GUARDIAN
ULTRA LOW VACUUM

V1500 GUARDIAN INDUSTRIAL ULTRA LOW VACUUM SWITCH

The standard ranges cover vacuum applications for settings from 2 mbar to 55 mbar. Dual microswitch and adjustable deadband options are available as detailed on the opposite page.

V1500 ULTRA LOW VACUUM

FEATURES

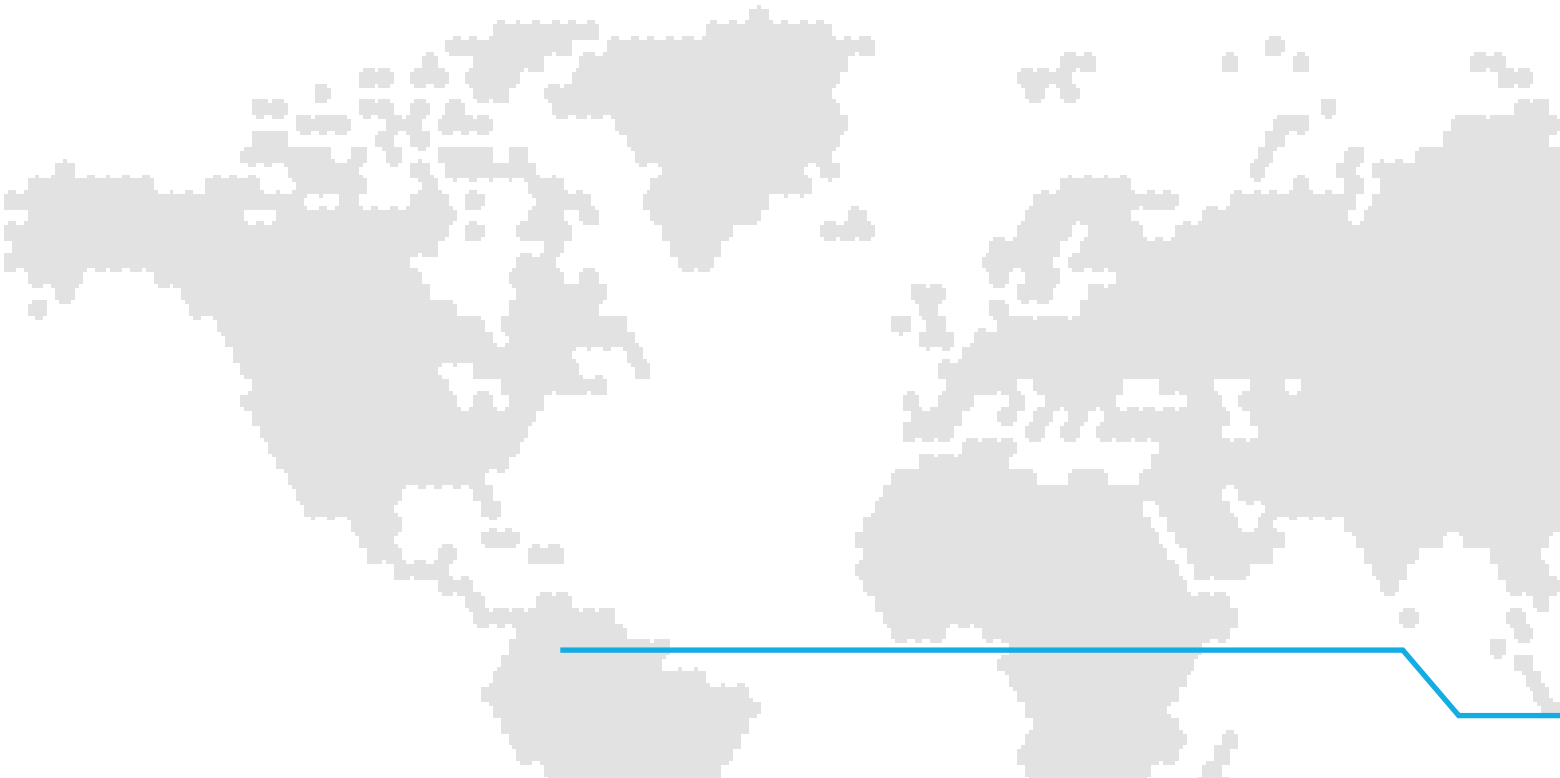
- 316 stainless steel or black anodised aluminium switchcase.
- IP66/IP67 certified housing.
- SIL2 - IEC61508 proven reliability.
- Internal adjustment scale.
- Vacuum settings from 2 mbar to 55 mbar.
- Single or dual microswitch option. Adjustable deadband option.
- Wetted parts NACE MR-01-75 compliant.
- Manual reset pushbutton option.

STANDARD VITON DIAPHRAGM		Dual microswitches may increase the deadband by a factor of two. △ 3.5 Bar option available.			
ADJUSTMENT RANGE mbar	ADJUSTMENT RANGE "wg	MAX WORKING PRESS. (bar) ONE SIDED EQUAL	DEADBAND mbar	DIAPHRAGM CODE	SPRING CODE
5 - 55	2 - 20	0.35 0.5 Δ	<6	08SB	2
2 - 42	1 - 16	0.35 0.5 Δ	<3	08SB	1

SPECIFICATION

Temperature limitations
Diaphragm code : 08SB
Viton : -10 to + 150˚C
Nitrile : -30 to +100˚C
Wetted parts : 316 Stainless steel

Process connections : Code 08SB compression fittings or threaded connections.
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



ADJUSTABLE DEADBAND SWITCHING LIMITS					DUAL MICROSWITCH ADJUSTMENT LIMITS	
MINIMUM DEADBAND AT BOTTOM OF RANGE mbar	MAXIMUM DEADBAND AT BOTTOM OF RANGE mbar	**ADJUSTMENT RANGE (mbar) (FALLING SET POINTS ONLY) SWITCH 1**	MINIMUM DEADBAND AT TOP OF RANGE mbar	MAXIMUM DEADBAND AT TOP OF RANGE mbar	**SWITCH 2** RELATIVE TO SWITCH 1 **MIN** - (mbar) - **MAX** (SECONDARY ADJUSTER)	
3	12	5 - 55	3	17	0.01	0.15
3	12	2 - 42	3	17	0.005	0.030

PART NUMBER BREAKDOWN

V15 = VACUUM PREFIX WITH '**S**' FOR STAINLESS STEEL SWITCHCASE	**DIAPHRAGM** **A** = NITRILE **B** = VITON	**SPRING CODE** SEE RANGE SHEET (PAGE 28)	**DIAPHRAGM CODE** SEE RANGE SHEET (PAGE 28)	**MOUNTING DETAILS** **X** = 01SB CASE MOUNTING **N** = 02SB & 03SB BRACKET **X** = 08SB BRACKET **E** = 2" PIPE BRACKET

(S) V 1 5 0 1 / A 1 N 0 8 S B 5 / S S X

MICROSWITCH OPTIONS
01 = SINGLE SWITCH
02 = DUAL SWITCHES
03 = USE 01
04 = USE 02

N = STANDARD ADJUSTER
A = SECONDARY ADJUSTER (FOR DUAL SETTING OR ADJUSTABLE DIFFERENTIAL MECHANISM)

PROCESS CONNECTION FOR DIAPHRAGM CODE 08SB

ADJUSTABLE DEADBAND
07 = SINGLE SWITCH - STANDARD

09 = MANUAL AND AUTO (RESET RISING)
0A = MANUAL AND AUTO (RESET FALLING)

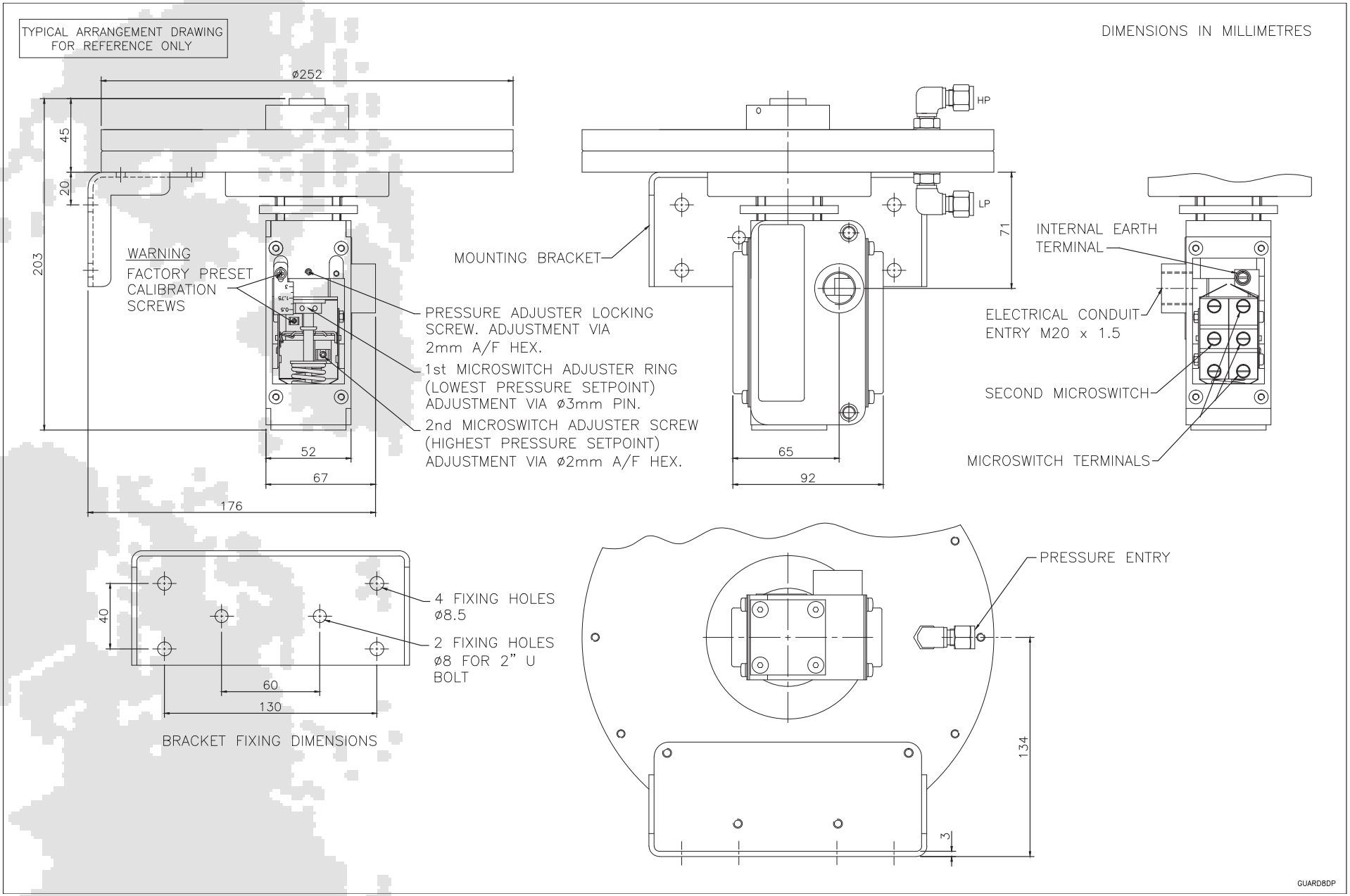
0C = MANUAL (RESET RISING)
0D = MANUAL (RESET FALLING)
0E = DUAL HIGH CURRENT DC
0M = SINGLE HIGH DC CURRENT

PLEASE REFER TO MICROSWITCH RATINGS ON PAGE 11.

5 = 1/4" O/D TUBE POSI. ELBOW VAC
B = 6mm O/D TUBE PR/VAC
D = 8mm O/D TUBE PR/VAC
F = 10mm O/D TUBE PR/VAC
H = 12mm O/D TUBE PR/VAC

K = 1/4" BSP.P FEMALE STRAIGHT PR/VAC
M = 1/4" BSP.T FEMALE STRAIGHT PR/VAC
P = 1/4" BSP.P MALE STRAIGHT PR/VAC
R = 1/4" NPT FEMALE STRAIGHT PR/VAC
T = 1/4" NPT MALE STRAIGHT PR/VAC
V = 1/2" NPT FEMALE STRAIGHT PR/VAC

TYPE V1500 GUARDIAN ULTRA LOW VACUUM SWITCH (DIAPHRAGM CODE 08SB)



GUARDIAN INDUSTRIAL & ATEX SWITCHES

INTRODUCTION

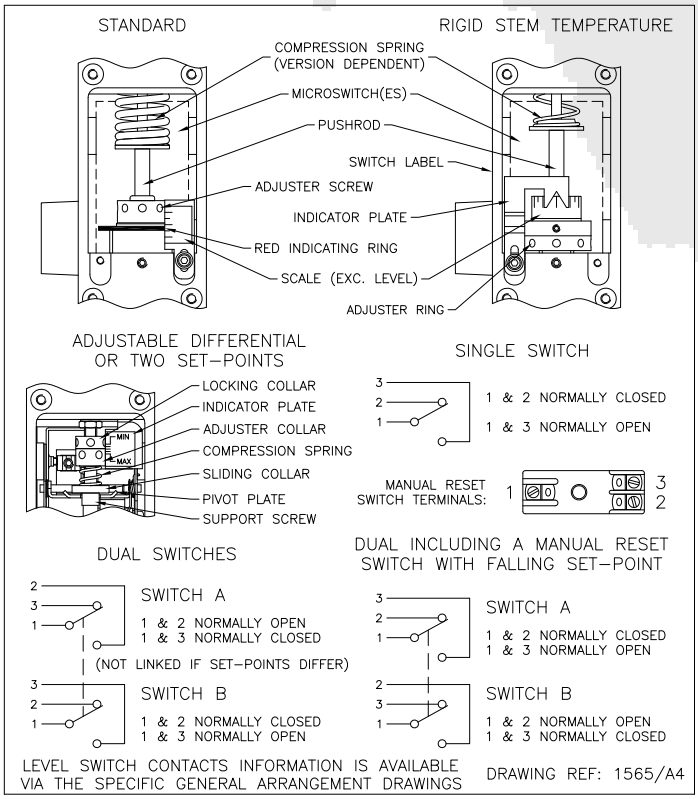
The Guardian pressure, differential pressure, temperature, level and flow switches are a part of our extensive range of specialist process sensors. They utilise the expertise gained from over 60 years experience of designing and manufacturing control devices for industrial, marine and hazardous area 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 pickled and passivated. 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 and manual reset.

Microswitch rating	: 6 Amps @ 480 V.AC
Standard microswitch	: 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 +100˚C (Nitrile) or -20 to +150˚C (Viton). Piston actuated -30 to +100˚C (Nitrile), or -20 to +150˚C (Viton) or -40 to +150˚C (PTFE) -35 to +100˚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 2014/35/EU (Low Voltage Directive).

Accuracy +/-1% at 20°C.

Continuouse developement may result in changes to specifications 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.