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UNITED KINGDOM CONFORMITY ASSESSMENT

UK-TYPE EXAMINATION CERTIFICATE



2 Equipment or Protective systems intended for use in Potentially Explosive Atmospheres –
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 UK-Type Examination Certificate No: FM22UKEX0134X

4 Equipment or protective system:
(Type Reference and Name) PrimaX IR Gas Monitor
Combustible Gas Detector

PrimaX IR+
Gas Detector Controller

5 Name of Applicant: MSA Innovation LLC
dba MSA - The Safety Company

6 Address of Applicant: 1000 Cranberry Woods Drive
Cranberry Township, PA 16066
United States of America

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

8 FM Approvals Ltd, Approved Body number 1725, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in confidential report number:

PR459559 dated 17th May 2023

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-29-1:2016,
EN 60079-31:2014 EN 50271:2018 and EN 60529:1991+A1:2000+A2:2013

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This UK-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance with the Regulations. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:



Digitally signed by Victor Aluko-Oginni
DN: O=FM Approvals Limited, CN=
Victor Aluko-Oginni, E=victor.aluko-
oginni@fmaprovals.com

Victor Aluko-Oginni
Certification Manager, FM Approvals Ltd.

Issue date: 25th May 2023

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FM Approvals Ltd, Voyager Place, Maidenhead, Berkshire, SL6 2PJ, United Kingdom
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmaprovals.com www.fmaprovals.com

F UKEX 020 (Jan/21)



0259
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SCHEDULE



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to UK-Type Examination Certificate No. FM22UKEX0134X

PrimaX IR Gas Monitor:



II 2 G Ex db IIC T4 Gb Ta = -50°C to +80°C

II 2 D Ex tb IIIC T130°C Db Ta = -50°C to +80°C

EN 60079-29-1

PrimaX IR+ Gas Detector Controller:



II 2 G Ex db IIC T4 Gb Ta = -50°C to +80°C

II 2 D Ex tb IIIC T130°C Db Ta = -50°C to +80°C

13 Description of Equipment or Protective System:

PrimaX IR Gas Monitor:

General – The infrared gas monitor type PrimaX IR is a stationary gas detector for the measurement of hydrocarbon gases in ambient air under atmospheric conditions. The gas monitor contains an infrared sensor for gas measurement and electronic boards; it uses a cartridge type heater located near the window and mirror. The gas monitor is designed in type of protection flameproof enclosure “db” and equipment dust ignition protection by enclosure “tb”. The connection of the gas monitor to other flameproof enclosures could be done via a M25 or a 3/4 NPT thread. The equipment has an ingress protection rating of IP67.

Specifications - The manufacturer's specifications are as follows:

Operating Temperature: -50°C to +80°C

Storage Temperature: -50°C to +80°C

Relative Humidity: 15 to 95% RH

Supply Parameters: 18-32 Vdc, 24 Vdc (Nominal), 6 watts maximum

Measurement Signal: 4-20mA

Calibration: Calibration Cap or HART

Firmware Version: 3.6

Use of the following outputs for Safety Relevant Purposes:
4-20 mA output for measured values

Use of the following accessories:

Calibration Cap, part number 1011874 (CML21UKEX2419X)

HART Calibration cover part number 10122228

Flow cap part number 10113100

Environmental Guard part number 10113663

Insect screen part number 10116419

Aluminum junction box kit part number 10117607 (NPT) and 10117606 (M25)

316 Stainless steel junction box kit part number 10117608 (NPT) and 10117609 (M25) (FM21UKEX0049U)

PrimaX IR link version 1.06

Measurement of the following gases –

Methane, Propane, Ethylene, Propylene oxide, Acetone, Cyclopentane, Ethyl acetate 0-100% LEL

i-butane 0-70% LEL

propylene, Ethane, 0-50% LEL

n-butane, n-pentane, toluene 0-30% LEL

n-Hexane 0-10% LEL

A-PRIMAXIR-a-b-c. Gas Monitor.

a = Target Gas: 11, 12, 14, 15, 17, 19, 20, 27, 30, 31, 32, 33, 34, 37, 39, 41, 42, 43, 62 or 63.

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FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom

T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

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b = Approval Agency: A.
c = Thread Type: M or N.

PrimaX IR+ Gas Detector Controller:

General – The gas detector controller type PrimaX IR+ Gas Detector Controller is a stationary gas detector controller for the measurement of hydrocarbon gases in ambient air under atmospheric conditions. The gas detector controller contains electronic boards used to display gas concentrations from a 4-20mA gas detector. The gas detector controller is designed in type of protection flameproof enclosure “db” and equipment dust ignition protection by enclosure “tb”. The connection of the gas detector controller to other flameproof enclosures or detectors could be done via a M25 or a 3/4 NPT thread. The equipment has an ingress protection rating of IP67.

Specifications - The manufacturer's specifications are as follows:

Operating Temperature: -50°C to +80°C

Storage Temperature: -50°C to +80°C

Relative Humidity: 15 to 95% RH

Supply Parameters: 18-32 Vdc, 24 Vdc (Nominal), 6 watts maximum

Optional Relay Contacts: 30VDC 2 AMPS MAX

Measurement Signal: 4-20mA

14 Specific Conditions of Use:

PrimaX IR Gas Monitor:

1. The gas monitor PrimaX IR is equipped with a tapered NPT thread or a metric thread for mounting to a connection enclosure of protection type increased safety “e” or protection type flameproof enclosure “d”.
2. When mounting the gas monitor to an enclosure of protection type flameproof enclosure “d”, the reference pressure of the separate enclosure for the connection must not exceed 10.5 bar. The test of the mechanical strength of the separate enclosure for the connection and the test of the connecting thread with respect to explosion hazards must be ensured within the framework of the type test of the electrical apparatus, which is attached to the gas monitor PrimaX IR. The threaded hole to which the gas monitor is attached must meet the requirements of section 5.3 (Table 4/5) of IEC 60079-1.
3. Due to the limitations on the potting used for the wire bushing on the PrimaX IR, the service temperature within the separate enclosure (the enclosure the PrimaX IR is mounted to) must not exceed 120°C.
4. When mounting the gas monitor to enclosures in type of protection increased safety “e”, the mechanical resistance and the IP protection (IP6X) of the mounted enclosure has to be ensured by the type test of the electrical apparatus being mounted to the gas monitor. After mounting of the gas monitor onto an enclosure in type of protection increased safety “e”, the clearances and creepage distances must meet the requirements of Table 2 of IEC 60079-7. The non-shielded cables of the gas monitor must be routed and connected so as to be mechanically protected and corresponding to the temperature resistance of the cables as per 4.6.2, 4.8.2 and 4.9 of IEC 60079-7.
5. For dust applications, any intensive electrostatic charging processes to the instrument label has to be prevented.
6. The 3/4” NPT fixture has to be sealed with 2 layer PTFE sealing tape or according to the instructions of the manufacturer of the enclosure with NPT thread; when removed, new PTFE sealing has to be used after reinstalling.
7. The gas monitor PrimaX IR must be screwed into the housing wall such that it is secured against self-loosening. The specified minimum thread depth of the add-on housing has to be observed.
8. The gas monitor PrimaX IR must be included into the earthing and equipotential bonding of the complete system, including the enclosure it is connected to.
9. The screw heads are filled with potting to prevent self-loosening and unauthorized entry. The user may not open the enclosure. Opening of the device will invalidate the type approval.

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PrimaX IR+ Gas Detector Controller:

1. The PrimaX IR+ has not been evaluated to the performance requirements of EN 60079-29-1 or EN 50271 and shall not be used to execute safety critical functions.
2. The flameproof joints of the equipment are not intended to be repaired. For maintenance or repair, contact the manufacturer.
3. The 3/4" NPT fixture has to be sealed with 2 layer PTFE sealing tape or according to the instructions of the manufacturer of the enclosure with NPT thread; when removed, new PTFE sealing has to be used after reinstalling.

15 Essential Health and Safety Requirements:

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the confidential report identified in item 8.

16 Test and Assessment Procedure and Conditions:

This UK-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for UKCA Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Regulations in all applications.

This Certificate has been issued in accordance with FM Approvals Ltd's UKCA Certification Scheme.

17 Schedule Drawings

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Approved Body.

18 Certificate History

Details of the supplements to this certificate are described below:

Date	Description
25 th May 2023	Original Issue.

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T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

Blueprint Report

MSA Innovation LLC dBA MSA - The Safety Company (1000001671)

Class No 6320

Original Project I.D. 3036837

Certificate I.D. FM22UKEX0134X

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>	<u>Electronic Drawing</u>
10000028136	10-2-2009	Elan-tron PU 4110 / PH 4900	PR459559	Yes (pdf)
10104919	2	Commercial Specification	PR461386	Yes (pdf)
10107013	02	Lid Exd, M110x2, alu Casting part	PR459559	Yes (pdf)
10108269	01	Fenster PrimaX 90 x 12 Window Primax 90 x 12	PR459559	Yes (pdf)
10110846	03	MC-W-EN-005-08	PR459559	Yes (pdf)
10111116	02	Clamping bracket M5	PR459559	Yes (pdf)
10113581	06	Operating Manual PrimaX IR - Infrared Gas Monitor	PR459559	Yes (pdf)
10145430	02	Casting Part, Clamping Ring for Glass, ADC12	PR459559	Yes (pdf)
10147611	02	Retaining Clip for Lid, DF-8500	PR459559	Yes (pdf)
10153742	02	Clamping ring for glass, SS 316 Casting part 316	PR459559	Yes (pdf)
10153743	03	Lid, Exd, M110 2, SS 316, Casting part M110 2, 316	PR459559	Yes (pdf)
10153744	02	Retaining bracket, SS 316	PR459559	Yes (pdf)
10155258	01	LID ASSY, PrimaX IR SS, PrimaX IR SS	PR459559	Yes (pdf)
10172095	01	Mounting Bracket, PrimaX IR-D /PrimaX IR-D	PR459559	Yes (pdf)
10217780	11-26-20	Label, PrimaX IR	PR459559	Yes (pdf)
10217781	00	Operating Manual	PR459559	Yes (pdf)
APC0731504001	7-3-17	Final assembly, PrimaX IR Pro (Aluminum)	PR459559	Yes (pdf)
APC0731504002	7-24-17	Final assembly, PrimaX IR Pro (Stainless Steel)	PR459559	Yes (pdf)
SK3098-1147	00	Prima XIR, North American	PR461386	Yes (pdf)
SK3098-1148	07	Primax IR, ATEX/IEC	PR461386	Yes (pdf)
SK3098-1227	05	MSA PrimaX IR Infrared Gas Detector	PR461386	Yes (pdf)
SK3098-1228	07	ATEX Performance, Primax IR	PR461386	Yes (pdf)
SK3098-1229	04	ATEX Performance, Primax IR Main Board	PR461386	Yes (pdf)
SK3098-1230	01	ATEX Performance, Primax IR Feedthru Board	PR461386	Yes (pdf)
SK3098-1236	03	MSA PrimaX IR ATEX/IECEX	PR461386	Yes (pdf)
SK3098-1247	04	North American Approval Label, Primax IR	PR459559	Yes (pdf)