

## PERSEUS MEDIUM

## PRESSURE

# PF60 PERSEUS ATEX & IECEx Exd, Exia & INDUSTRIAL PRESSURE SWITCH

This range of switches features a robust high quality housing with 1 or 2 sealed SPDT microswitches and has been designed for use in environments where explosive gases can be present (e.g. gas fields, oil rigs & chemical plants etc). Microswitches can be set for single, dual simultaneous, or dual independently adjustable operation. Environmentally sealed or hermetically sealed microswitch options are available.

The Perseus range has separate electrical and adjustment chambers meaning that set point adjustment can be carried out with the power on and the switch in operation. The stainless steel housing is available with one or two electrical entries.



## MEDIUM PRESSURE

## FEATURES

- ✓ 316 Stainless steel or black anodised aluminium switchcase to IP66 & IP67 standards.
- ✓ Wetted parts NACE MR-01-75 option
- ✓ SIL 2 - IEC61508 proven reliability.
- ✓ Single or dual microswitches option.
- ✓ Settings from 100 mbar to 34 bar.
- ✓ ATEX/IECEx Flameproof Gas & Dust version  
II 2G Ex db IIC T6...T5 Gb Tamb -50°C to +75°C...+90°C  
II 2D Ex tb IIIC T85°C...T100°C Db  
Tamb -50°C to +75°C T85°C/-50°C to +90°C T100°C
- ✓ ATEX/IECEx Flameproof Gas version  
II 2G Ex db IIC T6...T5 Gb Tamb -50°C to +75°C...+90°C  
(With or without resistors)
- ✓ ATEX/IECEx Intrinsically safe Gas & Dust version  
II 1G Ex ia IIC T6 ...T2 Ga Tamb - 50 to +78°C...+93°C  
II 1D Ex ia IIIC T135°C Da Tamb - 50 to +70°C  
(without resistors)
- ✓ ATEX/IECEx Intrinsically safe Gas version  
II 1G Ex ia IIC T5...T2 Ga  
(Tamb -50°C to +72°C...+122°C)  
(with resistors)



# MEDIUM PRESSURE RANGES

## Viton or Nitrile diaphragm

Dual microswitches will increase the stated deadband.

ADJUSTMENT RANGE (bar)	ADJUSTMENT RANGE (psi)	MAX. WORKING PRESSURE bar	DEADBAND bar NITRILE VITON	DIAPHRAGM CODE	SPRING CODE
0.1* - 1.5	1.5 - 25.5	12	0.04 - 0.15 0.05 - 0.20	0	B
1.2 - 4.2	20 - 60	12	0.1 - 0.25 0.2 - 0.5	0	W
0.2 - 3.0	5 - 45	25	0.08 - 0.25 0.1 - 0.4	2	B
3.0 - 9.0	45 - 125	25	0.3 - 0.50 0.3 - 0.65	2	W
0.4 - 6.0	5 - 85	50	0.1 - 0.70 0.45 - 0.75	1	B
6 - 18	90 - 250	50	0.5 - 1.0 0.9 - 1.6	1	W
8 - 34	115 - 495	50	0.5 - 1.75 0.5 - 2.0	1	X

\* WITH DUAL MICROSWITCHES LOWEST SETTING IS 0.2 BAR - USE RANGE 0.2 - 2.0 BAR

PART NUMBER BREAKDOWN	MICROSWITCH OPTIONS 1 = 1 X SPDT 2 = 2 X SPDT LINKED TO GIVE DPDT SWITCHING 3 = 1 x SPDT WITH ADJUSTABLE DEADBAND* 4 = 2 x SPDT INDEPENDENT ADJUSTABLE* 5 = 1 X HERMETIC SEALED 6 = 2 X HERMETIC SEALED 9 = HIGH DIFFERENTIAL *ONLY AVAILABLE WITH "B" ELECTRICAL CONNECTION ENTRY	SPRING CODE PLEASE REFER TO RANGE TABLE	DIAPHRAGM CODE PLEASE REFER TO RANGE TABLE	BRACKET X = NO BRACKET (ALUM) X = INTEGRAL BRACKET (ST.ST) H = 2" PIPE BRACKET (ALUM) K = 2" PIPE BRACKET (ST.ST) M = GUARDIAN REPLACEMENT (ST.ST) N = GUARDIAN REPLACEMENT (ALUM)	ELECTRICAL CONNECTION ENTRY B = RIGHT HAND SIDE L* = DUAL ENTRY TOP PLUGGED R* = DUAL ENTRY SIDE PLUGGED *STAINLESS ONLY
SWITCHCASE PF6 = STANDARD PR6 = RESISTOR OPTION					

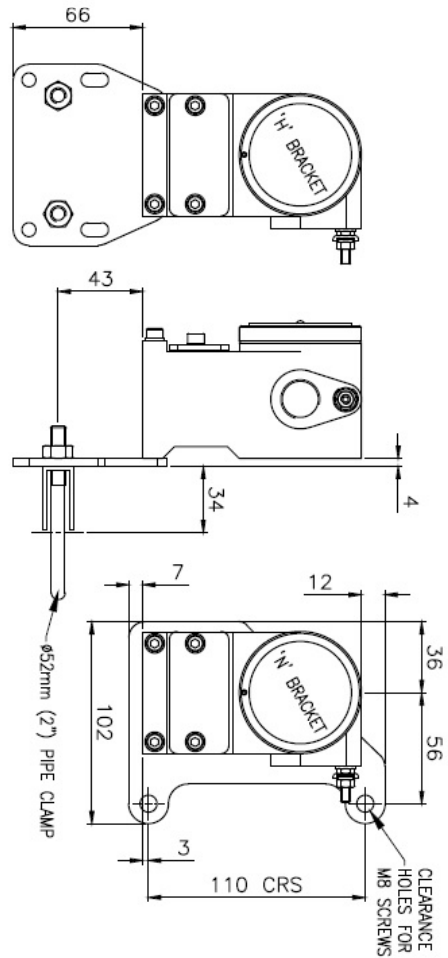
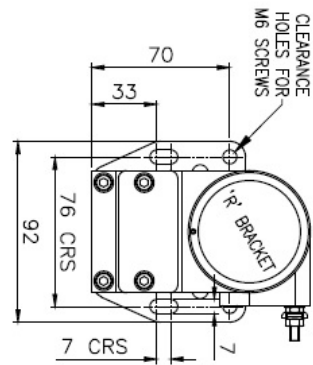
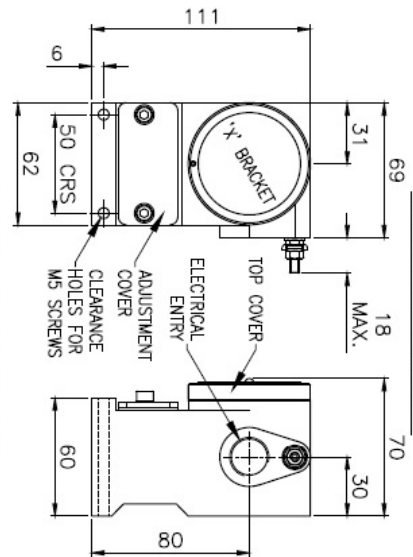
P F 6 1 A B / 2 W 1 0 2 / S 1 X B \_

ELECTRICAL CONNECTION  
\_ = M20 LEAVE BLANK  
C = 1/2" NPT ADAPTOR  
F = M25 ADAPTOR

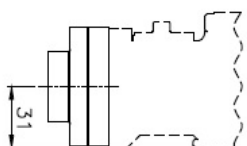
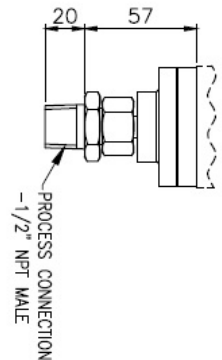
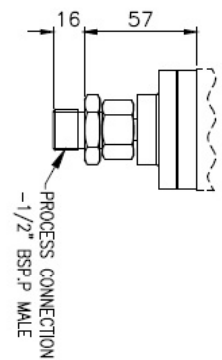
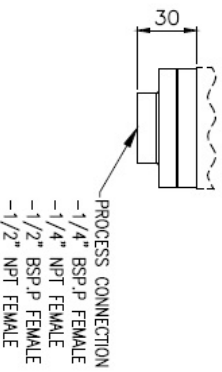
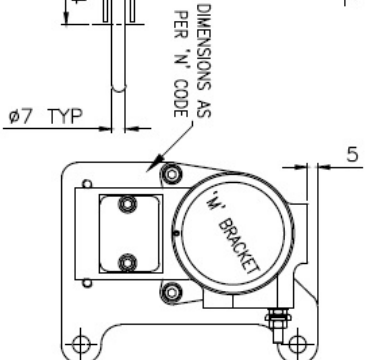
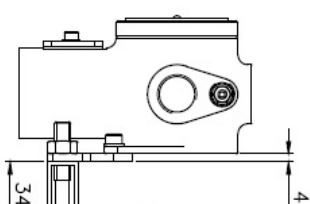
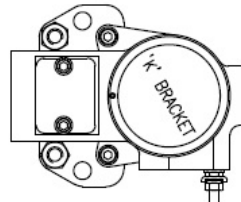
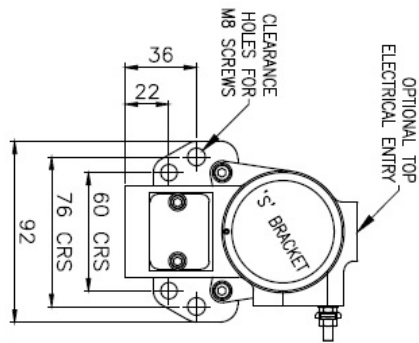
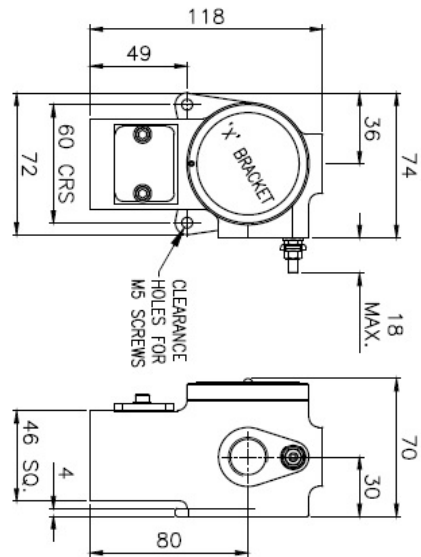
<b>SWITCHCASE MATERIAL</b> A = BLACK ANODISED ALUMINIUM S = 316 STAINLESS STEEL  <b>CERTIFICATION</b> O = ATEX/IECEX Exia INTRINSIC. SAFE B = ATEX/IECEX Exd GAS FLAMEPROOF T = ATEX/IECEX Exd GAS FLAMEPROOF & DUST OPTION A = INDUSTRIAL / MARINE	<b>DIAPHRAGM</b> 1 = NITRILE 2 = VITON  FOR MALE CONNECTION USE S1  NOTE MONEL NOT AVAILABLE WITH MALE CONNECTION	<b>PROCESS</b> 10 = FEMALE PROCESS 22 = 1/2" BSP.P MALE 24 = 1/2" NPT MALE	<b>PROCESS CONNECTION</b> S1 = 1/4" BSP.P FEMALE - 316SS M1 = 1/4" BSP.P FEMALE - MONEL 400 S2 = 1/4" NPT FEMALE - 316SS M2 = 1/4" NPT FEMALE - MONEL 400 S5 = 1/2" BSP.P FEMALE - 316SS M5 = 1/2" BSP.P FEMALE - MONEL 400 S6 = 1/2" NPT FEMALE - 316SS M6 = 1/2" NPT FEMALE - MONEL 400
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# ALUMINIUM HOUSING

DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED



# STAINLESS STEEL HOUSING



DIMENSIONS AS PER 'N' CODE

## INDUSTRIAL SWITCHES

### INTRODUCTION

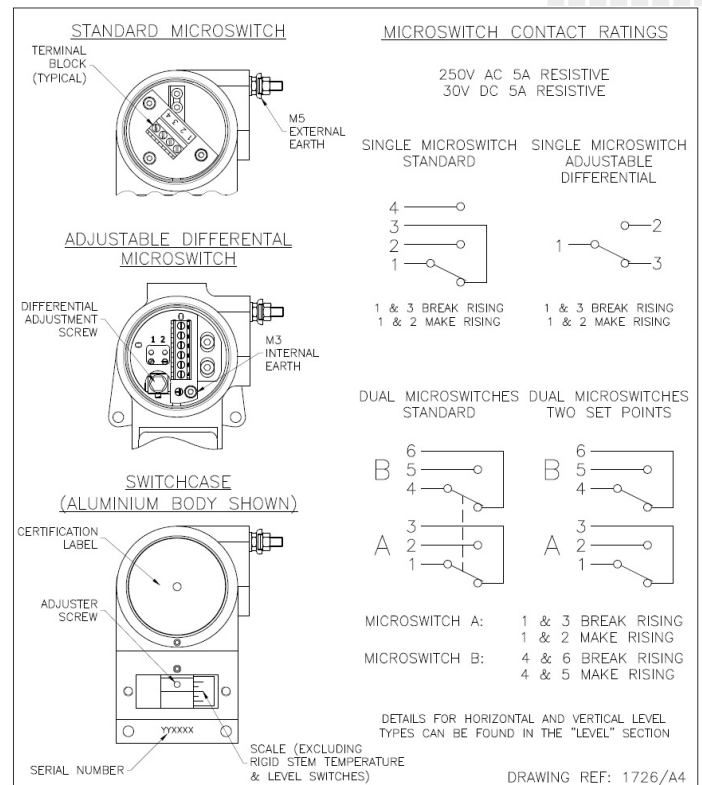
The Perseus **pressure, vacuum, differential pressure, temperature, and level** switches are designed for use in environments where explosive gases and dust can be present (e.g. Gas fields, Oil rigs and Chemical plants etc.) and have been ATEX and IECEx certified as detailed overleaf (SIL2 - IEC 61508 proven reliability).

These switches are manufactured from a high quality casting which offers robust construction and protection to IP66 & IP67 for use within heavily polluted industrial 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.

Perseus Exd switches must be installed in accordance with BS EN 60079-14

### CALIBRATION

The design features a simple form of adjustment against a calibrated scale. This enables a user to order switches set at a predetermined point or stock a mid range setting and adjust switches to suit the particular application. The set point can be safely adjusted with the switch electrically live. Adjustment is made by removing the access cover and rotating the set point adjuster using a suitable tommy bar or allen key. The setting is read from the centre of the set point adjuster against the scale. Rotation to the left will increase the set point and to the right decrease it.



Perseus Stainless steel switchcase with dual electrical connection option



# TECHNICAL SPECIFICATION

**Switchcase & covers:** 316 Stainless steel or black anodised aluminium case and 316 stainless steel adjustment cover.

**Microswitch:** 1 x SPCO/SPDT or 2 x SPCO/SPDT gold flashed silver contacts. Single switch is available with adjustable deadband option. Dual switches are either mechanically linked to provide DPDT switching action (switches could be up to 3% apart, reset levels may differ) or independently adjustable. Microswitches are environmentally sealed as standard, hermetically sealed can be supplied as an option. Dual microswitches may increase deadband.

**Microswitch rating:** 5 Amps @ 250 VAC resistive, 2 Amps @ 250VAC inductive

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

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

**Electrical Conduit Entry:** One or two M20 x 1.5 ISO. ½" NPT or M25 via adaptors (2 entries only with SS housing)

**Environmental Protection:** IP66 & IP67 in accordance with BS EN 60529 : 1992 & IEC 60529 : 2001.

**Vibration and shock parameters:** Switches were subjected Lloyds Register Test Specification 1, section 13 BS EN 60068-2-6 : 1996 (Test Fc vibration) and BS EN 60068-2-27 : 1995 (Test Ea shock).

**Temperature Limitations:** Pressure, Vacuum and Differential Pressure.

**Process:** Diaphragm actuated (unless otherwise stated) -30 to +100°C (Nitrile) or -20 to +150 Deg.C (Viton).

Piston actuated -30 to 100°C (Nitrile), -20 to +150°C (Viton), -50 to +150°C (PTFE) or -35 to +100°C (EPDM).

**Ambient:** -40 to +85°C.

**Storage:** -40 to +85 °C (For temperature, level and flow switches please refer to specific pages).

**ATEX & IECEx Flameproof Gas & Dust :** II 2G Ex db IIC T6...T5 Gb. Tamb -50°C to +75°C...+90°C

II 2D Ex tb IIIC T85°C...T100°C Db - Tamb -50°C to +75°C T85°C/-50°C to + 90°C T100°C

**ATEX & IECEx Flameproof Gas** (with/without resistors) II 2G Ex db IIC T6...T5 Gb - Tamb -50°C to +75°C...+90°C T5  
Special conditions for safe use. 1) Under rated conditions, the cable temperature can reach 9K above ambient temperature, ensure selection of correctly rated cable for the application. 2) Flameproof joints not intended for repair.

**ATEX/IECEx Exia Intrinsically Safe Gas & dust** (without resistors)

II 1G Ex ia IIC T6...T2 Ga - Tamb -50°C to +78°C...+93°C (see certificate)

II 1D Ex ia IIIC T135°C Da - Tamb -50°C to +70°C

**ATEX/IECEx Exia Intrinsically Safe Gas** (with resistors)

II 1G Ex ia IIC T5...T2 Ga - Tamb -50°C to +72°C...+122°C (see certificate)

Special conditions for safe use. 1) For Ga installations - The equipment may be constructed using aluminium for the housing and internal parts and may only be used when the ignition hazardous assessment shows there is no risk of ignition from incandive impact or abrasion sparks.

**Accuracy:** +/-1% at 20°C.

Continuous development may result in changes to specification 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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