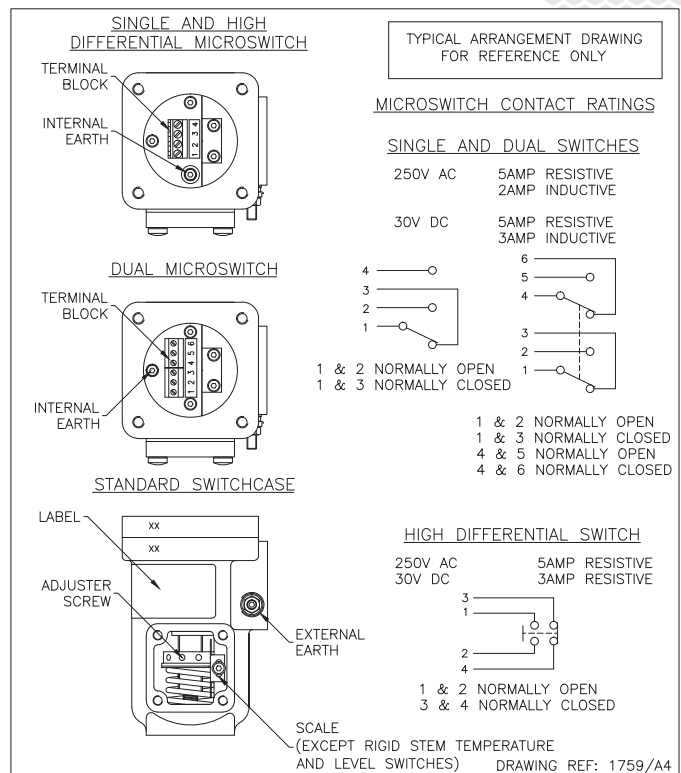
The Titan **pressure, differential pressure, temperature, level and flow** switches are designed for use in environments where explosive gases can be present (e.g. Gas fields, Oil rigs and Chemical plants etc.) and have been ATEX and IECEx certified as detailed overleaf. (SIL 2 - IEC61508 proven reliability).

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 Exd certified switches must be installed in accordance with BS EN 60079-14. The certification allows for mounting against a wall or bulkhead with the minimum flamepath distances specified not being 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.



# TECHNICAL SPECIFICATION

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

**Microswitch:** 1 x SPCO/SPDT or 2 x SPCO/SPDT gold flashed silver contacts. Dual switches are 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.

**Microswitch rating :** 5 Amps @ 250 VAC resistive, 2 Amps @ 250 VAC inductive.  
5 Amps @ 30 VDC resistive, 3 Amps @ 30 VDC inductive.

**Electrical connections :** Terminals suitable for cable 0.5 - 2.5 mm<sup>2</sup>.  
(Max 1.5mm<sup>2</sup> for dual microswitch version)

**Electrical Conduit Entry:** M20 x 1.5 straight or angled entry. ½" NPT via adaptors

**Environmental Protection:** IP66 in accordance with BS EN 60529

**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.

**Process:** Diaphragm actuated (unless otherwise stated) -30 to +100°C (Nitrile) or -20 to +150°C (Viton). Piston actuated -30 to +100°C (Nitrile) or -20 to +150°C (Viton), -40 to 150°C (PTFE) or -35 to +100°C (EPDM).

**Ambient:** -50 to +85°C (standard). Storage : -60 to +85° Deg C.

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

**Certification:** Switches can be supplied for gas environments (dust must be specified at time of enquiry).

**ATEX/IECEX certified Exd Flameproof** - Gas (with or without resistors)

CE Ex II2G Exd IIB + H2T6 Ta -60 to +75°C, T5 Ta +90°C

Special conditions for safe use. 1) No modifications must be made to the flamepaths of the unit without consultation of the drawings listed on the certificate. 2) Suitably rated cable must be selected based on t Class shown above. 3) Fasteners of yield strength 240Nmm<sup>2</sup> or greater are to be utilised. 4) Only suitably certified Ex d IIC Gb cable glands are to be used.

**ATEX/IECEX certified Exia Intrinsically Safe** - Gas

CE Ex II1G Exia IIC T6 Ta -50 to +78°C, T5 Ta +93°C, T4 Ta +128°

CE Ex II1G Exia IIC T5 Ta -50 to +72°C, T4 Ta +122°C (with resistors)

Special conditions for safe use. (Category 1, Zone 0) Aluminium may only be used when the ignition hazardous assessment shows that there is no risk of ignition from incendive, impact or abraision sparks.

**Accuracy:** +/-1% at 20°C

Continuous development may result in changes to specifications without prior notice.

## ABOUT PYROPRESS

Our products are designed to work in demanding and hazardous environments which require fast and cost effective solutions in instrumentation and control.

Pyropress control sensors provide safe and reliable electrical switching of alarm or control circuits in response to changes in temperature, pressure, differential pressure, vacuum, flow and level conditions.

## QUALITY

To support the design of state of the art products the company has invested heavily in the latest CNC technology.

We are able to produce our own components to a high degree of accuracy assuring a reliable and consistent quality product.