

1 **TYPE EXAMINATION CERTIFICATE**

2 **Intrinsically Safe System Intended for use in Potentially Explosive Atmospheres**

3 Type Examination Certificate      **Baseefa08Y0078 Issue 2**  
Number:

4 System:      **16XXX Flame Sensor System**

5 Certificate Holder:      **FFE Ltd**

6 Address:      **9 Hunting Gate, Wilbury Way, Hitchin, Hertfordshire, SG4 0TJ**

7 This system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa certifies that this system has been found to comply with the following standards

**EN 60079-25: 2010**

9 The examination and test results are recorded in confidential Report No's. **See Certificate History**

10 If the sign "X" is placed after the certificate number, it indicates that the system is subject to special conditions of safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified intrinsically safe system and not to specific items of equipment therein. It is the responsibility of the system certificate holder to supply the relevant documentation to the installer of the intrinsically safe electrical system referred to in this certificate.

The installer has the responsibility to ensure that the system conforms to the specification laid down in the Schedule to this certificate and has satisfied routine verifications and tests specified therein.

12 The marking of the system shall include the following :

**SYST Baseefa08Y0078**  
**Ex ia IIC T4 Ga**

Baseefa Customer Reference No. **7221**

Project File No. **18/0349**

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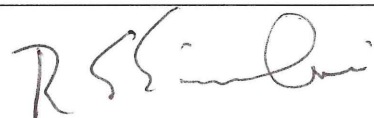
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R S SINCLAIR  
TECHNICAL MANAGER  
On behalf of SGS Baseefa Limited

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## Schedule

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Certificate Number Baseefa08Y0078 – Issue 2

### 15 System Description

The 16XXX Flame Sensor System comprises:

#### 15.1 Apparatus that may be installed in a Non Hazardous Area (Safe Area.)

##### 15.1.1 One or two of the following isolators:

P&F Isolator type KFD0-CS-Ex1.54 BASEEFA No. BAS00ATEX7087, coded $\text{Ex}$ II (1) G [Ex ia Ga] IIC (-20°C ≤ T <sub>a</sub> ≤ +60°C)
P&F Isolator type KFD0-CS-Ex2.54 BASEEFA No. BAS00ATEX7087, coded $\text{Ex}$ II (1) G [Ex ia Ga] IIC (-20°C ≤ T <sub>a</sub> ≤ +60°C)

##### 15.1.2 or One or two of the following isolators:

P&F Isolator type KFD0-CS-Ex1.51 BASEEFA No. BAS99ATEX7343, coded $\text{Ex}$ II (1) G [Ex ia Ga] IIC (-20°C ≤ T <sub>a</sub> ≤ +60°C)
P&F Isolator type KFD0-CS-Ex2.51 BASEEFA No. BAS99ATEX7343, coded $\text{Ex}$ II (1) G [Ex ia Ga] IIC (-20°C ≤ T <sub>a</sub> ≤ +60°C)

##### 15.1.3 Or one or two of the following zener barriers:

P & F Barrier type Z 728 BASEEFA No. BAS01ATEX7005 Coded $\text{Ex}$ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T <sub>a</sub> ≤ +60°C) [Ex ia Da] IIIC (-20°C ≤ T <sub>a</sub> ≤ +60°C)
P & F Barrier type Z 779 BASEEFA No. BAS01ATEX7005 Coded $\text{Ex}$ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T <sub>a</sub> ≤ +60°C) [Ex ia Da] IIIC (-20°C ≤ T <sub>a</sub> ≤ +60°C)
MTL Barrier type MTL 7706+ BASEEFA No. BAS01ATEX7217 Coded $\text{Ex}$ II (1) GD [Ex ia Ga] IIC [Ex ia Da] IIIC
MTL Barrier type MTL 7728+ BASEEFA No. BAS01ATEX7217 Coded $\text{Ex}$ II (1) GD [Ex ia Ga] IIC [Ex ia Da] IIIC
MTL Barrier type MTL 7779+ BASEEFA No. BAS01ATEX7217 Coded $\text{Ex}$ II (1) GD [Ex ia Ga] IIC [Ex ia Da] IIIC
Any barrier certified by an EU notified body to [Ex ia Ga] IIC having the safety description: U <sub>o</sub> = 28V I <sub>o</sub> = 93mA P <sub>o</sub> = 0.65W

15.1.3 The above apparatus is to be supplied from apparatus situated in the safe area which is unspecified except that it must not be supplied from nor contain in normal or abnormal conditions a source of potential with respect to earth in excess of 253 volts r.m.s. or 253 volts d.c.

15.2 Apparatus that may be installed in a Hazardous Area

15.2.1 One or two 16XXX Flame Detector Monitors as covered by Baseefa certificate BAS01ATEX1001X

15.2.2 A single optional resistor with a surface area of 20mm<sup>2</sup> or greater may be connected to the fault relay circuit.

15.3 Permissible Interconnecting Cables

15.3.1 When two 16XXX Flame Sensor Power Supply terminal pairs (terminals 1 & 2) or Remote Test terminal pairs (terminals 3 & 4) are connected to a single circuit from the isolators listed in section 15.1.1 the permitted cable parameters are:-

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
IIC	0.017μF (0.047μF)	4.3mH		55μH/Ω
IIB	0.58μF (0.61μF)	17mH		199μH/Ω
IIA	2.08μF (2.11μF)	35mH		431μH/Ω

When only a single 16XXX Flame Sensor Power Supply terminal pair (terminals 1 & 2) or Remote Test terminal pair (terminals 3 & 4) is connected to a single circuit from the barriers or isolators listed in section 15.1 then the capacitance may be increased to the values shown in brackets. The increase in cable capacitance is not affected by the number of 16XXX Flame Sensor Fire Relay contact terminal pairs (terminals 5 & 6) or Fault Relay contact terminal pairs (terminals 7 & 8) connected to a single circuit.

15.3.2 When two 16XXX Flame Sensor Power Supply terminal pairs (terminals 1 & 2) or Remote Test terminal pairs (terminals 3 & 4) are connected to a single circuit from the barriers or isolators listed in sections 15.1.2 & 15.1.3 the permitted cable parameters are:-

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
IIC	0.023μF (0.053μF)	4.2mH		54μH/Ω
IIB	0.59μF (0.62μF)	12.6mH		217μH/Ω
IIA	2.09μF (2.12μF)	33.6mH		435μH/Ω

When only a single 16XXX Flame Sensor Power Supply terminal pair (terminals 1 & 2) or Remote Test terminal pair (terminals 3 & 4) is connected to a single circuit from the barriers or isolators listed in section 15.1 then the capacitance may be increased to the values shown in brackets. The increase in cable capacitance is not affected by the number of 16XXX Flame Sensor Fire Relay contact terminal pairs (terminals 5 & 6) or Fault Relay contact terminal pairs (terminals 7 & 8) connected to a single circuit.

15.3.3 Wiring to terminals of the safe area apparatus may be achieved by separate cables or by separate circuits within a Type A or Type B multicore cable (as defined in clause 9.5 of EN 60079-25) subject to the following:-

- a. The circuit to be individually screened when used within a Type A multicore cable.
- b. The peak voltage of any other circuit within a Type B multicore cable must not exceed 60V.

**16 Report Number**

See Certificate History

**17 Schedule of Limitations**

None

**18 Essential Health and Safety Requirements**

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

**19 Drawings and Documents**

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
A4/1468/07	1 to 3	B	13/12/18	16XXX Series I.S. System Drawing

No other drawings associated with this certificate.

**20 Certificate History**

Certificate No.	Date	Comments
Baseefa08Y0078	9 May 2008	The release of prime certificate. The associated test and assessment against the requirements of EN 60079-25: 2004 is documented in Certification Report No. 08(C)0086.
Baseefa08Y0078/1	19 February 2015	To issue of the certificate permits existing information (for example on Schedule Drawings) to be replaced by the revised certificate holders name and address. No other changes may be made to the certified design. Project File No. 15/0199.
Baseefa08Y0078 Issue 2	22 January 2019	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-25: 2010.  The certificate also permits: -  i) The correction of the System Model No. from 016XXX to 16XXX Flame Sensor System.  ii) The addition of P & F Isolator Types KFD0-CS-Ex1.54 & KFD0-CS-Ex2.54, and the update of the information relating to the other barriers and isolators than can be installed in the non-hazardous area.  The test and assessment is documented in Certification Report No. 18(C)0349, held with ATEX Certificate No. BAS02ATEX1001X Issue 4, Project File No. 18/0349.

For drawings applicable to each issue, see original of that issue.