

## TITAN LEVEL

### TYPE LF34 HORIZONTAL LEVEL SWITCH

Switching is effected in this unit through transforming, by means of an eccentric cam at fulcrum, the vertical motion of the float with level change to the considerably reduced movement of a horizontal switch plunger which is arranged to operate a SPDT/SPCO microswitch. Isolation of the switch mechanism from liquid monitored is effectively maintained by the use of a seal on the horizontal switch plunger.

This type of level switch can therefore be used on tanks under pressure or vacuum, being suitable for pressures up to 3.5 bar (spherical float only) and liquid temperatures up to 100°C.

The switch can be installed either via a 27mm clearance hole, utilising the joint washer and back nut supplied, and the float re-attached to the rod. Where there is no access to the tank interior, the cylindrical float with 2"/50mm flange version enables installation without removing and re-attaching the float.



### TYPE LF35 VERTICAL LEVEL SWITCH

This design is suitable for mounting through a tank top or cover and utilises a free float principle. The float is allowed to travel unrestricted up or down the rod in response to level change between the limits set by the upper and lower adjustable rod collars which are fixed in position at preselected points.

Both types LF35A (for high or low alarms) and type LF35B (with a latching mechanism suitable for pump control) can be installed in non-pressurised tanks and sumps with liquid temperatures up to 100°C. They can be fitted with a cover plate or flange to ease installation. The float rod can be supplied between 260mm and 2000mm to suit application, the required length must be stated upon ordering. Each float switch is tested and adjusted individually to suit float/float rod fitted. Wetted parts are 316 stainless steel with nitrile seal.

## FEATURES

- ✓ 316 stainless steel or black anodised aluminium switchcase to IP66 standards.
- ✓ Horizontal or vertical mounting.
- ✓ Single or dual microswitch option.
- ✓ ATEX/IECEX Flameproof version  
CE II2G Exd IIB + H2 T6...T2 Gb  
Tam -60 to +75°C...90°C
- ✓ ATEX/IECEX Intrinsically safe version  
CE II1G Exia IIC T6...T2 Ga  
Tam -50 to +78°C...128°C

## PART NUMBER BREAKDOWN

### MODE OF OPERATION

**A** = HIGH OR LOW LEVEL ALARM  
**B** = PUMP CONTROL (TYPE LF35 ONLY)

**FS050** = LF34 SPHERICAL FLOAT 4" ROD  
**FS051** = LF34 CYLINDRICAL FLOAT 4" ROD  
**FS052** = LF34 CYLINDRICAL FLOAT 8" ROD  
**FS053** = LF34 CYLINDRICAL FLOAT 2" ROD

### ELECTRICAL ENTRY

**A** = M20 STRAIGHT  
**B** = M20 ANGLED  
**C** = 1/2" NPT STR.  
**F** = M25 STRAIGHT

**FS001** = LF35 MODE A  
**FS002** = LF35 MODE B

**LF34AA1B/FS050S/XA**

**LF34** = HORIZONTAL  
**LF35** = VERTICAL

**A** = ALUMINIUM CASE  
**S** = ST. STEEL CASE

**B** = ATEX/IECEX Exd CERTIFIED  
**O** = ATEX/IECEX Exia CERTIFIED  
**A** = INDUSTRIAL

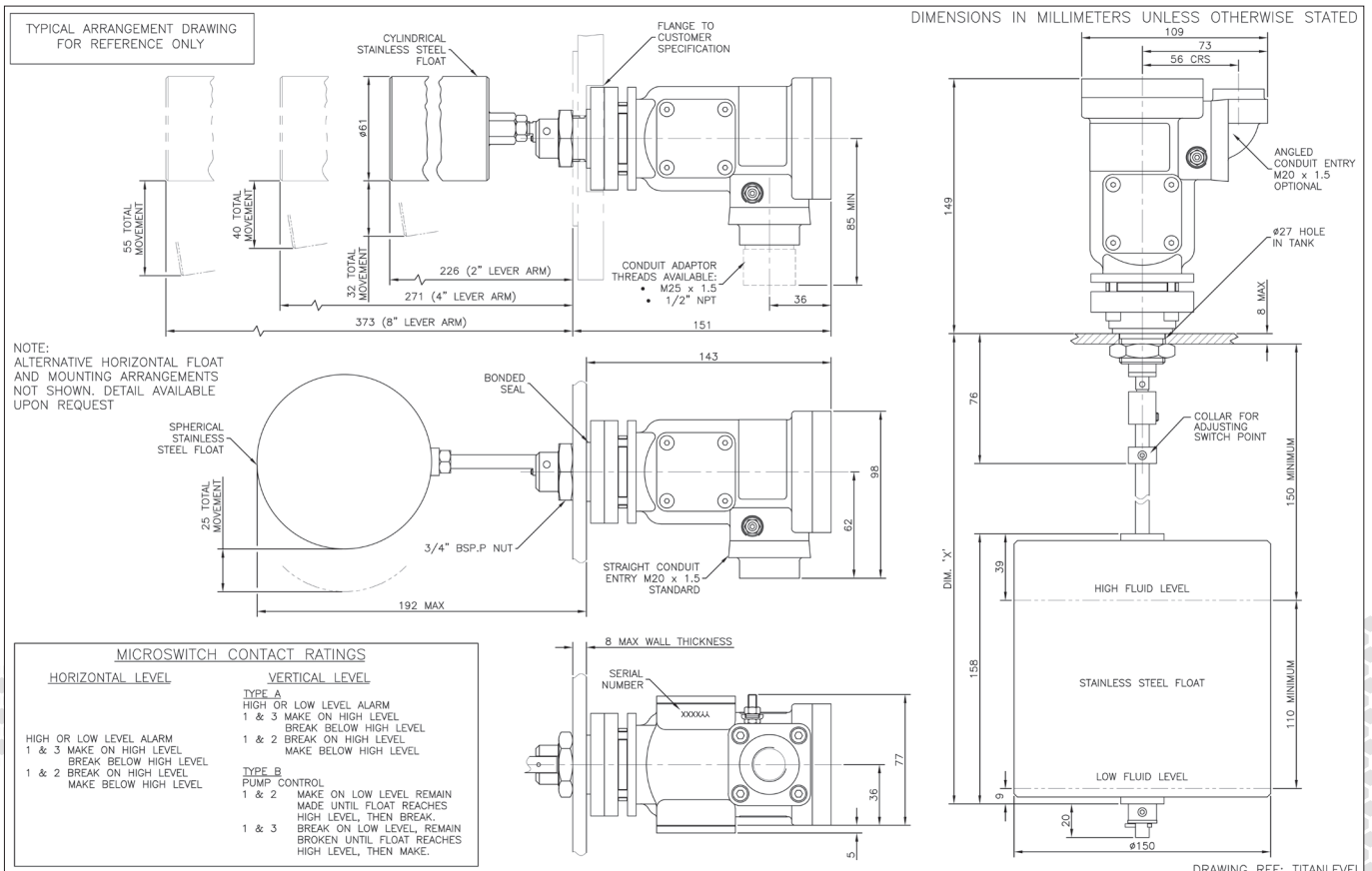
### FLOAT MATERIAL

**S** = 316 STAINLESS STEEL - STANDARD  
**P** = POLYPROPYLENE - (LF34 ONLY)

### MOUNTING

**X** = NO FLANGE OR BRACKET  
**A\*** = 2" ANSI 150#  
**B\*** = DN50 FLANGE PN16  
**W\*** = WALL MOUNTING BRACKET  
 \*LF34 ONLY

**1** = 1 x SPDT SWITCH DUAL SWITCHES ARE MECHANICALLY LINKED  
**2** = 2 x SPDT SWITCH TO PROVIDE DPDT SWITCHING ACTION



# TITAN (XPB) ATEX & IECEx Exd, Exia

## INDUSTRIAL SWITCHES

### INTRODUCTION

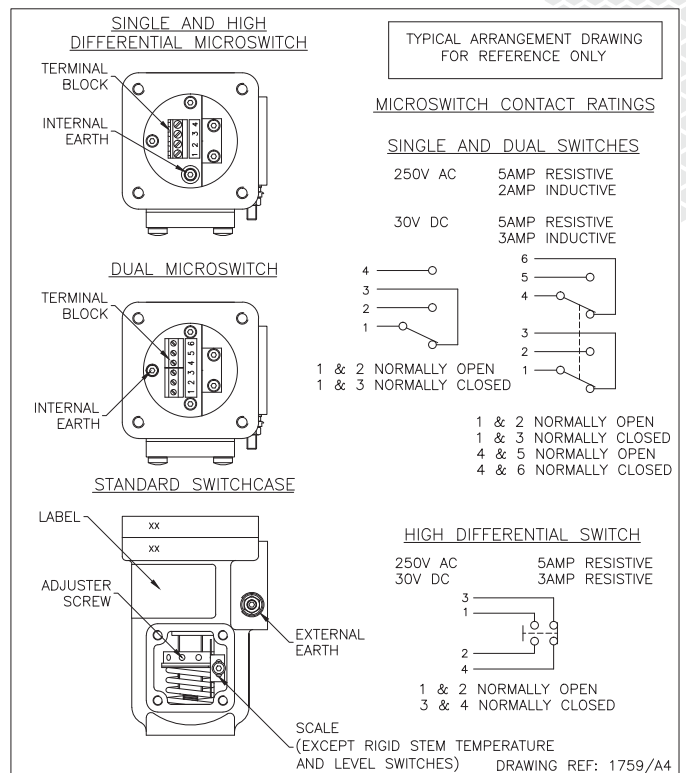
The Titan **pressure, differential pressure, temperature, level and flow** switches are designed for use in environments where explosive gases can be present (e.g. Gas fields, Oil rigs and Chemical plants etc.) and have been ATEX and IECEx certified as detailed overleaf. (SIL 2 - IEC61508 proven reliability).

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

Continuouse development may result in changes to specifaions 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.

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