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 LCIE 13.0056X

Issue No: 2

Certificate history:
Issue No. 2 (2017-05-05)
Issue No. 1 (2015-03-26)
Issue No. 0 (2013-11-27)

Status: **Current**

Date of Issue: **2017-05-05**

Applicant: **Firefly AB**
Heliosgatan 3
12030 Stockholm
Sweden

Equipment: **Flame Detector Omniguard 860-XXXXX and 660-XXXXX series**
Optional accessory:

Type of Protection: **Ex db, Ex tb**

Marking:

Ex db IIB+H2 T5 or T4 Gb

Ex tb III C T100°C or T135°C Db

See complete marking in Annex 1

Approved for issue on behalf of the IECEx Certification Body: Julien Gauthier

Position: Certification Officer

Signature:
(for printed version)

Date:

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.

Certificate issued by:

Laboratoire Central des Industries Electriques (LCIE)
33 Avenue du General Leclerc
FR-92260 Fontenay-aux-Roses
France

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Manufacturer:	**Firefly AB** Heliosgatan 3 12030 Stockholm **Sweden**	

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 electrical 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"

*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:

FR/LCIE/ExTR13.0051/00 FR/LCIE/ExTR13.0051/01 FR/LCIE/ExTR16.0040/00

Quality Assessment Report:

FR/LCIE/QAR13.0014/02

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Omniguard UV/IR Flame Detector Type 860-XXXXX and UV Flame Detector Type 660-XXXXX are comprised of a tapered aluminium body secured to a flanged base by way of four socket head cap screws. An annular groove is incorporated in the base flange as a sealing ring.

For the Type 860, mounted in the housing top there are two window assemblies: an UV window made of fused quartz glass and an IR window made of sapphire glass. A holder assembly containing two glass rods (a fused quartz rod for transmission of UV self-test light and a sapphire rod for transmission IR self-test light) is adjacent to both windows.

For the Type 660, the housing top is only comprised of an UV window with a fused quartz glass rod in the light rod holder assembly.

The enclosure contains either a sensor or sensors with associated electronics, for detection and signal conditioning of specific flame generated UV/IR or UV only wavelengths. Data are then analysed by a microprocessor. The flame detector is designed to operate within the input power range of 20 - 32 Vdc.

Ratings: See Annex 01 of the certificate

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The equipment shall not get shocks for which energy is higher than 2 J.

- The O-rings made of material n° NO756-75 of manufacturer PARKER, are used only within the equipment of Type 660-0XXXX and 860-XXXXX.

- The gap of the following flameproof joints:
• Housing/UV Window Edge (x1).
• Holder Housing/Sapphire Rod (x1).
• Holder Housing/Quartz Rod (x1).
is greater than the maximum permitted value in Table 3 of IEC 60079-1: Ed 7.0 standard.

The dimensions of these flameproof joints are specified in the following drawings:
• P/N 71059-3 Rev. K du 2013/12/07.

• P/N 71071-3 Rev. K du 2013/15/07.

- The following flameproof joints:
• Housing/Holder Housing (x1).
• Holder Housing/Sapphire Rod (x1).
• Holder Housing/Quartz Rod (x1).

are not considered as cemented joints in accordance with clause 6 of IEC 60079-1: Ed 7.0 standard.

They comply with the rules of construction in clause 5 of IEC60079-1: Ed 7.0 , see the following drawings:
• P/N 71059-3 Rev. K du 2013/12/07.

• P/N 71071-3 Rev. K du 2013/15/07.

- Use fasteners with yield stress ≥ 517 MPa.

- Flameproof joints are not intended to be repared

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

Issue 0:
Initial conformity assessment according to IEC 60079-0 Ed.5.0 ; IEC 60079-1 Ed.6.0 and IEC 60079-31 Ed.1.0 standards.

Issue 1:
Normative update according to IEC 60079-0 Ed.6.0 standard and update of the technical file (warnings on the nameplate).

Issue 2:
Normative update according to IEC 60079-0 Ed.7.0 and IEC 60079-31 Ed.2.0 standards.

Change of Manufacturer's address.

Annex:

Annex 01 to Certificate IECEx LCIE 13.0056X issue 02.pdf

Annex 01 to Certificate
IECEx LCIE 13.0056X issue 02

FULL EQUIPMENT DESCRIPTION

The Omniguard UV/IR Flame detector Type 860-XXXXX and UV Flame detector Type 660-XXXXX are comprised of a tapered aluminium body secured to a flanged base by way of four socket head cap screws. An annular groove is incorporated in the base flange as a sealing ring.
For the Type 860, mounted in the housing top there are two window assemblies: an UV window made of fused quartz glass and an IR window made of sapphire glass. A holder assembly containing two glass rods (a fused quartz rod for transmission of UV self-test light and a sapphire rod for transmission IR self-test light) is adjacent to both windows.
For the Type 660, the housing top is only comprised of an UV window with a fused quartz glass rod in the light rod holder assembly. The enclosure contains either a sensor or sensors with associated electronics, for detection and signal conditioning of specific flame generated UV/IR or UV only wavelengths. Data are then analysed by a microprocessor. The flame detector is designed to operate within the input power range of 20 - 32 Vdc.
User manual N° 1031229 Rev N

MARKING

Ex db IIB+H_2 T5 or T4 Gb
Ex tb IIIC T100°C or T135°C Db IP6X (*)
-40°C ≤ Ta ≤ +85°C or +125°C
IECEx LCIE 13.0056X
WARNING – DO NOT OPEN WHEN ENERGIZED
WARNING – AFTER DE-ENERGIZING, DELAY 10 MINUTES BEFORE OPENING
*According to IEC 60529.

RANGE DETAILS

Part numbering code:
860- _ _ _ _ _ □

- Optional tracking code / Code de suivi en option
  - R Rotatable
  - Q Qualification
- Agency approvals
  - 0 CSA, FM, CENELEC, CE
  - 1 FM, CE
  - 2 CSA, CE
  - 3 CENELEC, CE
  - 9 No approvals / Non homologation
- Relay configuration / Configuration du relais
  - 0 Latchin
  - 1 Non-latching
- Test feature
  - 0 No self-test
  - 1 Auto self-test
- Housing Mat'l / Conduit entry
  - 0 Aluminum / ¾-14 NPT (white)
  - 1 Aluminum / ¾-14 NPT (yellow
  - 2 Stainless steel / ¾-14 NP
  - 3 Aluminum / M20-1.5 (white)
  - 4 Aluminum / M20-1.5 (yellow)
  - 5 Stainless steel / M20-1.5
- Fire type / Type de feu
  - 0 Hydrocarbon
  - 1 Hydrocarbon / Non-hydrocarbon
  - 9 Deviation

Part numbering code:
660- _ _ _ _ _ □

- Optional tracking code / Code de suivi en option
  - R Rotatable
  - Q Qualification
- Agency approvals
  - 0 CSA, FM, CENELEC, CE
  - 1 FM, CE
  - 2 CSA, CE
  - 3 CENELEC, CE
  - 9 No approvals / Non homologation
- Relay configuration / Configuration du relais
  - 0 Latching
  - 1 Non-latching
- Test feature
  - 0 No self-test
  - 1 Auto self-test
- Housing Mat'l / Conduit entry
  - 0 Aluminum / ¾-14 NPT (white)
  - 1 Aluminum / ¾-14 NPT (yellow)
  - 2 Stainless steel / ¾-14 NPT
  - 3 Aluminum / M20-1.5 (white)
  - 4 Aluminum / M20-1.5 (yellow)
  - 5 Stainless steel / M20-1.5
- Temp rating / Gamme de température
  - 0 Industrial temp. fire detector
  - 1 High temp. fire detector
  - 9 Deviation

RATINGS

Electrical ratings			
Description	660-0XXXX	660-1XXXX	860-XXXXX
Maximum current at 20 V dc	300 mA	350 mA	300 mA
Maximum current at 24 V dc	250 mA	300 mA	250 mA
Maximum current at 32 V dc	250 mA	300 mA	250 mA
Relay: Maximum current at 30V dc	2 A	4 A	2 A
Operating ambient temperature	-40°C to +85°C	-40°C to +125°C	-40°C to + 85°C
Temperature rise at maximum voltage	10°C	10°C	10°C
Maximum power dissipation	8 W	9.6 W	8 W
Class of temperature Gas / Dust	T5 / T100°C	T4 / T135°C	T5 / T100°C

FULL CONDITIONS OF CERTIFICATION (ou FULL SCHEDULE OF LIMITATIONS)

- Operating temperature : -40°C ≤ Ta ≤ +85°C or +125°C
- The equipment shall not get shocks for which energy is higher than 2 J.
- The O-rings made of material n° NO756-75 of manufacturer PARKER, are used only within the equipment of Type 660-0XXXX and 860-XXXXX.
- The gap of the following flameproof joints:
  - Housing/UV Window Edge (x1)
  - Holder Housing/Sapphire Rod (x1)
  - Holder Housing/Quartz Rod (x1)

is greater than the maximum permitted value in Table 3 of IEC 60079-1:Ed 7.0 standard.
The dimensions of these flameproof joints are specified in the following drawings:

- P/N 71059-3 Rev. K du 2013/12/07 (5 pages)
- P/N 71071-3 Rev. K du 2013/15/07 (6 pages)

- The following flameproof joints:
  - Housing/Holder Housing (x1)
  - Holder Housing/Sapphire Rod (x1)
  - Holder Housing/Quartz Rod (x1)

are not considered as cemented joints in accordance with clause 6 of IEC 60079-1:Ed 7.0 standard. They comply with the rules of construction in clause 5 of IEC 60079-1: Ed 7.0 standard, see the following drawings:

- P/N 71059-3 Rev. K du 2013/12/07 (5 pages)
- P/N 71071-3 Rev. K du 2013/15/07 (6 pages)

- Use fasteners with yield stress ≥ 517 MPa.
- Flameproof joints are not intended to be repaired.

ROUTINE TESTS

None.