



INSTALLATION GUIDE

VIBRATION SWITCH TYPE : 3171 EEx ed

Ex BAS00ATEX2019X


II 2 G EEx ed IIC T6 Tamb -20°C to +50°C (High Impact Risk)
II 2 D T85°C IP67


II 2 G EEx ed IIC T6 Tamb -55°C to +50°C (Low Impact Risk)
II 2 D T85°C IP67

CONTENTS

1. RATING TABLES
2. MOUNTING AND DIMENSIONS
3. PRINCIPLES OF OPERATION
4. ELECTRICAL CONNECTIONS
5. ADJUSTMENTS AND SETTING
6. MAINTENANCE AND REPAIR
7. STORAGE
8. CONDITIONS FOR SAFE USE

1. RATING TABLES

Table 1 – Maximum Ratings

MICROSWITCH MODEL No. 07-1511-	TYPE SEE - FIG 2	CONTACT MATERIAL	MAX. VOLTS	MAX. CURRENT PER CONTACT		MAX. POWER	Tamb °C	LABEL COLOUR
				AC	DC			
- 1530	2A	SILVER	275V	6A	0.15A		-20 to +50	BLACK/SILVER
- 3530	2A	GOLD	30V		0.4A	0.12VA	-20 to +50	GOLD/SILVER
- 1540	2B	SILVER	275V	6A	0.15A		-20 to +50	GREEN/SILVER
- 1521	2C	SILVER	275V	6A	0.15A		-20 to +50	GREEN/SILVER
- 3540	2B	GOLD	30V		0.4A	0.12VA	-20 to +50	RED/SILVER
- 3521	2C	GOLD	30V		0.4A	0.12VA	-20 to +50	RED/SILVER
-1533	2D	SILVER	275V	6A	0.15A		-20 to +50	GREEN/SILVER
-3533	2D	GOLD	30V		0.4A	0.12VA	-20 to +50	RED/SILVER
- 1530	2A	SILVER	275V	6A	0.15A		-55 to +50	BROWN/SILVER
- 3530	2A	GOLD	30V		0.4A	0.12VA	-55 to +50	BLUE/SILVER
- 1540	2B	SILVER	275V	6A	0.15A		-55 to +50	PURPLE/SILVER
- 1521	2C	SILVER	275V	6A	0.15A		-55 to +50	PURPLE/SILVER
- 3540	2B	GOLD	30V		0.4A	0.12VA	-55 to +50	CYAN/SILVER
- 3521	2C	GOLD	30V		0.4A	0.12VA	-55 to +50	CYAN/SILVER
-1533	2D	SILVER	275V	6A	0.15A		-55 to +50	PURPLE/SILVER
-3533	2D	GOLD	30V		0.4A	0.12VA	-55 to +50	CYAN/SILVER

Maximum Rating for GOLD CONTACTS (Table 1) with alternating current, the above values have to be interpreted as peak values.

Table 2 – Alternative Ratings at +40°C (Silver contacts only)

NOMINAL VOLTAGE	OHMIC LOAD	INDUCTIVE LOAD
250V AC	5A	3A (Cos θ = 0.6)
30V AC	7A	5A (Cos θ = 0.6)
30V DC	7A	5A (L/R = 3 μ s)

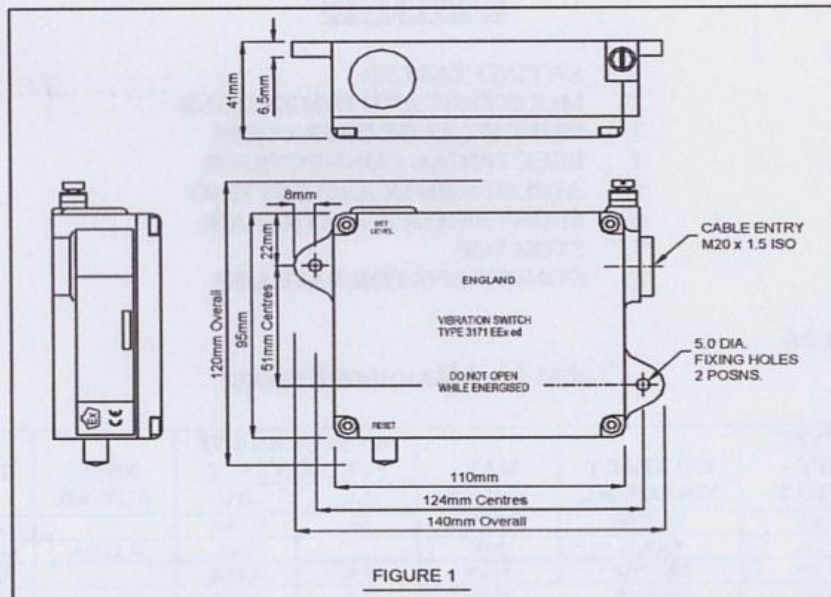
All suitable for Zone 1 & Zone 2 use.

Ingress Protection Rating IP67 although any IP rating down to IP54 may be used if required, see Item. 8.6

2. MOUNTING AND DIMENSIONS

The unit should be firmly mounted on a vertical face by M4 bolts, with the reset button at the bottom. See Fig. 1 for external dimensions and fixing centres.

The vibration switch will respond to vibrations in any axis (predominantly in a horizontal plane) and should be fitted on the machine such as to ensure good transmission from likely sources of excess vibrations.



PRINCIPLES OF OPERATION

The vibration switch is a simple mechanical device, operating by balancing magnetic attraction on a metal ball, against acceleration forces produced by surrounding vibrations. The switch is mounted vertically with the ball restrained in a conical seat by a permanent magnet. When the ball experiences sufficient acceleration, (excessive vibration of the machine), it breaks free, falls and operates a Microswitch. The Microswitch provides the electrical interface to cause machine shut – down.

Reset is by Push Button on the bottom of the switch. See Fig. 1

The operate point is controlled by the Set Level Screw on top of the switch. See Fig. 1

3. ELECTRICAL CONNECTIONS

Contact Ratings: see Tables 1 & 2

Connections: see Fig 2

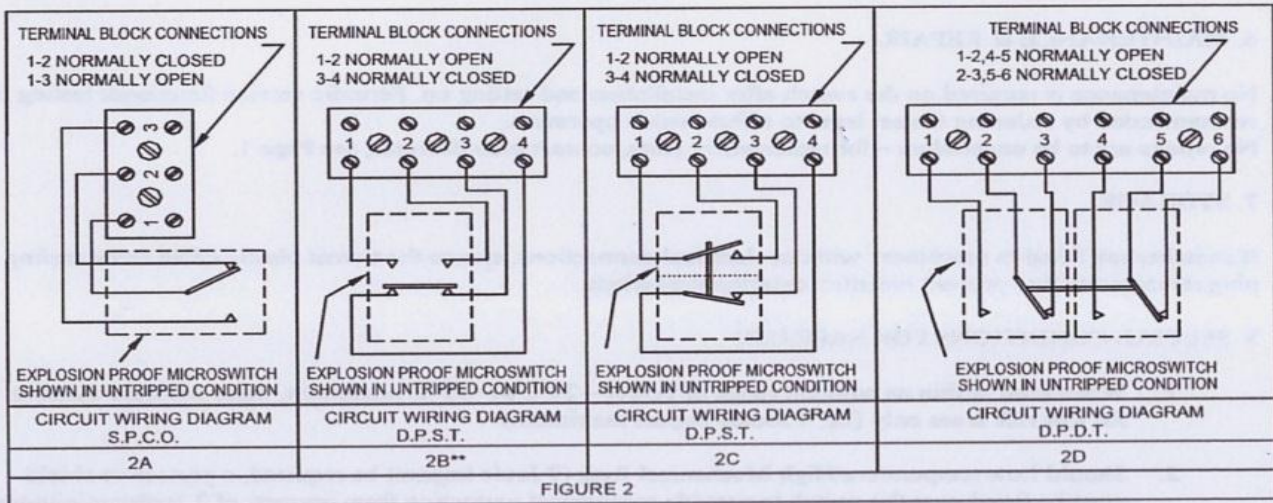
Connector core size: 0.5 - 2.5-mm² max.

Internal earth connection: 0.5 - 2.5-mm² max. (To match connector cable used)

External earth connection: 6.0 mm² max.

Approved cable glands must be used to suit cable and ensure acceptable IP requirements - See Item 8.6.

To ensure EMC requirements are met, it is recommended that SWA, MICC, Screened cable, or metal conduit be used, with suitable earthing.



Note: ** Contact Arrangement 2B, only to be used with circuits of equal potential

5. ADJUSTMENTS AND SETTING

Note: Isolate power elsewhere before any removal of covers.

Remove grommet over set level screw, rotate set screw fully clockwise, approximately 6 turns from flush (See Fig. 4) using a non – magnetic screwdriver.

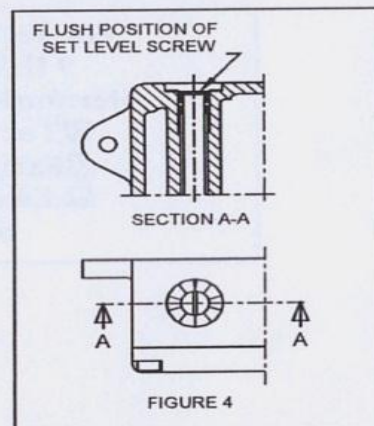
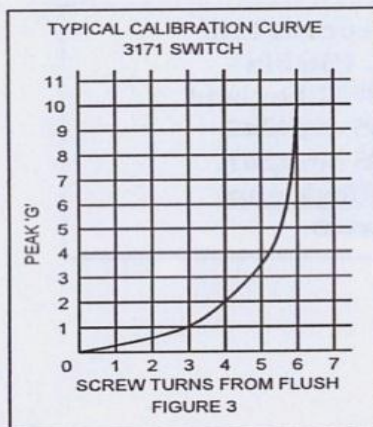
Reset switch by depressing the Reset button, check electrical connections show “Safe Condition” i.e. normal running, (see Fig 2). If the vibration switch is connected for machinery shut – down, link out switch during next operation, if required.

With machine running normally, rotate set level anticlockwise until switch just trips. Reset carefully, readjusting set level screw until switch no longer trips. This determines the setting for NORMAL or AMBIENT machine level. Vibrations above this level will now cause the vibration switch to operate.

Actual AMBIENT vibration level in ‘G’ can be determined by counting rotations of set screw back from flush setting (Fig.4) and referring to the Calibration Curve, Individual or Typical (Fig.3).

The switch is then adjusted by clockwise rotation of the set level screw to the desired level for machinery protection. (Starting and stopping of the machine is recommended to check protection level set is adequate to accommodate any transient excess vibration periods or resonance during these periods).

After final setting, replace the sealing grommet over the set level screw. If anti – tamper protection is required it is suggested the cavity be cleaned and filled with soft sealing wax or a non-corrosive sealing compound (Dow Corning 744 or direct equivalent).



6. MAINTENANCE & REPAIR

No maintenance is required on the switch after installation and setting up. Periodic service functional testing is recommended by reducing the set level to effect switch operation.

No repairs are to be undertaken – for replacement parts, contact manufacturer, see Page 1.

7. STORAGE

If switches are fitted to machinery without electrical connections, ensure the transit plastic cable entry sealing plug remains fitted to prevent moisture entering the switch.

8. SPECIAL CONDITIONS FOR SAFE USE

1. When used within an ambient range of below -20°C to -55°C maximum, these units are suitable for low risk areas only (i.e. 4 Joules impact maximum)
2. Should Low temperature/High Mechanical Risk (7 Joule impact) be required, a protective shield must be fitted over the switch to provide mechanical protection from impacts of 7 Joules minimum.
3. Except when shown in the certificate, as being internal wiring of apparatus, not more than one single or multiple strand lead shall be connected into either side of any terminal, unless multiple conductors have been joined in a suitable manner, e.g. Two conductors into a single insulated crimped bootlace ferrule.
4. Leads connected to the terminals shall be insulated for the appropriate voltage and this insulation shall extend to within 1mm of the metal of the terminal throat
5. All terminal screws, used and unused, shall be fully tightened down
6. The installer shall use an appropriate method to ensure a minimum ingress protection of IP54 or higher IP rating to match that on the label on the cable entry, choosing an entry device in accordance with a recognised Code of Practice/Installation Instructions.
7. Microswitches Model No's. 07 – 1511 – 1540 and 07 – 1511 – 3540 are only suitable for circuits of equal potential.
8. Should the Terminal Block be detached for ease of connection of external cabling during installation, the Insulator (DPDT models) must be refitted to the original condition to ensure compliance with electrical safety requirements.

Authorised Dealer



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