DIFFERENTIAL PRESSURE LOW PRESSURE AND VACUUM

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

Calibrated adjustment scale.

Settings from 0.25 mBar to 10.5 Bar.

Single or dual microswitch option.

Wetted parts NACE MR-01-75 compliant.

ATEX/IECEx Flameproof version
CE Ⓔx II2G Exd IIB + H_2T6...T2 Gb
Tamb -60°C to +40°C...90°C

ATEX/IECEx Intrinsically safe version
CE Ⓔx II1G Exia IIC T6...T2 Ga
Tamb -50°C to +78°C...+128°C

(For resistor certification refer to page 45)

DPF266 & DPF296, PF266 & VF266 ATEX/IECEx Exd, Exia & NON Ex DIFFERENTIAL PRESSURE, LOW PRESSURE AND VACUUM SWITCH

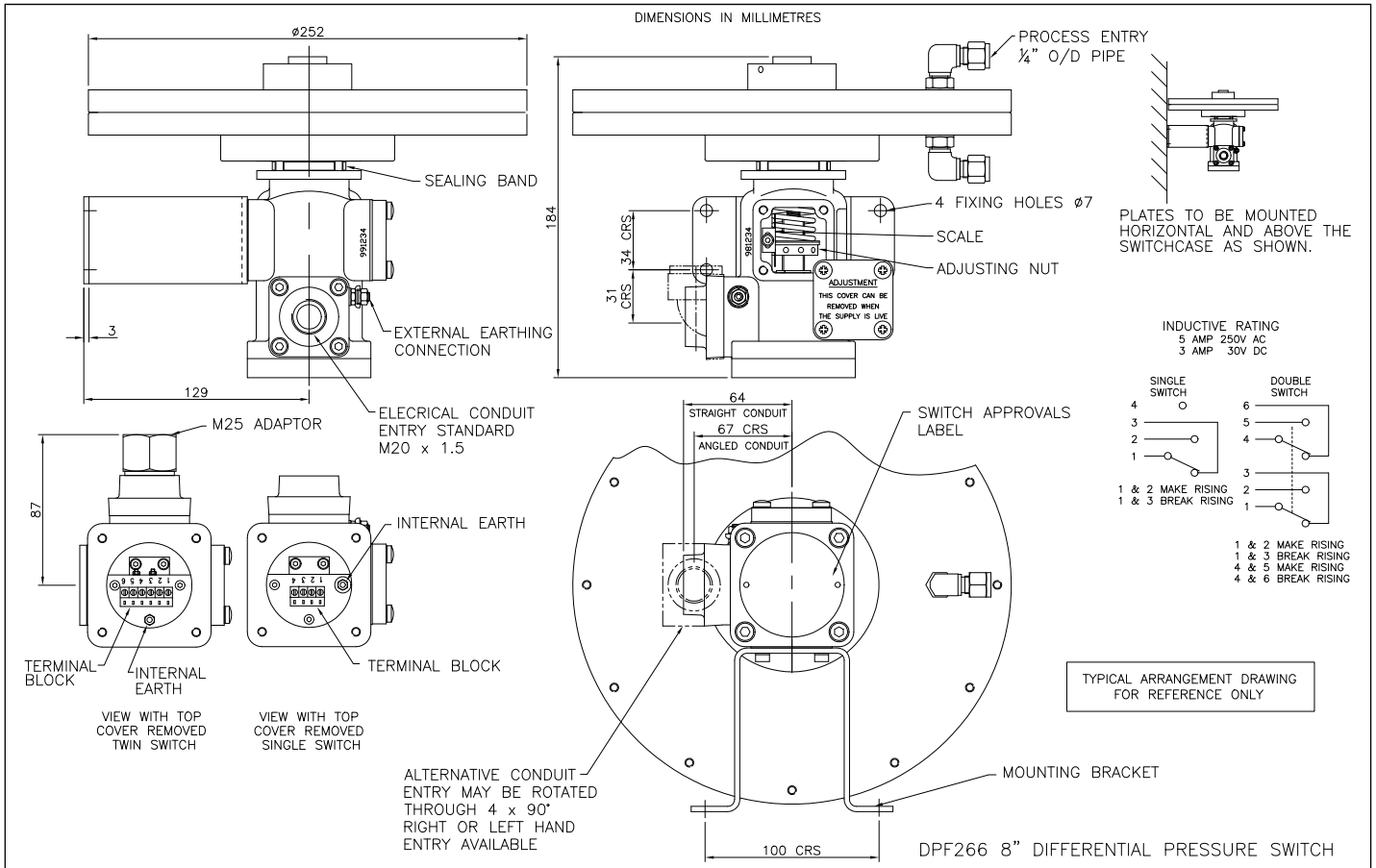
This range has been used to monitor filter blockage and air movement through ducting worldwide and has been specified extensively for offshore applications. Incorporating a diaphragm and two sealing Belloframs the switch offers reliable switching action when a differential pressure is required to be sensed. They can, by venting either the HP or LP connection, be used as a **low pressure** or **vacuum** switch. The DPF296 can be offered for high equalised static pressures up to 140 Bar, ranges are detailed below. Resistors can be incorporated for 'end of line' and short circuit monitoring. For specification and introduction to the Titan switch range refer to pages 44 & 45.

ADJUSTMENT RANGE (BAR D)	MAXIMUM WORKING PRESSURE EQUALISED (BAR D)	MAXIMUM WORKING PRESSURE ONE SIDED (BAR G)	DEADBAND FIXED (mBAR G)	SPRING CODE	DIAPHRAGM CODE
1.75 - 8.5	28	14	100 - 400	W	01
0.5 - 5.5	28	14	70 - 380	P	01
0.3 - 1.1	28	14	40 - 90	R	01
125 - 725mbar	10	7	10 - 75	G	02
50 - 250mBar	10	7	5.0 - 27.5	G	03
25 - 75mBar	10	7	4.2 - 7.5	T	03
15 - 55mBar	* 0.5	0.35	5.0 - 7.5	B	08
4 - 16mBar	* 0.5	0.35	0.75 - 2.0	R	08
1 - 5mBar	* 0.5	0.35	0.4 - 0.75	T	08
0.4 - 4.4mBar	Viton Diaphragm / 0.5	0.35	0.05 - 0.25	T	48
0.25 - 4.25mBar	Nitrile Diaphragm / 0.5	0.35	0.05 - 0.25	T	28

* Max. equalised pressure on these ranges can be specified up to 3.5 Bar

ADJUSTMENT RANGES - DPF296

1.0 - 5.0	140	28	<900	G	F18
3.5 - 10.5	140	28	<1500	W	F27


DIMENSIONS IN MILLIMETRES
ø252
SEALING BAND
3
129
EXTERNAL EARTHING CONNECTION
ELECRICAL CONDUIT ENTRY STANDARD M20 x 1.5
M25 ADAPTOR
87
INTERNAL EARTH
TERMINAL BLOCK
INTERNAL EARTH
TERMINAL BLOCK
VIEW WITH TOP COVER REMOVED TWIN SWITCH
VIEW WITH TOP COVER REMOVED SINGLE SWITCH
PROCESS ENTRY ¼" O/D PIPE
184
4 FIXING HOLES ø7
SCALE
ADJUSTING NUT
34 CRS
31 CRS
ADJUSTMENT
THIS COVER CAN BE REMOVED WHEN THE SUPPLY IS LIVE
PLATES TO BE MOUNTED HORIZONTAL AND ABOVE THE SWITCHCASE AS SHOWN.
INDUCTIVE RATING
5 AMP 250V AC
3 AMP 30V DC
SINGLE SWITCH
DOUBLE SWITCH
1 & 2 MAKE RISING
1 & 3 BREAK RISING
1 & 2 MAKE RISING
1 & 3 BREAK RISING
4 & 5 MAKE RISING
4 & 6 BREAK RISING
64
STRAIGHT CONDUIT
67 CRS
ANGLED CONDUIT
SWITCH APPROVALS LABEL
TYPICAL ARRANGEMENT DRAWING FOR REFERENCE ONLY
ALTERNATIVE CONDUIT ENTRY MAY BE ROTATED THROUGH 4 x 90° RIGHT OR LEFT HAND ENTRY AVAILABLE
MOUNTING BRACKET
100 CRS
DPF266 8" DIFFERENTIAL PRESSURE SWITCH
TITAN DP8

PART NUMBER BREAKDOWN - DPF266

B = ATEX Exd CERTIFIED
O = ATEX Exia CERTIFIED
A = INDUSTRIAL

A = ALUMINIUM CASE
S = ST. STEEL CASE

DPF266 DIFF. PRESS.
PF266 PRESSURE
VF266 VACUUM

DIAPHRAGM MATERIAL
A = NITRILE
B = VITON
C = REINFORCED NITRILE
D = REINFORCED VITON
(C & D FOR CODE 08 WITH 3.5 BAR EQUALISED)

SPRING CODE
(SEE RANGE SHEET)

A = BRACKET FOR 01 DIAPHRAGM CODE
E = 2" PIPE BRCKT FOR 01 DIA CODE
G = BRACKET FOR 02 & 03 DIA CODE
P = 2" PIPE BRCKT FOR 02 & 03 DIA CODE
W = BRACKET FOR 08 DIA CODE
L = 2" PIPE BRCKT FOR 08 DIA CODE
M = DP286 REPLACEMENT FOR 01 DIA CODE

D P F 2 6 6 S 1 B / B R F 0 1 S B 2 / A A

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

1 = 1 x SPDT SWITCH
2 = 2 x SPDT SWITCH

DUAL SWITCHES ARE MECHANICALLY LINKED TO PROVIDE DPDT SWITCHING ACTION

DIAPHRAGM CODE
F01SB = 01 DIAPHRAGM CODE
F02SB = 02 DIAPHRAGM CODE
F03SB = 03 DIAPHRAGM CODE
F08SB = 08 DIAPHRAGM CODE

SEE RANGE SHEET

PROCESS ENTRIES - DIAPHRAGM CODES 01, 02 & 03
1 = 1/4" BSP.P (DP) **2** = 1/4" NPT (DP)
3 = 1/4" BSP.P (P) **4** = 1/4" NPT (P)
5 = 1/4" BSP.P (V) **6** = 1/4" NPT (V)
DIAPHRAGM CODE 08 **1** = DPF ELBOW COMPRESSION FITTING 1/4" OD PIPE. **4** = PF ELBOW & VENT
5 = VF ELBOW & VENT. **9** = OTHERS VIA ADAPTORS

SPECIFICATION

Temperature limitations :
Diaphragm code: 01 as page 45
Diaphragm code: 02, 03 & 08
Viton : -10 to + 150˚C
Nitrile: -25 to +95˚C
Alternatives are available.

Wetted parts : Diaphragm codes 01, 02 & 03 - ANC4B 316 St. steel. Code 08 - 316 St. steel
Process connections : Diaphragm codes 01, 02 & 03 - 1/4" BSP.P or NPT female. Diaphragm code 08SB - 1/4" OD compression fittings. Other sizes available.

PART NUMBER BREAKDOWN - DPF296

S = ST. STEEL CASE

DIAPHRAGM MATERIAL
B = VITON

A = STANDARD BRACKET
E = 2" PIPE BRACKET

D P F 2 9 6 S 1 B / B W F 2 7 / H 2 D A A

1 = 1 x SPDT SWITCH
2 = 2 x SPDT SWITCH

DUAL SWITCHES ARE MECHANICALLY LINKED TO PROVIDE DPDT SWITCHING ACTION

SPRING CODE (SEE RANGE SHEET)

DIAPHRAGM CODE (SEE RANGE SHEET)

B = ATEX Exd CERTIFIED
O = ATEX Exia CERTIFIED
A = INDUSTRIAL

PROCESS CONNECTIONS
1 = 1/4" BSP.P FEMALE
2 = 1/4" NPT FEMALE

ELECTRICAL ENTRY
A = M20 STRAIGHT
B = M20 ANGLED
C = 1/2" NPT STR.

Detailed drawings :
DPF266, diaphragm codes 01, 02 & 03 - page 56
DPF266, diaphragm code 08 - page 57
DPF296 - page 57

TITAN (XPB) ATEX/IECEx Exd, Exia INDUSTRIAL SWITCHES

INTRODUCTION

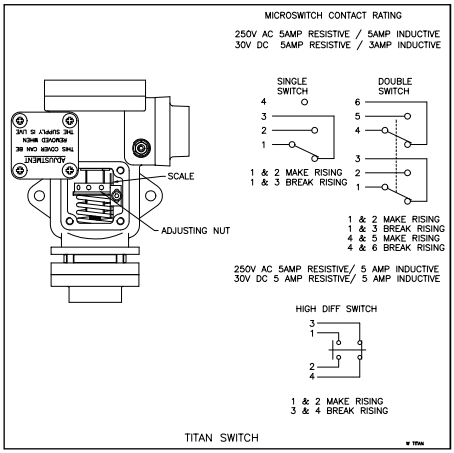
The Titan **pressure, differential pressure, temperature, level and flow** switches are designed for use in environments where explosive gases can be present (e.g. Gas fields, Oil rigs and Chemical plants etc.) and are dual ATEX/ IECEx certified for CAT 1 Exia IIC T6...T2 and CAT 2 Exd IIB +H_2 T6...T2.

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 60017-14. 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.



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

TITAN Exd

TITAN Exia (IS)

TITAN Exia (IS)
WITH RESISTORS

TECHNICAL SPECIFICATION

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

Microswitch : 1 x SPCO/SPDT or 2 x SPCO/SPDT gold plated 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 and inductive.
5 Amps @ 30VDC resistive, 3 Amps @ 30 VDC inductive.

Electrical connections : Terminals suitable for cable 0.5 - 2.5 mm^2.
(Max 1.5mm^2 for dual microswitch version)

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

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 : -50 to +85°C (standard) -60°C to 125°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 +85ºC.
* Unless otherwise stated
(for temperature, level and flow switches please refer to specific pages).

Certification : Dual ATEX/IECEx certified for gas hazardous areas.
Exd Flameproof (with or without resistors)
CE Ex II2G Exd IIB + H_2 T6...T2 Gb Tamb -60°C to +40°...+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) If temperature of the cable entry could exceed 70°C, suitably rated cable must be selected based on the Tmax shown above.

Exia Intrinsically Safe (without resistors)
CE Ex II1G Exia IIC T6...T2 Ga Tamb -50°C to +78°C...+128°C

Exia Intrinsically Safe (with resistors)
CE Ex II1G Exia IIC T5...T2 Ga Tamb -50°C to +72°C...+122°C

Special conditions for safe use. (Category 1, Zone 0) Aluminium may only be used when the ignition hazardous assessment shows that there is not risk of ignition from incendive, impact or abrasion sparks.

Accuracy : +/-1% at 20°C