

Addendum to
Ultima® X5000 Gas Monitor System



Order No.: 10182779/10
Print Spec: 10000005389 (EO)
CR: 800000066618

1 Certification and Markings

Manufacturer	MSA The Safety Company
Address	1000 Cranberry Woods Drive, Cranberry Township, PA 16066 USA
Product	ULTIMA X5000 Gas Monitor consisting of an ULTIMA X5000 Main Transmitter, optional Digital Sensor, optional ULTIMA XIR PLUS, optional X5000 Junction Box, JB5000 Junction Box.

Manufacturer: MSA THE SAFETY COMPANY

Address: 1000 Cranberry Woods Drive, Cranberry Township, PA 16066 USA

1 Certification and Markings

Certification of Compliance (USA & Canada)	FM20US0060X, FM21CA0079X, 70116284
EU – Type Examination Certificate	FM21ATEX0071X and FM21ATEX0073X
UK - Type Examination Certificate	FM21UKEX0218X and FM21UKEX0220X
IECEX Certification of Conformity	IECEXFMG21.0021X
InMetro Certificate of Conformity	NCC 18.0106 X
Quality Assurance Notification	0080
Year of Manufacture	See serial number
Serial No.	See label

2 Hazardous Locations

Ultima X5000 Gas Monitor System	USA	Canada	ATEX/UKCA	IECEx
Ultima X5000 Main Transmitter (Markings for configurations without relays)	Class I, Division 1, Groups A, B, C, D T6 Class II, Division 1 & 2, Groups E, F, G T6; Class III, T6 *Class I, Zone 1, AEx db IIC T6 Gb Zone 21, AEx tb IIIC T85 °C Db	Class I, Division 1, Groups A, B, C, D T6 Class II, Division 1 & 2, Groups E, F, G T6; Class III, T6 Ex db IIC T6 Gb Ex tb IIIC T85 °C Db	II 2G Ex db IIC T6 Gb II 2D Ex tb IIIC T85 °C Db	Ex db IIC T6 Gb Ex tb IIIC T85 °C Db
	Class I, Division 2, Groups A, B, C, D T4 Class I, Zone 2, AEx nA IIC T45 Gc	Class I, Division 2, Groups A, B, C, D T4 Ex nA IIC T4 Gc	11 3G Ex nA IIC T4 Gc	Ex nA IIC T4 Gc
	-40°C < Ta < +60°C Enclosure rating: Type 4X, IP66	-40°C < Ta < +60°C Enclosure rating: Type 4X, IP66	-40°C < Ta < +60°C Enclosure rating: IP66	-40°C < Ta < +60°C Enclosure rating: IP66
JB5000 and X5000 JUNCTION BOX (P/N's 10179509, 10179511, 10179513, 10213879, 10213893, ordered separately) - Certified Ex Equipment	Class I, Division 1, Groups A, B, C, D T6 Class II, Division 1&2, Groups E, F, G; T6 Class III, T6 *Class I, Zone 1, AEx db IIC T6 Gb Zone 21, AEx tb IIIC T85 °C Db	Class I, Division 1, Groups A, B, C, D T6 Class II, Division 1&2, Groups E, F, G T6 Class III, T6 Ex db IIC T6 Gb Ex tb IIIC T85 °C Db	II 2G Ex db IIC T6 Gb II 2D Ex tb IIIC T85 °C Db	Ex db IIC T6 Gb Ex tb IIIC T85 °C Db
	Class I, Division 2, Groups A, B, C, D T6 *Class I, Zone 2, AEx nA IIC T6 Gc	Class I, Division 2, Groups A, B, C, D T6 Ex nA IIC T6 Gc	II 3G Ex nA IIC T6 Gc	Ex nA IIC T6 Gc
	-44°C < Ta < +60°C -50°C < Ta < +60°C (JB5000) Enclosure rating: Type 4X, IP66	-40°C < Ta < +60°C -50°C < Ta < +60 °C (JB5000) Enclosure rating: Type 4X, IP66	-40°C < Ta < +60°C -55 °C < Ta < +60°C (JB5000) Enclosure rating: IP66	-40 °C < Ta < +60 °C -55 °C < Ta < +60 °C (JB5000) Enclosure rating: IP66
ULTIMA XIR PLUS - Certified Ex equipment	Class I, Division 1, Groups A, B, C, D T6 Class II, Division 1, Groups E, F, G T6 Class III, T6 *Class I, Zone 1, AEx db IIC T6 Gb	Class I, Division 1, Groups A, B, C, D T6 Class II, Division 1, Groups E, F, G T6 Class III; T6 Ex db IIC T6 Gb	II 2G Ex db IIC T6 Gb	Ex db IIC T6 Gb
	Class I, Division 2, Groups A, B, C, D T6 Class I, Zone 2, AEx nA IIC T6 Gc	Class I, Division 2, Groups A, B, C, D T6 Ex nA IIC T6 Gc	II 3G Ex nA IIC T6 Gc	Ex nA IIC T6 Gc
	-40°C < Ta < +60°C Enclosure rating: Type 4X, IP66	-40°C < Ta < +60°C Enclosure rating: Type 4X, IP66	-40°C < Ta < +60°C Enclosure rating: IP66	-40°C < Ta < +60°C Enclosure rating: IP66
DIGITAL SENSOR (with Frit) - Certified Ex equipment	Class I, Division 1, Groups A, B, C, D T5 Class II, Division 1&2, Groups E, F, G T5 Class III, T5 Class I, Zone 1, AEx db IIC T6 Gb Zone 21, AEx tb IIIC T85 °C Db	Class I, Division 1, Groups A, B, C, D T5 Class II, Division 1&2, Groups E, F, G T5 Class III, T5 Ex db IIC T5 Gb Ex tb IIIC T85 °C Db	II 2G Ex db IIC T5 Gb II 2D Ex tb IIIC T85 °C Db	Ex db IIC T5 Gb Ex tb IIIC T85 °C Db
	Class I, Division 2, Groups A, B, C, D T5 Class I, Zone 2, AEx db nA IIC T5 Gc	Class I, Division 2, Groups A, B, C, D T5 Ex db nA IIC T5 Gc	II 3G Ex db nA IIC T5 Gc	Ex db nA IIC T5 Gc
	-55°C < Ta < +60°C Enclosure rating: Type 3X, IP65	-55°C < Ta < +60°C Enclosure rating: Type 3X, IP65	-55 °C < Ta < +60 °C Enclosure rating: IP65	-55°C < Ta < +60°C Enclosure rating: IP65
DIGITAL SENSOR (without Frit) - Certified Ex equipment	*Class I, Division 2, Groups A, B, C, D T5 *Class I, Zone 2, AEx nA IIC T5 Gc	Class I, Division 2, Groups A, B, C, D T5 Ex nA IIC T5 Gc	II 3G Ex nA IIC T5 Gc	Ex nA IIC T5 Gc
	-55°C < Ta < +60°C Enclosure rating: IP55	-55 °C < Ta < +60 °C Enclosure rating: IP55	-55°C < Ta < +60°C Enclosure rating: IP55	-55°C < Ta < +60°C Enclosure rating: IP55

3 Performance

WARNING!

- Read and understand all instructions, warnings, and cautions prior to installation of any components of this system.
- For safety reasons, this equipment must be operated and serviced by qualified personnel only. DO NOT operate this equipment until after the instruction manual is read and understood for proper installation and operation.
- Refer to certification for specific or special conditions of use.

FIRE AND SHOCK HAZARDS

- Live circuits behind cover, disconnect or open the circuit before removing the cover to the Ultima X5000 Main Transmitter or the X5000 Junction Box and do not separate pluggable connectors when energized.

HAZARDOUS LOCATIONS HAZARDS / SPECIFIC CONDITIONS OF USE

- Sealing requirements: The following options shall have a seal installed within 2in (50mm) of the enclosure:
 - Aluminum X5000 transmitter with and without relay contacts.
 - Aluminum X5000 junction box
- The following options shall have a seal installed within 18in (450mm) of the enclosure:
 - Stainless steel X5000 transmitter with relays.
- FM approvals require seal within 18" for all enclosures.
- All wiring to or from this device, must utilize wiring methods suitable for the area classification and applicable protection methods as appropriate for the installation and in accordance with the authority having jurisdiction.
- DO NOT open when energized or when an explosive atmosphere is present.
- Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. To minimize the risk of electrostatic charge, provisions shall be made for adequate grounding and equipment shall be installed in such a manner so that accidental discharge shall not occur. Therefore, the equipment shall only be cleaned with a damp cloth.
- Potential electrostatic charging hazard. Clean equipment only with a damp cloth.
- The high alarm relay can be programmed for a latching or non-latching operation with a deliberate manual action to reset. When the high alarm relay is set to non-latching the output must be connected to an integrated or auxiliary system with the means of latching and resetting incorporated into these systems.
- The flameproof joints shall not be repaired.
- Use cable with insulation rated at least 85°C.
- When installing Ultima X5000 transmitter with relay option in a Division 2 or Zone 2 classified area, install in accordance with Division 1/Explosionproof or Zone 1/Flameproof wiring practices as applicable.
- The Ultima XIR Plus Infrared (IR) Sensor is provided with a 3/4" NPT thread and shall only be connected to a suitably certified junction box or instrument for the hazardous area of installation and thereby provide EX protection for the flying lead connections. The installation to the certified enclosure shall be with five fully engaged threads, tightened wrench-tight.
- The Ultima XIR Plus Infrared (IR) Sensor sly be fitted to enclosures having a maximum reference pressure of 13.5 bars.
- In combustible gas detection performance applications, the appropriate Ultima XIR Plus model number shall only be used to construct the Ultima X5000 Gas Monitor fixed gas detection system mounted onto either the Ultima X5000 Transmitter, Ultima X5000 Junction Box, or JB5000 Junction Box enclosures and receive power and control from the transmitter.
- The ingress protection ratings is exclusively based upon the installation instruction for orientation specified in the operating manual.
- The Ultima XIR Plus shall only be installed for external connection to suitably certified equipment (transmitters) providing transient protection set at a maximum transient overvoltage of 119 V (140% of 85 V peak). The operating manual shall reinforce this installation requirement.

- When the manufacturer of the equipment has not identified the type of protection on the label, the user shall, on installation, mark the label adjacent to the type of protection used. Once the type of protection has been marked, it shall not be changed.
- The XIR Plus sensor enclosure with sensor guard (opaque cover) or enclosure must fully contain the optical radiation and comply with a suitable type of protection as required by the involved EPL, complying with one of the following conditions:
 - An enclosure for which protection regarding ingress of an explosive dust atmosphere is provided, such as dust protection "t" enclosures (IEC60079-31)
 - An enclosure that provides a minimum ingress protection of IP 6X and where no internal absorbers are to be expected and complying with "Test of Enclosures" in IEC 60079-0.
- Guidance for functional safety of fixed gas detection systems are set out in EN 60079-29-3 which has not been covered in the scope of this assessment.
- It is recommended to end users to seek guidance provided in EN 60079-29-2 for installation, use and maintenance of gas detectors for flammable gases and other applicable gases.

COMBUSTIBLE PERFORMANCE

- This fixed equipment apparatus is exclusively designed for field mounting in the vertical orientation with restrictions placed around the conduit entry locations permitted for connecting of both the digital sensor and the Ultima XIR Plus Infrared (IR) sensors. The equipment is subject to the installation and orientation requirements defined in the product manual.
- Not performance approved for Class II, Class III, Zone 21. The digital sensor may become clogged and not detect gas or warn user of inability to detect gas.
- Regularly visually inspect the sensor and apply gas to ensure a clear gas path to the sensor if there is potential that blockage has occurred. Conditions that may lead to blockage, including but not limited to snow, ice, water, dirt, dust, or insects, necessitate more frequent inspections.
- During calibration the area must be free of flammable gases.
- A high off-scale reading may indicate an explosive concentration of combustible gas.
- The digital sensor and Ultima XIR Plus sensors designed for exclusive use with the Ultima X5000 Gas Monitor System.
- Use of some accessories are not covered under the performance approval, contact MSA for details.
- The user shall comply with the requirements given in the manufacturer's documentation in regards to all relevant functional safety aspects such as application of use, installation out of hazardous areas, operation, maintenance, proof tests, maximum rating, environmental conditions, and repair.
- Selection of this equipment for use in safety functions, configuration, overall validation, maintenance and repair shall only be carried out by competent personnel, observing all of the manufacturer's conditions and recommendations in the user documentation.
- The Ultima X5000 transmitter complies with FM6320, ANSI/FM 60079-29-1, FM6340, ANSI/ISA 92.00.01 and ANSI/ISA 92.04.01 only when connected to a gas sensor that also has been evaluated to the appropriate standards listed on the certificate.
- Certification does not cover HART, Wireless HART, Modbus, or Bluetooth communication used for toxic, oxygen or combustible gas performance. The data collection or record keeping with regard to toxic, oxygen and combustible gas detection.
- For any sensors not specifically identified as having performance testing, the sensors shall require additional evaluation if used within a safety related system.

Failure to follow these warnings can result in serious personal injury or death.

4 Approvals

4.1 China Ex Approval

Product Name	Gas Detector
Model	ULTIMA X5000
Ex marking	Ex db IIC T5 Gb Ex tb IIIC T85°C Db Ex nA IIC T5 Gc
Ex cert. No.	CE18.5128X
Warning	Potential charging hazardous, please refer to the relevant page of the instruction. Use cable with insulation rated at least 85 °C. When cleaning, wipe with a wet cloth.
Rated Voltage	11-30VDC
Rated Current:	MAX. 4.0A
Output Alarm Relay Rating	250 VAC or 30VDC, 5A

