

# CERTIFICATE OF COMPLIANCE

## HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

**ULTIMA MOS-5;** Stationary Single Channel 4-20mA Hydrogen Sulfide Gas Detector. Stand Alone Sensor/Transmitter. Intelligent Sensor Hydrogen Sulfide Gas Detector Model ULTIMA MOS-5 (see below for model codes)] is explosionproof for installation in Class I, Division 1, Groups B, C and D; Class I, Zone 1, IIB + H<sub>2</sub>; T6 Ta = -40°C to +60°C Hazardous (Classified) Locations. Model ULTIMA MOS-5 Sensor/Transmitter monitors 0-20 ppm, 0-50 ppm, or 0-100 ppm hydrogen sulfide gas-in-air. The instrument provides a three-digit measurement display with Warning, Alarm and Fault LED indicators, a 4-20mA measurement signal and optional 3 alarm SPTD relay contacts with dual MODBUS ports, as well as HART communication. The operating temperature range of the apparatus is -40°C to +60°C and operating voltage is 24 Vdc (nominal), 7W maximum power, the relay contact ratings are 8A, 250Vac or 30Vdc. Model ULTIMA MOS-5 transmitter assembly is suitable for outdoor (Type 4X) installation when the sensor is installed remotely from the transmitter with Universal Housing P/N 10252. In addition, the apparatus complies with ISA-92.0.01, Part I-1998 Performance Requirements for Toxic Gas-Detection Instruments: Hydrogen Sulfide. The following Sensor/Transmitter models are included in the Approval:

**ULTIMA MOS-5.** Intelligent Sensor Hydrogen Sulfide Gas Detector.  
32426-a

a: -21 through -28 and -37 through -44

**Special Conditions of use:**

1. The following auxiliary apparatus is Approved for use with ULTIMA MOS-5 Sensor/Transmitter: Portable Purge Calibrators P/N 1400250-X, Breaker Bottle-single P/N 5000, Individual or 12 Ampoule H<sub>2</sub>S test gas P/N 5000-X, Duct Mounting Plate P/N 10041-1, Sensor Universal Housing P/N 10252 and H<sub>2</sub>S Sensor: Part No. 50445-1 (0-100ppm, AL), 50445-5 (0-50ppm, AL), 50445-9 (0-20ppm, AL), 50448-1 (0-100ppm, SS), 50448-5 (0-50ppm, SS) or 50448-9 (0-20ppm, SS).
2. The ULTIMA MOS-5 Transmitter assembly is rated for outdoor (Type 4X) locations only. The sensor is required to be remotely located in an indoor location



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The ULTIMA OPIR-5; part numbers, 329000-a, 329001-a is a fixed open path gas detector, comprising of a Source and Receiver module operating over a distance of 5-150 meters. The ULTIMA OPIR-5 is Explosionproof for Class I, Division 1, Groups B, C, and D, T4 Ta = -55°C to +65°C; Dust-ignitionproof for Class II/III, Division 1 applicable Groups E, F and G, T4 Ta = -55°C to 65°C; Nonincendive for installations in Class I/II/III, Division 2, applicable Groups B, C, D, E, F, G, T4 Ta = -55°C to 65°C; Hazardous Locations, indoor/outdoor locations Type 4X and IP66/67. The operating temperature range is -55°C to +65°C and the power consumption is: for the Source = 12W and for the Receiver = 10W. The enclosures are manufactured from 316L stainless steel. Field accessories comprise of Attenuation plate P/N 329113-1, Pan-Tilt Base assembly P/N 329071-1, Pan-Tilt Arm assembly P/N 329073-1, Long Range Alignment Kit P/N 329082 and gas filter kits P/N 329083 & 329084. Depending on the model selected, the system communications are Dual Modbus or Single Modbus with HART. Each variation comes complete with (2) 4-20mA outputs for detection of Propane with measurement ranges of 0-1 LEL•m and 0-2000ppm•m and Methane with measurement ranges of 0-5 LEL•m and 0-5000ppm•m, with minimum alarm set point of 10% FSD and repeatability of ±6% FSD. The apparatus complies with ANSI/ISA 12.13.04: 2007; Performance Requirements for Open Path Combustible Gas Detectors.

**ULTIMA OPIR-5 Receiver:**

329000-a

a: Output & Terminals -17 through -24

**ULTIMA OPIR-5 Source:**

329001-a

a: Terminals -3 or -4

Specifications - The manufacturer's specifications are as follow:

Operating Temperature:	-55°C to +65°C
Relative Humidity:	0 to 95% (Non- condensing)
Supply Parameters:	+24 V nominal, 20-36 VDC
Measurement Signal:	4-20mA
Calibration:	Units are supplied factory calibrated for the specified target gas or gases. Units should not require recalibration in service.

XP / I / 1 / BCD / T4 Ta = -55°C to 65°C  
DIP / II,III / 1 / EFG / T4 Ta = -55°C to 65°C  
NI / I,II,III / 2 / BCDEFG / T4 Ta = -55°C to 65°C  
Type 4X, IP66/67

**Specific Conditions of Safe Use:**

1. For Source supply wires, use wires suitable for 32°C above surrounding ambient.
2. For Receiver supply wires, use wires suitable for 16°C above surrounding ambient.
3. At temperatures below -35°C propane cannot be detected due to the boiling point of propane being at -44°C.

FM Approved for:  
Mine Safety Appliances  
1000 Cranberry Woods Drive  
Cranberry Township, PA 16066



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This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

**ULTIMA MOS-5**

Class 3600	1998
Class 3615	1989
Class 3810	1989
6341	Draft
ANSI/ISA 12.13.01	2000
ISA-92.0.01	1998
ANSI/NEMA	1991

**ULTIMA OPIR-5**

Class 3600	1998
Class 3611	2004
Class 3615	2006
Class 3810	2005
ANSI/NEMA 250	2003
ANSI/IEC 60529	2004
ANSI/FM 6325	2007
ANSI/FM 12.13.04	2007
ANSI/ISA 60079-0	2005
ANSI/ISA 60079-1	2005

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Subsequent Revision Reports / Date Approval Amended

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FM Approvals LLC

Patrick J. Byrne  
Technical Team Manager, Electrical

22 April 2011  
Date