

PERSEUS TEMPERATURE RIGID SENSOR

TF61 & TF62 PERSEUS ATEX, IECEx & UKEX Exd, Exia & INDUSTRIAL TEMPERATURE 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 or dual simultaneous 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.



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 -10°C to +240°C.
- ✓ 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)



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, 200, 225, 250, 300, 350, 400, 600, 660, 800, 1000 & 1200 *STANDARD, CUSTOM LENGTHS AVAILABLE. Note : Setting limited to 200°C when thermowell length over 75mm is specified.
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	<20	H1 or S1	
175 TO 225	260	<20	H2 or S2	
200 TO 240	260	<20	H3 or S3	

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

Calibration rate : without thermowell 2°C per minute rate of change.

Max. working pressure : 35 bar standard. 210 & 420 bar available.

Dual microswitches will increase the stated deadband.

Temperature Limitations :

L, M & H code: Ambient : -15 to +85°C.

Process : -15 to max on table. Storage : -15 to +85°C

S code: As above except minimum temperature -5°C

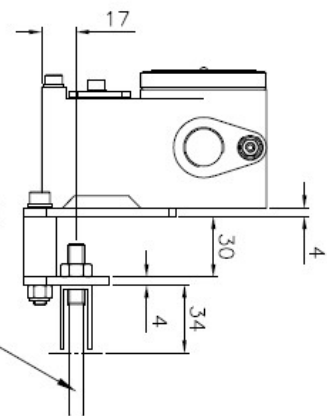
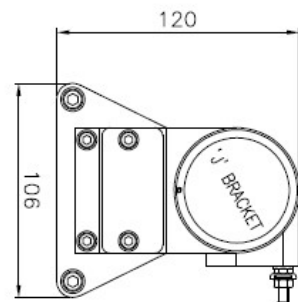
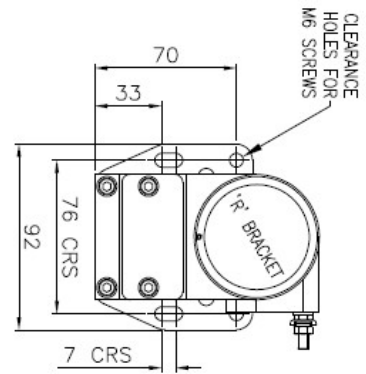
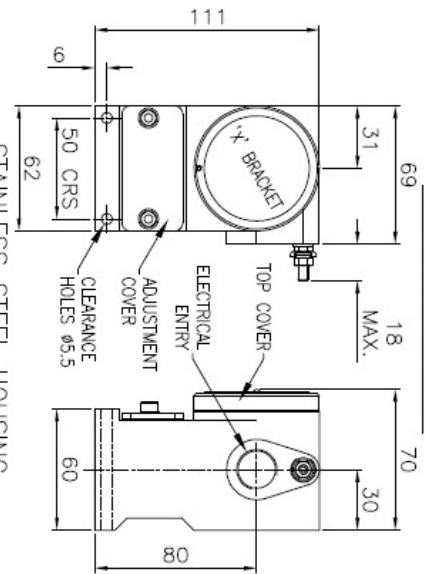
PART NUMBER BREAKDOWN		ELECTRICAL CONNECTION _ = M20 LEAVE BLANK C = 1/2" NPT ADAPTOR F = M25 ADAPTOR	
MICROSWITCH OPTION TF61 = 1 X SPDT TF62 = 2 X SPDT LINKED	"U" DIMENSIONS WITH THERMOWELL	ELECTRICAL CONNECTION ENTRY B = RIGHT HAND SIDE L* = DUAL ENTRY T* = DUAL ENTRY (TOP PLUGGED) R* = DUAL ENTRY (SIDE PLUGGED) *STAINLESS STEEL ONLY	
		P = WITH THERMOWELL S = WITHOUT THERMOWELL	

T F 6 1 1 A B / 0 6 0 M 1 / P B 1 X B _

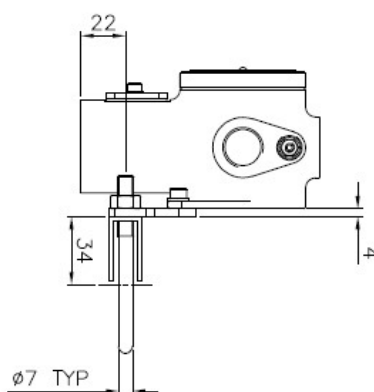
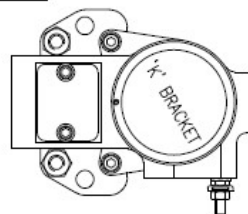
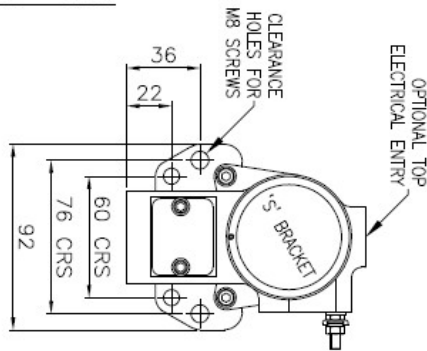
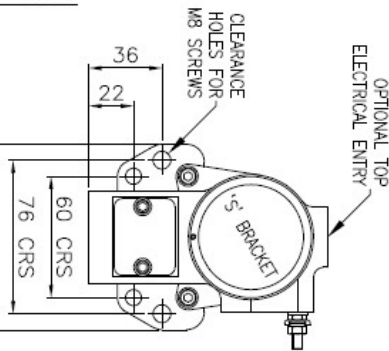
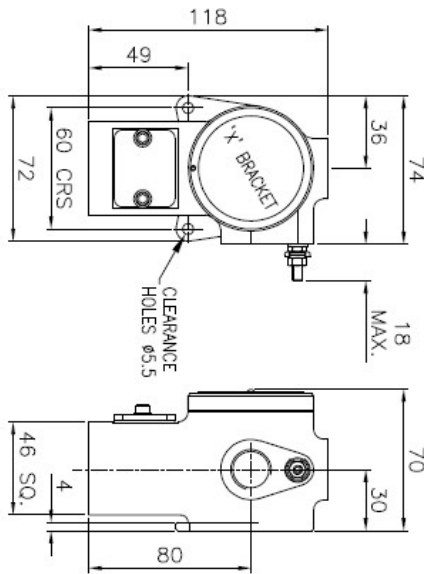
1 = WITH THERMOWELL 2 = NO THERMOWELL	TEMPERATURE CODE REFER TO TABLE ABOVE	BRACKET X = DIRECT TO PROCESS OR MOUNTED VIA CASE J = 2" PIPE BKT (ALUM) K = 2" PIPE BKT (ST.ST)
CASE MATERIAL A = ALUMINIUM SWITCHCASE S = STAINLESS STEEL	THERMOWELL/STEM THREAD A = 1/2" BSP.P B = 1/2" NPT C = 3/8" BSP.P D = 3/4" BSP.P E = 3/4" NPT F = 1" BSP.P G = 1" NPT K = 1/2" BSP.T O = SPECIAL CONNECTION (FLANGE THEROWELL OR BRACKET MOUNTED)	
CERTIFICATION O = ATEX/IECEX Exia INTRINSICALLY SAFE B = ATEX/IECEX Exd GAS FLAMEPROOF T = ATEX/IECEX Exd GAS FLAMEPROOF & DUST OPTION A = INDUSTRIAL / MARINE		
THERMOWELL. 1 = 316 ST.ST (STD) 2 = HIGH PRESSURE 210 BAR 5 (WAS 4) = HIGH PRESSURE 420 BAR 0 = FLANGE OR SPECIAL THERMOWELL 8 =SLIDING GLAND 9 = BRACKET/WALL MOUNTED (FOR MEASURING AMBIENT TEMPERATURE)		

ALUMINUM HOUSING

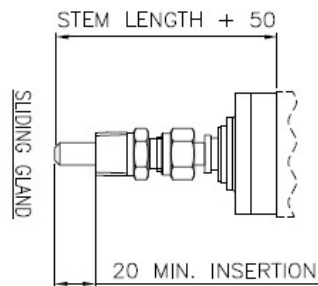
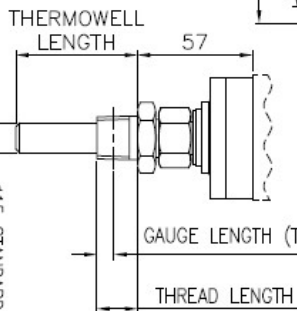
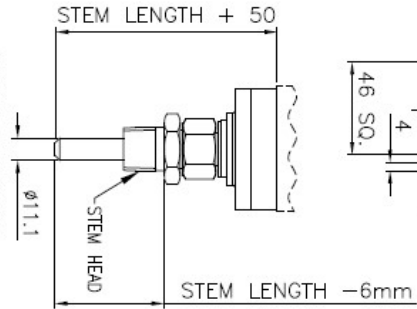
DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED



STAINLESS STEEL HOUSING



PROCESS CONNECTION	
THREAD	LENGTH
PARALLEL	
3/8" BSP P	16
1/2" BSP P	16
3/4" BSP P	16
1" BSP P	20
TAPER	
1/2" NPT	20
3/4" NPT	20
1" NPT	25
1" NPT	10.1



DRAWING REF: 1568/A1 REV. 2

PERSEUS ATEX & IECEx Exd, Exia &

INDUSTRIAL SWITCHES

INTRODUCTION

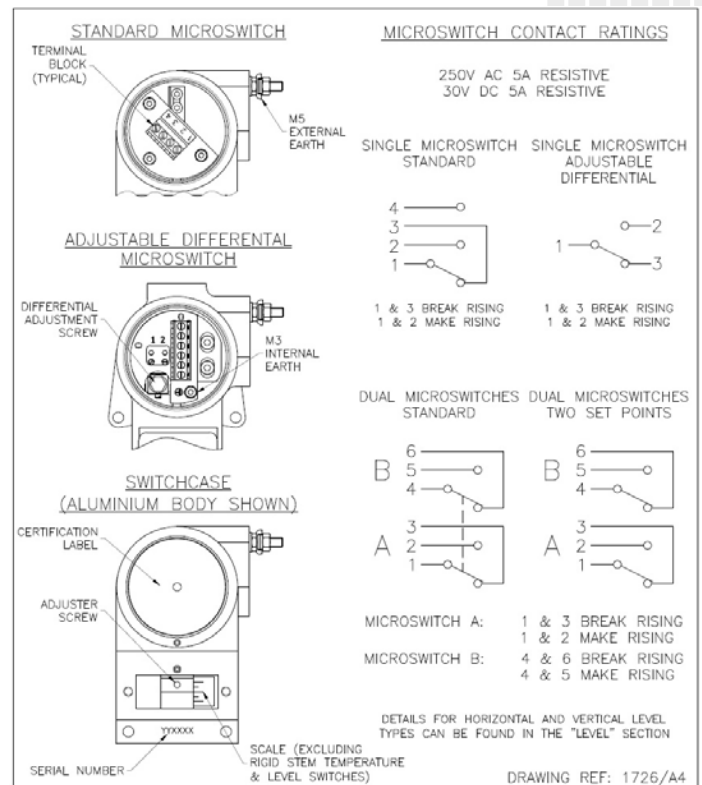
The Perseus **pressure, vacuum, differential pressure, temperature, and level** switches are designed for use in environments where explosive gases and dust can be present (e.g. Gas fields, Oil rigs and Chemical plants etc.) and have been ATEX and IECEx certified as detailed overleaf (SIL2 - IEC 61508 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. Dual switches are mechanically linked to provide DPDT switching action (switches could be up to 3% apart, reset levels may differ). 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 mm². (Max 1.5 mm² 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:

L, M & H code : Ambient: -15 to +85°C. Process : -15 to max on table. Storage : -15 to +85°C

S code: As above except minimum temperature -5°C

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 incandescence 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.