fluidic

Pyropress

GUARDIAN MEDIUM PRESSURE

P1100 & P1200 GUARDIAN INDUSTRIAL & ATEX Exia CERTIFIED PRESSURE SWITCH

The standard range represents the basic models to cover pressure applications for settings of between 0.2 and 19 bar (3 to 270 PSI). Dual microswitch and adjustable differential options are available as detailed overleaf.

PRESSURE

FEATURES

- 316 stainless steel or black anodised aluminium switchcase.
- IP66/IP67 certified housing.
- SIL2 - IEC61508 proven reliability.
- Internal adjustment scale.
- Pressure Settings from 200 mBar to 19 Bar.
- Single or dual microswitch option. Adjustable deadband option.
- Wetted parts NACE MR-01-75 compliant.
- Manual reset pushbutton option.
- ATEX Certified Option
  CE II1G Ex ia IIC
  T6 Tamb -50 to +78˚C
  T5 Tamb -50 to +93˚C
  T4 Tamb -50 to +128˚C

SPECIFICATION

Wetted parts : 316 St. steel or Monel

Diaphragm : Nitrile or Viton

Pressure Limitations : See table below. All switches can be subjected to a full vacuum.

Process connections : 1/4" or 1/2"
BSP.P or NPT female (bottom)
1/4" BSP.P or NPT female (side)
1/2" BSP.P or NPT male (bottom)

Electrical connections :
M20 x 1.5 ISO female standard
Suffix "F" for M25 x 1.5 ISO female or "C" for 1/2" NPT female

STANDARD NITRILE DIAPHRAGM

The fitting of a Viton diaphragm or dual microswitches may increase the deadband by a factor of two. Microswitches other than shown below may also increase the deadband.

ADJUSTMENT RANGE (BAR)	ADJUSTMENT RANGE (PSI)	MAX WORKING PRESS. (BAR) NITRILE	VITON	DEADBAND (BAR)	DIAPHRAGM CODE	SPRING CODE
9 - 19	130 - 270	24	50	<1.9	15	R
4 - 12	60 - 80	24	50	<1.2	15	0
2 - 6	30 - 90	16	40	<0.6	21	0
1 - 3	15 - 45	12	12	<0.3	30	0
0.2 - 1.4	3 - 20	12	12	<0.2	30	1
0.3 - 2.5	5 - 35	12	12	<0.3	30	2
0.6 - 6.2	10 - 90	16	40	<0.6	21	2
1.2 - 12.4	20 -180	24	50	<1.3	15	2

PART NUMBER BREAKDOWN

P11 : CASE MOUNTED - STANDARD FEMALE PROCESS CONNECTION
P12 : STEM MOUNTING MALE PROCESS CONNECTION

DIAPHRAGM
A = NITRILE
B = VITON - STD

SPRING CODE
SEE RANGE TABLE

DIAPHRAGM CODE
SEE RANGE TABLE

PROCESS ENTRY ORIENTATION
S = STRAIGHT ENTRY - BOTTOM
A = ANGLED ENTRY - SIDE

WETTED PARTS
S = 316 ST. ST.
M = MONEL

E = 2" STANDPIPE BRACKET
X = STD
N = OPTIONAL MOUNTING BRACKET

ANODISED ALUMINIUM CASE AS STANDARD IF ST. STEEL REQUIRED PREFIX "S"

(S) P 1 1 0 1 / A 0 1 0 N 3 0 / S S 1 X

MICROSWITCH OPTIONS
01 = SINGLE SWITCH
02 = DUAL SWITCHES
03 = USE 01
04 = USE 02
05 = SINGLE FOR Exia
06 = DUAL FOR Exia

ADJUSTABLE DEADBAND
07 = SINGLE SWITCH - STANDARD
08 = SINGLE SWITCH - USE FOR Exia

09* = MANUAL AND AUTO (RESET RISING)
0A* = MANUAL AND AUTO (RESET FALLING)
0C* = MANUAL (RESET RISING)
0D* = MANUAL (RESET FALLING)
0E* = DUAL HIGH CURRENT DC
0M* = SINGLE HIGH CURRENT DC SWITCHING

PROCESS CONNECTION TYPE
P11: **10** - STANDARD FEMALE
P12: **22** = 1/2" BSP.P MALE
24 = 1/2" NPT MALE
61 = 1" BSP.P MALE
FLUSH DIAPHRAGM ONLY AVAILABLE ON 1.2 - 12.4 BAR WITH MAX OF 16 BAR

N = STANDARD ADJUSTER
A = SECONDARY ADJUSTER (FOR ADJUSTABLE DEADBAND)

PROCESS ENTRY SIZE FOR **P1100**
1 = 1/4" BSP.P FEMALE
2 = 1/4" NPT. FEMALE
5 = 1/2" BSP.P FEMALE
6 = 1/2" NPT. FEMALE
FOR **P12** (MALE) USE = 1

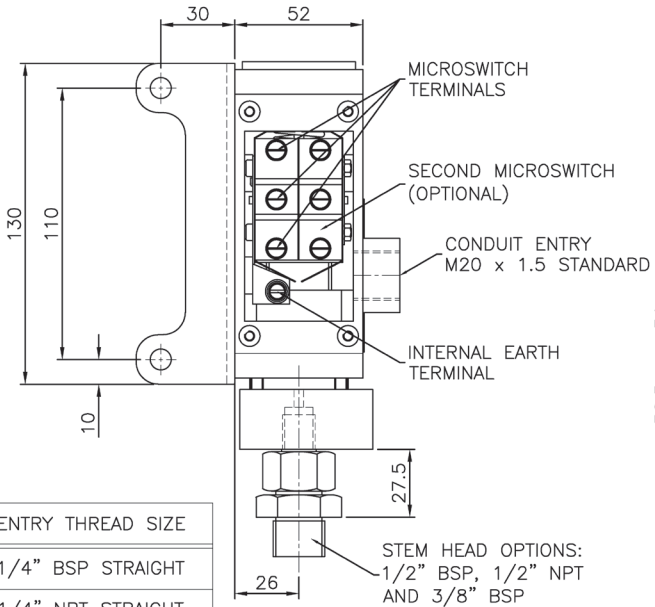
*Change **0** to **E** for Exia approval

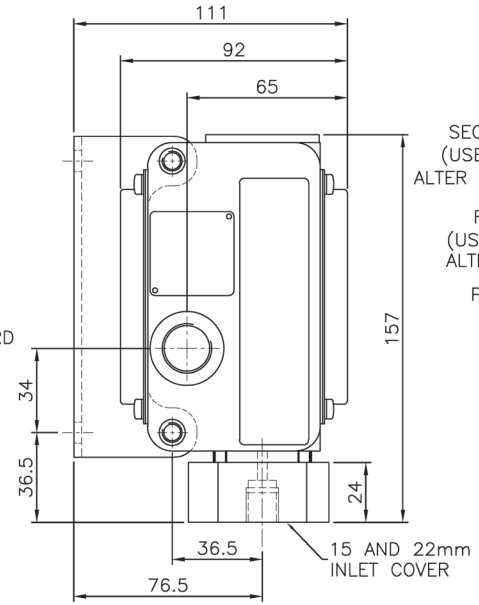
EXAMPLE. Dual microswitches - if switch 1 is set at 10 Bar on a 4 - 12 Bar range switch 2 can be set at the same pressure or between 10.2 and 12.0 Bar with standard adjuster and between 10.7 and 14.5 bar with secondary adjuster. With the secondary adjuster fitted microswitches cannot be set together.
Note: 1) Lowest set point is always switch 1 on dual set point switches. 2) Adjustable deadband mechanism actuates on falling settings, therefore reset on rising pressure.

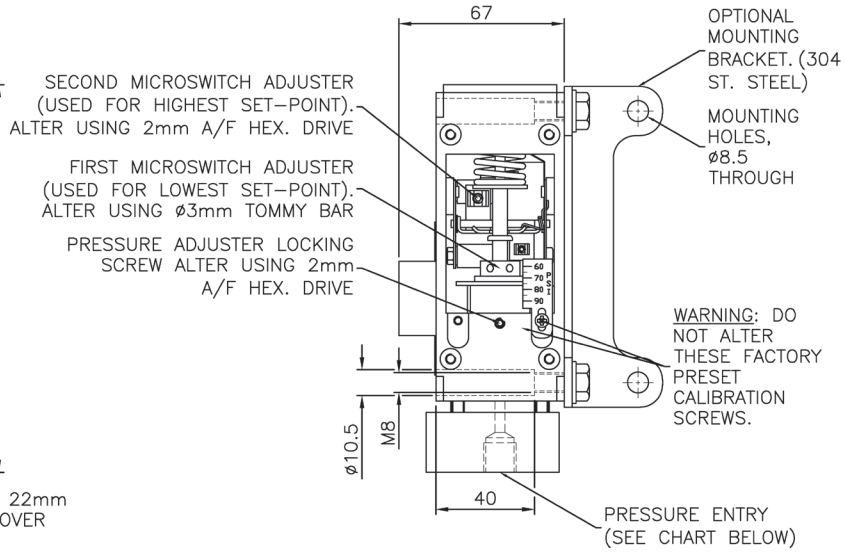
ADJUSTABLE DEADBAND SWITCHING LIMITS					DUAL MICROSWITCH ADJUSTMENT LIMITS			
MINIMUM DIFF AT BOTTOM OF RANGE (BAR)	MAXIMUM DIFF AT BOTTOM OF RANGE (BAR)	ADJUSTMENT RANGE (BAR) (FALLING SET POINTS ONLY) SWITCH 1	MINIMUM DIFF AT TOP OF RANGE (BAR)	MAXIMUM DIFF AT TOP OF RANGE (BAR)	**SWITCH 2** RELATIVE TO SWITCH 1 **MIN** - (BAR) - **MAX** (STANDARD ADJUSTER)		**SWITCH 2** RELATIVE TO SWITCH 1 **MIN** - (BAR) - **MAX** (SECONDARY ADJUSTER)	
2.0	6.0	9 - 19	2.5	6.5	0.3	3.0	0.7	7.5
1.1	3.5	4 - 12	1.6	3.7	0.2	2.0	0.7	4.5
0.5	2.5	2 - 6	0.7	3.5	0.08	1.0	0.3	2.8
0.3	1.7	1 - 3	0.45	2	0.05	0.35	0.17	1.2
0.15	0.55	0.2 - 1.4	0.25	0.75	NOT AVAILABLE		0.08	1.1
0.15	0.45	0.3 - 2.5	0.25	0.6			0.3	2.0
0.25	1.45	0.6 - 6.2	0.4	2.5			0.3	2.6
0.6	3.25	1.2 - 12.4	1.5	4			1.0	7.5

TYPICAL ARRANGEMENT DRAWING
FOR REFERENCE ONLY

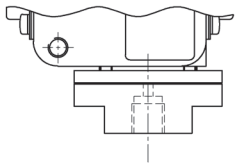
DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED



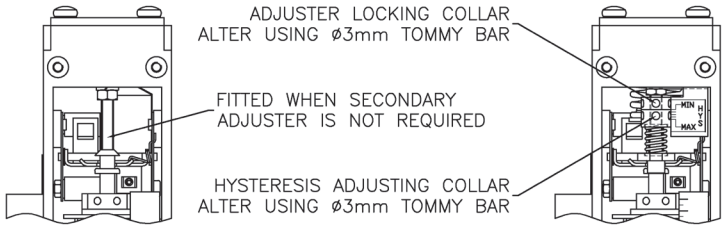




ENTRY THREAD SIZE
1/4" BSP STRAIGHT
1/4" NPT STRAIGHT
1/2" BSP STRAIGHT
1/2" NPT STRAIGHT
1/4" BSP ANGLED
1/4" NPT ANGLED

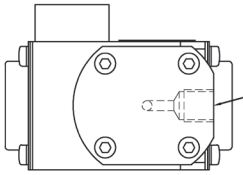


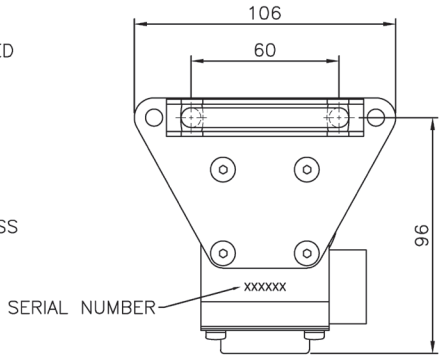
ø30mm INLET COVER
(WILL REDUCE ASSOCIATED LENGTHS BY 1mm)



PIVOT PLATE STOP MECHANISM

SECONDARY ADJUSTER MECHANISM





OPTIONAL 2" PIPE MOUNTING BRACKET

A1/M/8868

GUARDIAN INDUSTRIAL & ATEX SWITCHES

INTRODUCTION

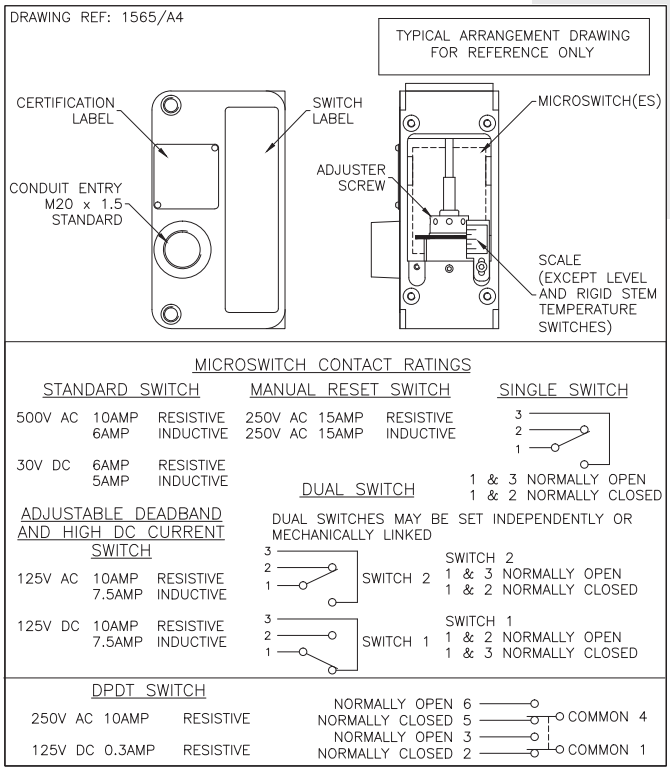
The Guardian pressure, differential pressure, temperature, level and flow switches are a part of our extensive range of specialist process sensors. They utilise the expertise gained from over 50 years experience of designing and manufacturing control devices for industrial, marine and hazardous area applications.

These switches are constructed with either a robust aluminium or stainless steel enclosure. The aluminium casting is black anodised and supplied with 316 stainless steel covers. The stainless steel case is a natural finish. Covers are gasketted and sealed to achieve an environmental seal to IP66 & IP67 standards. The internals utilise a unique mechanism designed by the engineers at PYROPRESS to produce a wide range, low switching differential and excellent repeatability. This combined with a variety of microswitches, mountings and sensor options has produced a switch range suitable for all weatherproof and intrinsically safe applications.

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 calibrate to suit the application. Calibration is performed on the opposite side of the switch to the electrical connections, and can be set safely with the switch supply live. On removal of the adjustment cover a small grub screw can be loosened allowing the adjusting ring to be turned with a small Tommy bar or Allen key. The setting is read from the centre of the red indicating ring against the calibrated scale plate.

Calibration procedures for dual microswitches and adjustable switching differential switches are detailed on the operating and maintenance instructions supplied with each switch.



TECHNICAL SPECIFICATION

Switchcase and covers: 316 stainless steel switchcase with 316 stainless steel covers or black anodised aluminium switchcase and 316 stainless steel covers. Optional 304 stainless steel mounting bracket.

Microswitch: SPCO/SPDT. Options include single or twin switch assemblies for simultaneous or separately adjustable set points, adjustable switching differential, manual reset and noble metal contacts for use on intrinsically safe circuits.

Microswitch rating

Standard microswitch	: 6 Amps @ 480 V.AC
	: 10 Amps @ 250 V.AC & 125 V.AC
	: 5 Amps @ 30 V.DC & 0.05 Amps @ 125 V.DC
Adjustable deadband and high	: 1.5 Amps @ 250 V.AC & DC
Current DC switching	: 7.5 Amps @ 125 V.AC & DC

Electrical Connections: Screwed terminals direct onto microswitch, suitable for cable up to 2.5 mm2. (Manual reset microswitch is supplied with 6BA solder tags).

Electrical Conduit Entry: M20 x 1.5 straight entry. Adaptors are available.

Environmental Protection: Switches have been tested and certified by an external test house to IP66 in accordance with BS EN 60529 : 1992. In addition further internal tests confirm that the switchcase meets the requirements of IP67.

Vibration and shock parameters: Switches were subjected to Lloyds Register Type Approval System Test Specification No.1 Clause 12 or 13 Vibration Test 1 or 2 (refer to sales for exact specifications) and shock tested to BS EN 60068-2-27 : 1987.

Temperature Limitations: Pressure, Vacuum and Differential Pressure.

Process: Diaphragm actuated (unless otherwise stated) -30 to +110˚C (Nitrile) or -20 to +150˚C (Viton). Piston actuated -30 to +120˚C (Nitrile), or -20 to +150˚C (Viton) or -50 to +150˚C (PTFE) -30 to 125˚C (EPDM)

Ambient: -25 to +80 Deg.C.

Storage: -25 to +80˚C. (For temp, level and flow refer to specific pages).

Certification: All switches are CE certified and marked in accordance with the following EU directives. Industrial : 2014/35/EU (Low Voltage Directive).

Exia: ATEX 2014/34/EU coded CE Ex II1G Exia IIC. CAT 1 (Zone 0) areas**.** 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.

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, fluid, 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 a accuracy assuring a reliable and consistent quality product.

https://fluidic-ltd.co.uk/
sales@fluidic-ltd.co.uk