



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx SIR 14.0035X

Issue No: 1

Certificate history:

Status: **Current**

Issue No. 1 (2018-11-13)

Issue No. 0 (2015-01-07)

Date of Issue: **2018-11-13**

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Applicant: **FFE Ltd.**
9 Hunting Gate
Hitchin
Hertfordshire SG4 0TJ
United Kingdom

Equipment: **Vibration Switch Type 3171 (Manual Reset Model)**

Optional accessory:

Type of Protection: **Flameproof, Increased Safety, and Dust Protection by Enclosure**

Marking:
Ex db eb IIC T6 Gb
Ex tb IIIC T85°C Db
Ta = -50°C to +80°C

Approved for issue on behalf of the IECEx
Certification Body:


C Ellaby

Position:

Deputy Certification Manager

Signature:
(for printed version)

P.P.


A.G. ROYES

Date:

2018-11-13

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

SIRA Certification Service
CSA Group
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
United Kingdom

sira
CERTIFICATION





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Manufacturer: **FFE Ltd.**
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Hertfordshire SG4 0TJ
United Kingdom

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[GB/SIR/ExTR14.0310/00](#) [GB/SIR/ExTR18.0208/00](#)

Quality Assessment Report:

[GB/SIR/QAR13.0025/03](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Type 3171 vibration switches are for use in explosive atmospheres. They are non-isolating, vibration operated pilot switches. The manually reset versions have single pole or double pole changeover micro-switches, either of which can have silver or gold contacts. They are mounted vertically on a rotary or vibrating machine, a steel ball is held against a control magnet into a conical seat within a chamber. The switch set level is adjusted by bringing the control magnet closer to the ball. The vibration switches consist of a zinc die cast alloy (Mazak 3) enclosure, containing a Bartec built in switch type 07-1511-.../....., which carry the certificate numbers, IECEX PTB 07.0040U, Ex d IIC. There is also a Type BK terminal strip which carries the certificate numbers, IECEX SIR 05.0035U, Ex e II. In addition, a steel ball, magnet, actuator and latch are fitted.

The operation of the device occurs when the vibration of the host machine increases to the point where the steel ball falls free from the control magnet conical seat, it falls onto a lever which pushes away from the latching magnet and releases a micro-switch plunger which breaks a circuit and shuts down the host machine. On the manually reset version, a button is pressed to reset the device by returning the steel ball to its conical seat and the latch to its held position.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The ambient temperature range is -50°C to $+80^{\circ}\text{C}$.
2. Leads connected to the terminals shall be insulated for the appropriate voltage and this insulation shall extend to within 1 mm of the metal of the terminal throat.
3. All terminal screws, used and unused, shall be tightened down to between 0.5 Nm and 0.7 Nm.
4. Terminals shall be mounted in such a way as to prevent any rotation of the terminal strip during tightening or loosening of the terminal screws.
5. Minimum creepage and clearance distances shall be observed between the installed terminals and adjacent conductive equipment/enclosure walls and covers shall be 5 mm. when QB cross-connecting combs are used with the angled black insulation inclined upwards or downwards, the maximum voltage rating of the terminal strips is reduced to 175 V maximum. In addition, the current rating is reduced to 25 A in a 40°C ambient to achieve a T6 rating.
6. Where the prong of an insulating comb is used in a terminal way, a further single conductor of 1.0 mm minimum cross-sectional area may be connected to the same terminal way on top of the prong. The inside edge of the insulation of the combs cross-connecting arm shall be in contact with the terminal moulding.

Refer to EQUIPMENT (continued) for further Conditions



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EQUIPMENT (continued):

Specific Conditions Of Use continued

7. The terminals shall never be exposed to temperatures outside of the range -50°C to $+130^{\circ}\text{C}$; in addition, they shall only be installed and wired with cable in an ambient temperature of -10°C to $+80^{\circ}\text{C}$.
8. The QB cross-connecting combs are limited to the same current rating as the terminal and shall not be used with currents in excess of this value.
9. The host machinery ambient temperature must not exceed a T6 rating during continuous operational conditions.

Conditions of Manufacture

The Manufacturer shall comply with the following:

1. The equipment covered by this certificate incorporates previously certified devices, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices; and the manufacturer shall inform Sira of any modifications of the devices that may impinge upon the explosion safety design of their products.
2. The manufacturer shall provide details on any earthing or equi-potential bonding required for the installation.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1 - this issue introduced the following changes:

1. Change of company name from Fire Fighting Enterprises Ltd to FFE Ltd & updated drawings.
2. The introduction of a new internal micro-switch carrying certificate number EPS 14.0091U to replace the currently approved model carrying the certificate number PTB 07.0040U was recognised.
3. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, IEC 60079-1:2007 Ed.6 and IEC 60079-7:2006 Ed.4 were replaced by IEC 60079-1:2014 Ed.7 and IEC 60079-7:2015 Ed.5 respectively. The markings were updated accordingly to recognise the new standards.