Mining And Surface Certification (Pty) Ltd

2015/021934/07

THIS CERTIFICATE IS ISSUED AS AN I.A. CERTIFICATE IN TERMS OF THE MINE HEALTH AND SAFETY ACT, ACT NO 29 OF 1996 (AND REGULATIONS), THE OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993) AND REGULATION 17 OF THE ELECTRICAL MACHINERY REGULATIONS

IA CERTIFICATE	MASC S/21-8019X	**Issue**	2
Issue Date	04 December 2023	**Expiry Date**	29 August 2025
**** Based on Certificate No**	IECEx CML 23.0013X	**Issue / Variations / Amendment**	0
Requested by	MSA – The Safety Company 1000 Cranberry Woods Township, PA 16066 United States of America		
Manufacturer	General Monitors Inc 16782 Von Karman Ave. Unit 14, Irvine, CA 92606 United States of America		
Description	Model FL500 is an ultraviolet/infrared (UV/IR) flame detector. It detects the ultraviolet and infrared spectral regions of flame to produce a system which is highly immune to false alarms caused by lightning, arc-welding, hot objects, and other sources of radiation. The FL500 uses a UV radiation-sensitive phototube and an IR detector to identify fires. The FL500 is available with the following outputs: 4 to 20 mA signal, Immediate Alarm Low (relay), Time delayed Alarm High (relay), RS-485 Modbus RTU, and HART 7 communication. See **Base certificate Annex for full description.		
Equipment	Flame Detectors	**Type**	FL500 UV/IR and FL500-H2 UV/IR
MARKING: **Original marking as per certificate ** remains applicable.** **IA number must be added.**	**Type:** **Ex Marking:**	FL500 UV/IR and FL500-H2 UV/IR Flame Detectors Ex db IIC T5 Gb Ex tb IIIC T100°C Db Ta: -55°C to +85°C IP66/IP67	
	IA Number: **Warnings:**	MASC S/21-8019X (To be additionally marked on equipment) See Base Certificate ** (original marking must be applied)	
Quality Assurance report (QAR) / Notification (QAN):		FR/INE/QAR08.0011/13 GB/CML/QAR22.0009/00 US/UL/QAR10.0004/10	

Compliance:

The equipment as described above has been allocated the rating Explosion Protected 'as above' utilizing the SANS/IEC Standards:

- SANS (IEC) 60079-0: 2019 Equipment - General requirements
- SANS (IEC) 60079-1: 2015 Equipment protection by flameproof enclosures "d"
- SANS (IEC) 60079-31: 2014 Equipment dust ignition protection by enclosure "t"

Note: This certificate covers only the listed standards and does not imply compliance to any other standard, related or inferred. It is up to the manufacturer to ensure that the product complies to all relevant standards for the application.

Special conditions of safe use "X":

- Refer to Annex A below for more details.

Conditions of manufacture:

- Refer to Annex A below for more details.

C. WELTHAGEN
TECHNICAL SPECIALIST

N. VILOJEN
TECHNICAL OFFICER

This certificate covers all units sold as long as the QAR/QAN remains valid.
According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory).

Apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:
SANS 10086 requirements;
Any conditions mentioned in the above certificate;
Any relevant requirements of the MHS Act;
Any restrictions and conditions enforced by the chief inspector of mines, principal inspector (Group I equipment) or chief inspector of factories (Group II equipment).

Mining And Surface Certification (Pty) Ltd
Unit 5 Lelyta Park, 45 Jurg Avenue, Hennopspark, Ext 87
Centurion 0157

IA CERTIFICATE: MASC S/21-8019X
Equipment: FL500 UV/IR and FL500-H2 UV/IR Flame Detectors
(Expiry date: 04 December 2026)

ANNEX A

This document is based on and must be read in conjunction with certificate IECEx CML 23.0013X.	
Description (According to Base Certificate) **	
"Refer to description in Base Certificate ** (and any applicable schedules/issues/variations)."	
Standard compliance	See Base Certificate ******
Issue	Issue 2: Supplemented for QAR review as per ARP 0108. IECEx SIR 18.0026X was replaced with IECEx CML 23.0013X.
Special conditions of safe use ("X")	• Potential electrostatic charging hazard; use a damp cloth for cleaning. • Contact the manufacturer if dimensional information of flameproof joints is needed. • Field Connections to the FL500 shall be appropriately certified for the location and installed in accordance with wiring method requirements of the local electrical code as applicable.
Conditions of manufacture	• Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.
Conditions of Certification	• This IA Certificate covers all units sold from the date of this document to the expiry date of this certificate. • As per ARP 0108 a maximum three yearly review is required on this IA Certificate (expiry is determined as per the QAR/QAN/QMS expiry date). • The apparatus must be additionally marked with the MASC marking details above. • This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date. • The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by the certificate on which this IA Certificate is based and any other conditions in this IA Certificate. • The certification on which this IA Certificate is based must remain valid. • The extent of the requirements in the ARP 0108 (or regulations), SANS 10108 and any other applicable regulations on the certification of the equipment must remain unchanged. • The Ex-quality assurance notification/report for the equipment must remain valid.
Conclusion:	• From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done as per the Base Certificate **. • The routine tests for production units according to the Base Certificate ** must be complied with (if applicable).

Mining And Surface Certification (Pty) Ltd Reg No: 2015/021934/07
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IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.:	**IECEx CML 23.0013X**	Page 1 of 3	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2023-05-12		
Applicant:	**General Monitors Inc** 16782 Von Karman Ave. Unit 14 Irvine, CA 92606 **United States of America**		
Equipment:	**FL500 UV/IR and FL500-H2 UV/IR Flame Detectors**		
Optional accessory:			
Type of Protection:	**Flameproof Ex "db" and Dust Protection by Enclosure Ex "tb"**		
Marking:	Ex db IIC T5 Gb Ex tb IIIC T100°C Db Ta: -55°C to +85°C IP66/IP67		

Approved for issue on behalf of the IECEx Certification Body:	**L A Brisk**
Position:	**Assistant Certification Manager**
Signature: (for printed version)	
Date: (for printed version)	12 May 2023

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 www.iecex.com or use of this QR Code.

Certificate issued by:

Eurofins E&E CML Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom

IECEx Certificate of Conformity

Certificate No.: **IECEx CML 23.0013X**

Date of issue: 2023-05-12 Issue No: 0

Manufacturer: **General Monitors**
Ballybrit Business Park
Galway
Ireland

Manufacturing locations: **MSA - The Safety Company**
1000 Cranberry Woods Dr
Cranberry Twp PA 16066
United States of America

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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

This Certificate **does not** indicate compliance with 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/CML/ExTR23.0033/00

Quality Assessment Reports:

FR/INE/QAR08.0011/12 GB/CML/QAR22.0009/00 US/UL/QAR10.0004/10

IECEx Certificate of Conformity

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Model FL500 is an ultraviolet/infrared (UV/IR) flame detector. It detects the ultraviolet and infrared spectral regions of flame to produce a system which is highly immune to false alarms caused by lightning, arc-welding, hot objects, and other sources of radiation.

See Annex for full description and Conditions of Manufacture.

SPECIFIC CONDITIONS OF USE: YES as shown below:
See Annex for Specific Conditions of Use.

Annex:

Certificate Annex IECEx CML 23.0013X.pdf

Annexe to:	**IECEx CML 23.0013X Issue 0**	
Applicant:	**General Monitors, Incorporated**	**General Monitors (Ireland) Limited**
Apparatus:	**FL500 UV/IR and FL500-H2 UV/IR Flame Detectors**	

Description

Model FL500 is an ultraviolet/infrared (UV/IR) flame detector. It detects the ultraviolet and infrared spectral regions of flame to produce a system which is highly immune to false alarms caused by lightning, arc-welding, hot objects, and other sources of radiation.

The FL500 uses a UV radiation-sensitive phototube and an IR detector to identify fires. The FL500 is available with the following outputs: 4 to 20 mA signal, Immediate Alarm Low (relay), Time-delayed Alarm High (relay), RS-485 Modbus RTU, and HART 7 communication.

The FL500 assembly consists of a cylindrical, single-compartment, painted cast stainless steel enclosure with one threaded windowed cover. Field wiring connections for supply, communications and output contacts are accommodated through two threaded conduit entries. Each conduit entry is provided with a suitably rated blanking element. The overall physical dimensions are 11.2 x 11.0 cm (Ø x W).

The optical radiation output (LED) of the apparatus with respect to explosion protection is covered in this certificate based on exception 5) to the scope of IEC 60079-28:2015.

The M100x2.0 (6H/6g, ISO 965-1) threaded cover is provided with a minimum of 8 fully engaged threads. The cover is provided with a 4.95 mm (0.195 in) minimum thick sapphire window, secured by means of a threaded retaining ring and environmentally sealed with an EPDM O-ring (73 mm ID x 2.4 mm cross section thickness) gasket.

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The cover includes an M10 x 1.5 x 12mm long set screw for tool securement and environmentally sealed with an EPDM O-ring (95.3 mm ID x 3.2 mm cross section thickness) gasket. See manufacturer's assembly drawings for further information. The ratings IPx6 and IPx7 are not part of the methods of protection and were tested independent of the IECEx requirements. The equipment has been independently tested against the requirements of IEC 60529 and it meets IP66/IP67.

The FL500-H2 is a derivative of, and similar to the FL500, which is an ultraviolet/infrared (UV/IR) flame detector that uses a UV radiation-sensitive phototube and an IR detector to sense specific wavelengths in the UV and IR spectral regions. The FL500-H2 is tuned to specifically detect Hydrogen fires. All electrical connections and ratings remain the same as the FL500.

Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

i. Potential electrostatic charging hazard; use a damp cloth for cleaning.
ii. Contact the manufacturer if dimensional information of flameproof joints is needed.
iii. Field Connections to the FL500 shall be appropriately certified for the location and installed in accordance with wiring method requirements of the local electrical code as applicable