

## V1100 GUARDIAN INDUSTRIAL & ATEX EExia CERTIFIED VACUUM SWITCH



### VACUUM

ANC4B 316 stainless steel or black anodised aluminium switchcase.

IP66/IP67 certified housing.

Low switching differential.

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 EEx ia IIC

T6 Tamb -50 to +78°C

T5 Tamb -50 to +93°C

T4 Tamb -50 to +128°C

(Must be specified upon ordering)

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.

ADJUSTMENT RANGE (MBAR) VACUUM	MAX WORKING PRESS. (BAR)	SWITCH DIFF (MBAR) (LOW DIFF MICRO)	PART NUMBER <small>PREFIX WITH "S" FOR STAINLESS STEEL SWITCHCASE</small>	DRAWING
-995 to -150	30	<34	V110_/B5_N30/SS5X	FIG. 7 PAGE 26
-550 to -50	5.5	<14	V110_/B5_N07/SS5X	FIG. 8 PAGE 27
-130 to -10	1.4	<4	V110_/B5_N14/SS5X	FIG. 9 PAGE 28

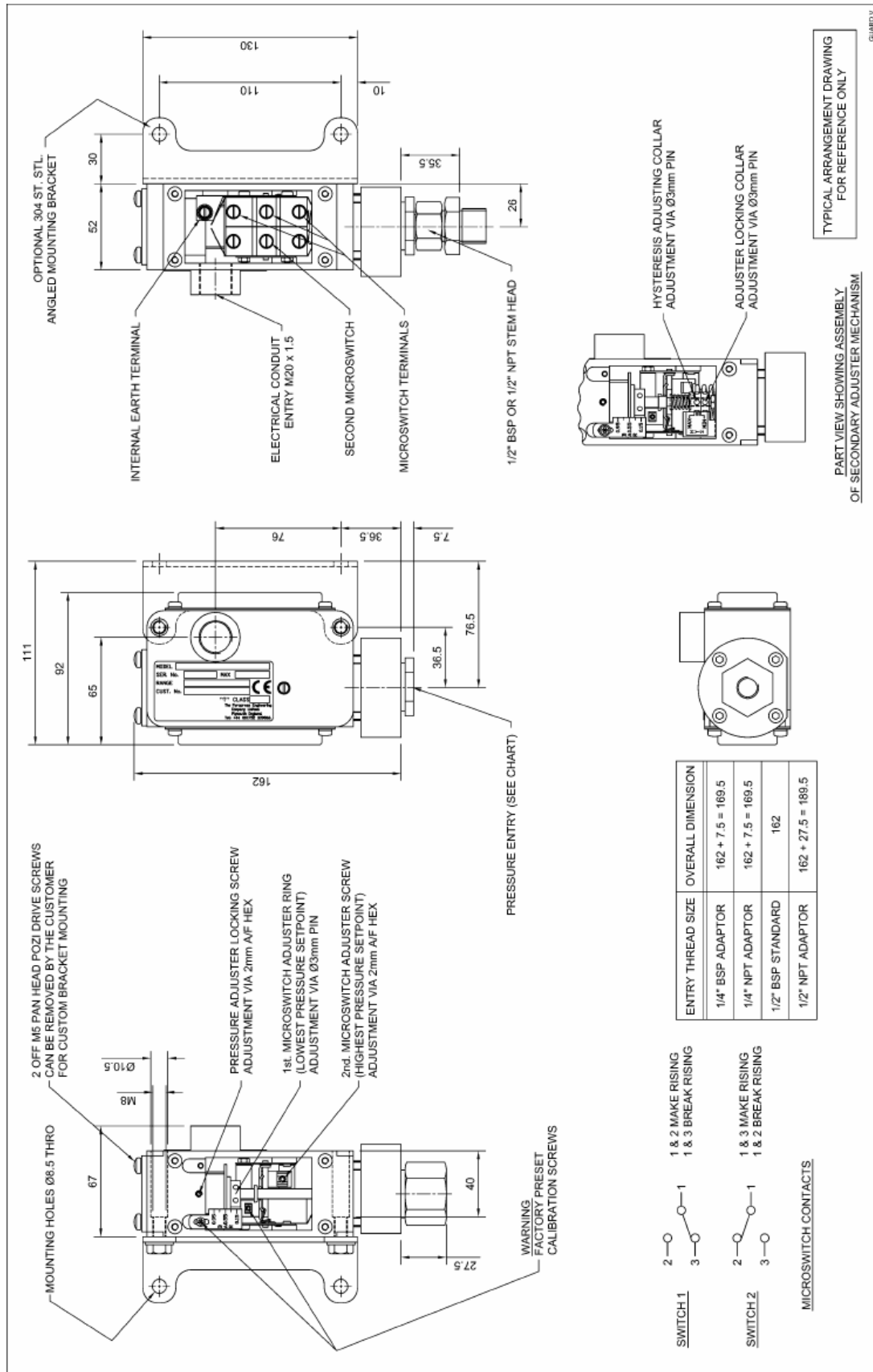
VACUUM PRESSURE VERSION

-1 to +2 Bar	30	<70	P110_/B5_N30/SS5X	FIG. 6 PAGE 25
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THE FITTING OF MEDIUM DIFFERENTIAL OR DUAL MICROSWITCHES MAY INCREASE THE SWITCHING DIFFERENTIAL BY A FACTOR OF TWO. DUAL MICROSWITCH ADJUSTMENT LIMITS ARE DETAILED ON PAGE 20.	<p><b>MICROSWITCH</b> : OPTIONS ARE DETAILED ON PART NUMBER BREAKDOWN SHOWN ON PAGE 13. FOR DUAL MICROSWITCHES REPLACE THE "N" IN THE PART NUMBER WITH "A".</p>	<p><b>PROCESS CONNECTION</b>                      71 = 1/4" BSP.P FEMALE                      72 = 1/4" NPT FEMALE                      10 = 1/2" BSP.P FEMALE                      74 = 1/2" NPT FEMALE</p>
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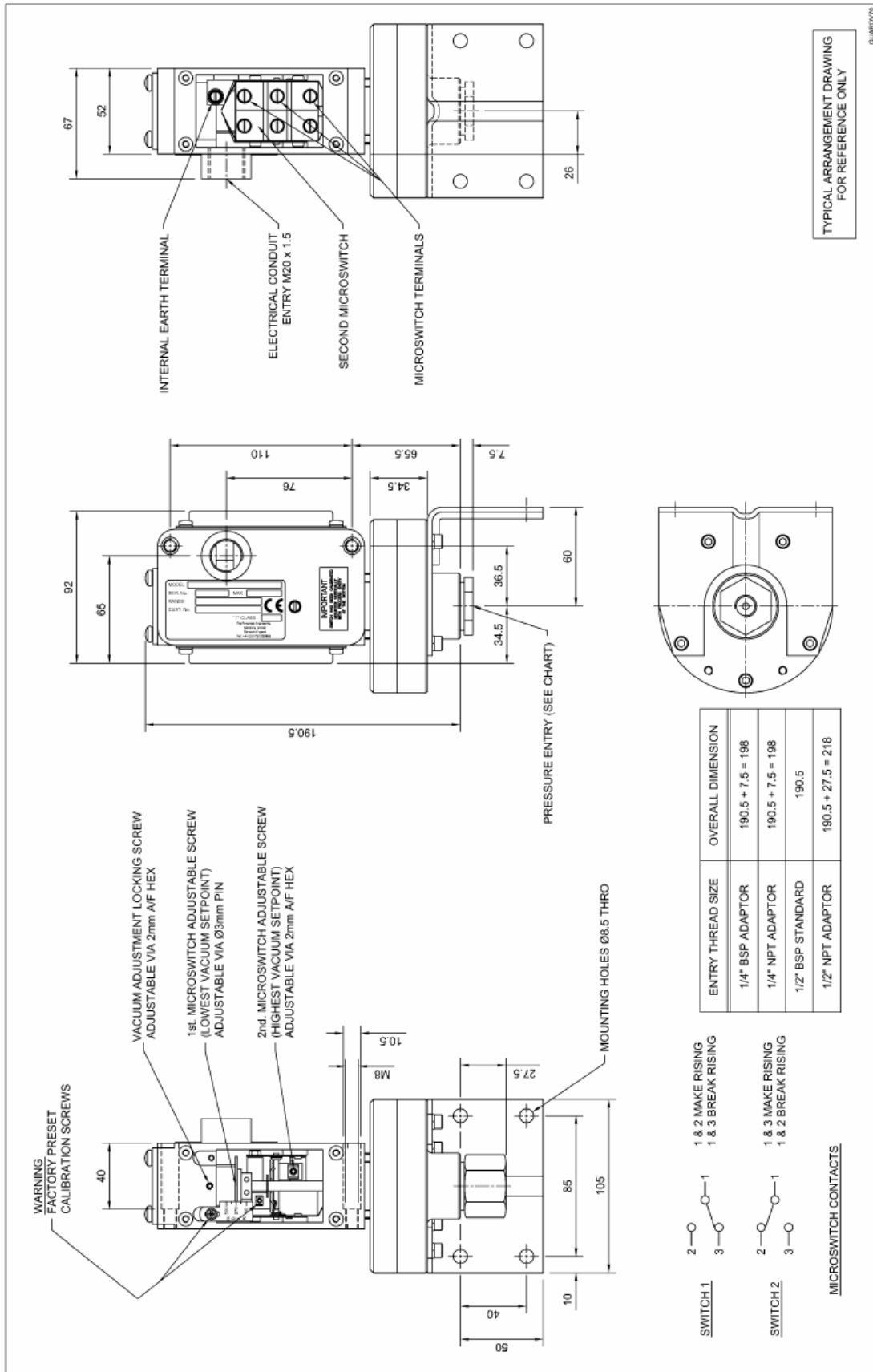
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**FIG. 7 TYPE V1000 GUARDIAN VACUUM SWITCH**



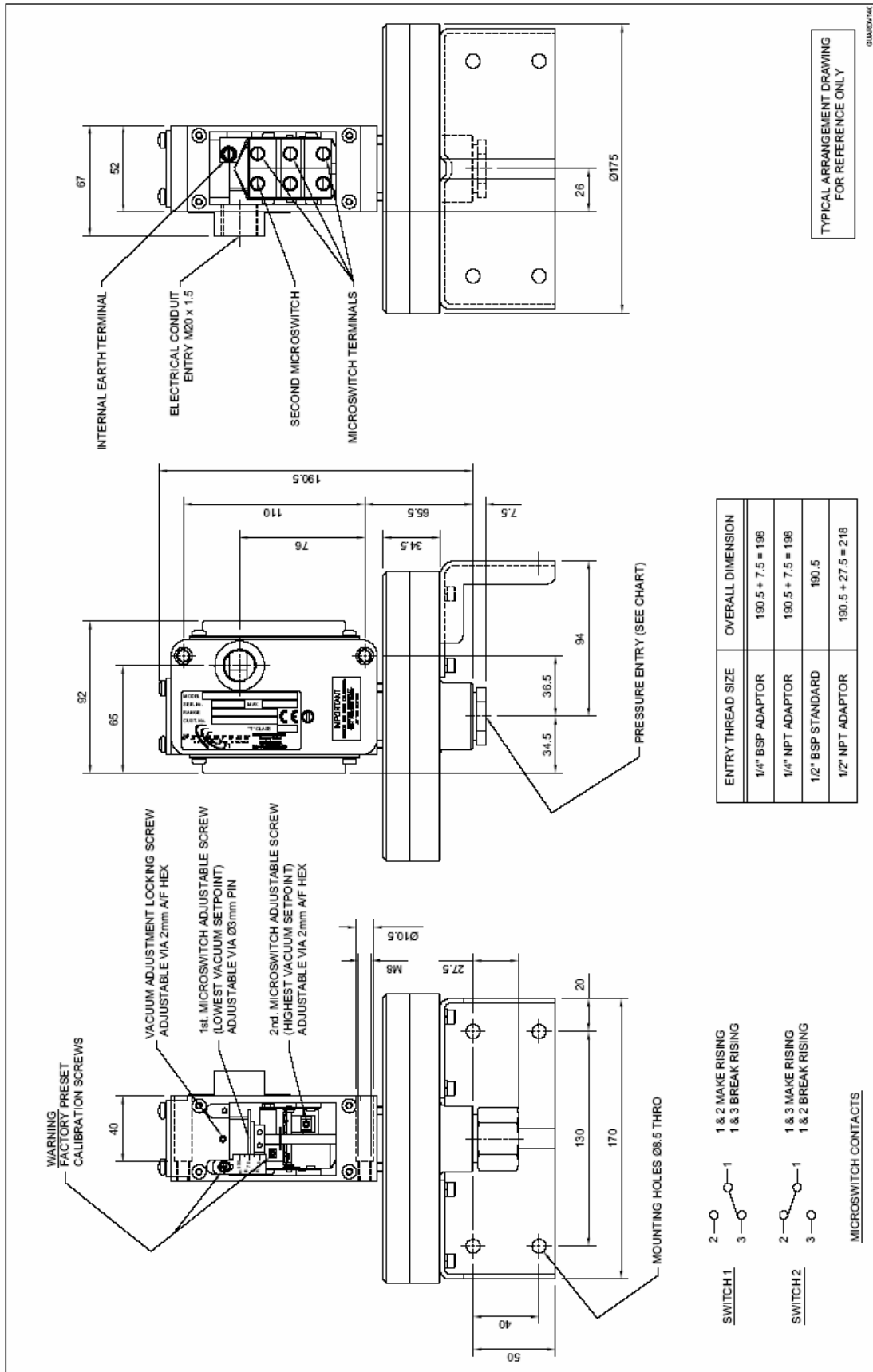
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**FIG. 8 TYPE V1000 - 70 GUARDIAN VACUUM SWITCH**



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**FIG. 9 TYPE V1000 - 140 GUARDIAN VACUUM SWITCH**



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## GUARDIAN INDUSTRIAL & ATEX EExia SWITCHES

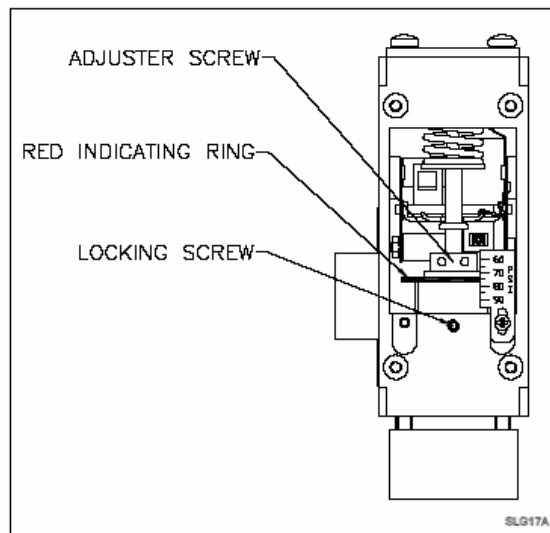
### INTRODUCTION

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 55 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.

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## 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

Low differential microswitch : 5 Amps @ 250 V.AC/1 Amp @ 24 V.DC  
Medium, high differential : 10 Amps @ 250 V.AC  
and manual reset : 3 Amps @ 24 V.DC  
Special (magnetic blow-out) : 10 Amps @ 250V.AC or DC

**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.

**Ambient** : -10 to +80 Deg.C (standard). -55°C to +130°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) or -60 to +150°C (PTFE).

**Storage** : -60 to +80°C.

(For temperature, level and flow switches please refer to specific pages).

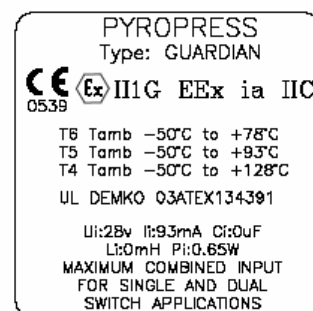
**Certification:** All switches are CE certified and marked in accordance with the following EU directives.

Industrial : 73/23/EEC (Low Voltage Directive).

EEExia : 94/9/EEC ATEX coded CE  II1G EEExia IIC

CAT 1 (Zone 0) areas.

**Accuracy:** 1% @ 20°C (setting accuracy : 2%).



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