

# V1100 GUARDIAN INDUSTRIAL & ATEX Exia CERTIFIED VACUUM SWITCH



## VACUUM/COMPOUND

ANC4B 316 stainless steel or black anodised aluminium switchcase.

IP66/IP67 certified housing.

SIL2 - IEC61508 proven reliability.

Calibrated adjustment scale.

Vacuum Settings from 10 to 995 mBar.

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

The range is suitable for applications between 10 mBar and 995 mBar of vacuum. Dual microswitch and adjustable deadband options are available. A compound version is also available adjustable between -1 and +2 Bar, though it cannot be set within 150 mBar either side of the zero point or have an adjustable deadband. For specification and introduction to the Guardian switch range refer to pages 10 & 11.

### SPECIFICATION

**Wetted parts** : 316 St. Steel

**Diaphragm** : Viton

**Pressure Limitations** : Please refer to table below.

**Process connections** :

1/4" BSP.P or NPT female.

1/2" BSP.P or NPT female or male.

ADJUSTMENT RANGE (MBAR) VACUUM	MAX WORKING PRESS. (BAR)	DEADBAND (MBAR)	SETTING SWITCH 2 (FROM SWITCH 1) MIN (MBAR) MAX	PART NUMBER PREFIX WITH "S" FOR STAINLESS STEEL SWITCHCASE	DRAWING
-995 to -150	30	<70	80 800	(S) V110 /B5_N30/SS5X	FIG. 7 PAGE 24
-550 to -50	5.5	<35	70 240	(S) V110 /B5_N07/SS5X	FIG. 8 PAGE 25
-130 to -10	1.4	<10	15 85	(S) V110 /B5_N14/SS5X	FIG. 9 PAGE 26

#### VACUUM PRESSURE VERSION

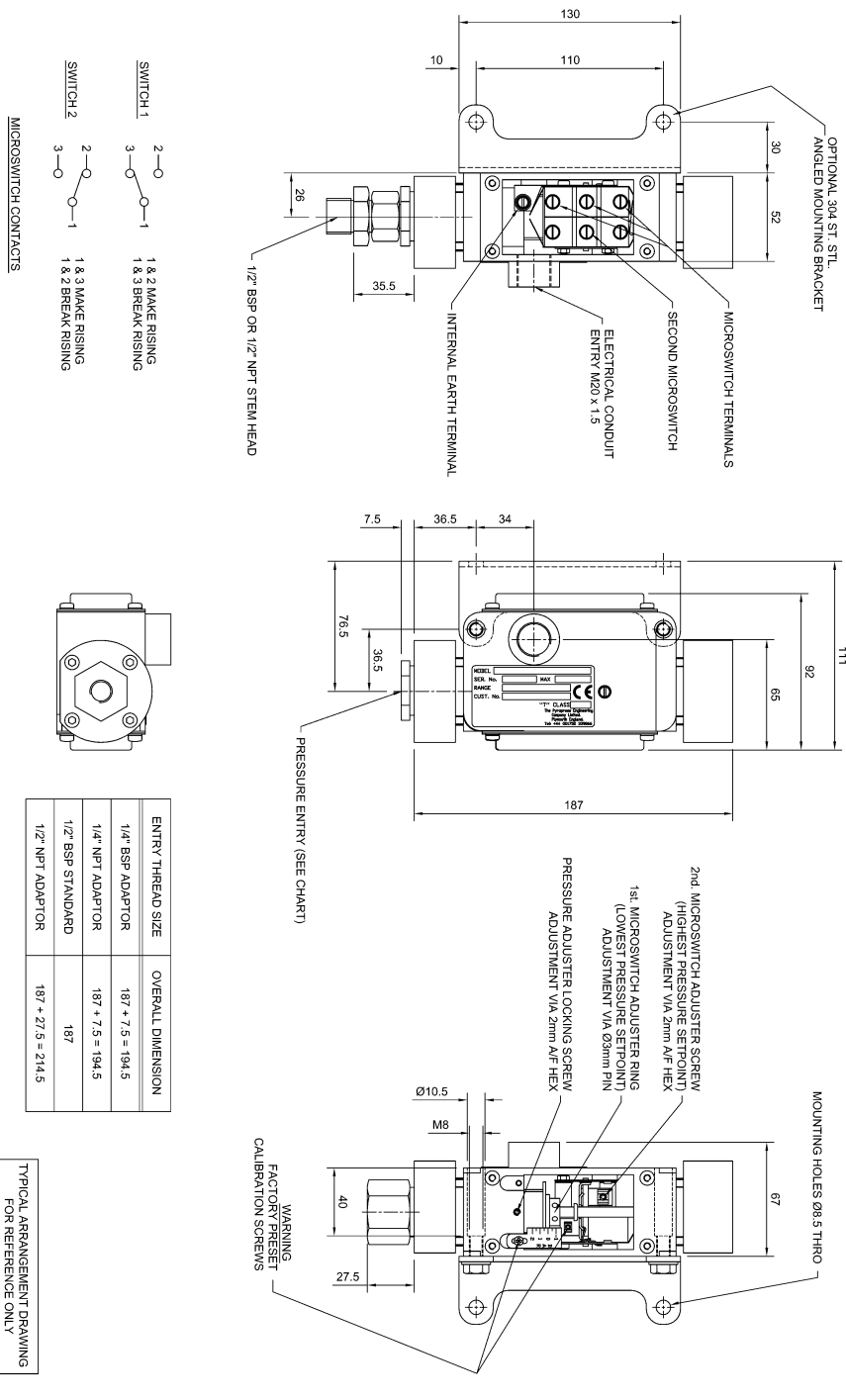
-1 to +2 Bar	30	<100	CONTACT SALES	(S) P110 /B5_N30/SS5X	FIG. 6 PAGE 23
--------------	----	------	---------------	-----------------------	----------------

THE FITTING OF MEDIUM DIFFERENTIAL OR DUAL MICROSWITCHES MAY INCREASE THE DEADBAND BY A FACTOR OF TWO. DUAL MICROSWITCH ADJUSTMENT LIMITS ARE DETAILED ON PAGE 20.

**MICROSWITCH** : OPTIONS ARE DETAILED ON PART NUMBER BREAKDOWN SHOWN ON PAGE 13. FOR DUAL MICROSWITCHES REPLACE THE "N" IN THE PART NUMBER WITH "A".

**PROCESS CONNECTION**  
 71 = 1/4" BSP.P FEMALE  
 72 = 1/4" NPT FEMALE  
 10 = 1/2" BSP.P FEMALE  
 74 = 1/2" NPT FEMALE  
 82 = 1/2" BSP.P MALE  
 84 = 1/2" NPT MALE

# FIG. 6 TYPE P1100 GUARDIAN VACUUM/PRESSURE SWITCH



# GUARDIAN INDUSTRIAL & ATEX Exia SWITCHES

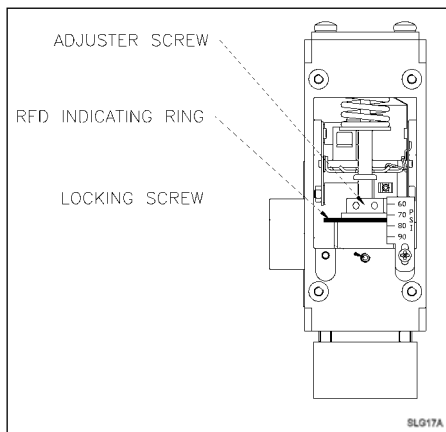
## INTRODUCTION

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 gasketed 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 :** ANC4B 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 & 0.5 Amps @ 125 V.DC  
Adjustable deadband and high : 10 Amps @ 250 V.AC or DC  
Current DC switching

**Electrical Connections :** Screwed terminals direct onto microswitch, suitable for cable up to 2.5 mm<sup>2</sup>. (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 130 Vibration Test 142 and shock tested to BS EN 60068-2-27 : 1987.

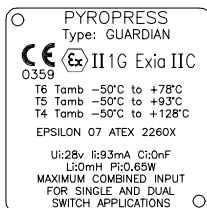
**Temperature Limitations:** Pressure, Vacuum and Differential Pressure.

**Process :** Diaphragm actuated unless otherwise stated -50 to +90°C (Nitrile) or -20 to +150°C (Viton). Piston actuated -40 to +120°C (Nitrile), or -20 to +150°C (Viton) or -60 to +150°C (PTFE). **Ambient :** -10 to +80 Deg.C.

**Storage :** -60 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 : 2006/95/EC (Low Voltage Directive). Exia : 94/9/EC ATEX 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.

**Accuracy:** 1% @ 20°C.



The Pyropress Engineering Company Ltd.  
Bell Close, Newnham Industrial Estate,  
Plympton, Plymouth. Devon PL7 4JH England.  
Tel: +44 (0)1752 339866  
Fax: +44 (0)1752 336681  
E-mail: sales@pyropress.com  
Website: www.pyropress.com  
Revision: D 06/09