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*Member of the FM Global Group*

# CERTIFICATE OF COMPLIANCE

## HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

### **COMBUSTIBLE GAS DETECTORS, Fixed**

Stationary Single Channel 4-20 mA Combustible Gas Detector. The Ultima X Gas Detector consists of an Ultima X Control Unit and an Ultima XE Detector Head or Ultima XIR Detector Head. There are two variations of the Ultima X Control Unit, Ultima XE Main (with Display) and Ultima XL (without Display). The Ultima XE Main and Ultima XL Control Unit have an optional XP Port with I.S. barrier for HART communication. The Control Units are also provided with an optional HART Module. The Ultima XE Main Control Unit optional XP Port with I.S. barrier is either integral to the Control Unit or remote to the Control Unit. The XP Port with I.S. barrier provides intrinsically safe connections. The XP Port with I.S. barrier provides a lead seal for the explosion proof enclosure permitting the user to interface with the control unit while powered and functioning.

The Ultima XE Sensor is a Catalytic Combustible Gas Sensor. The Ultima XIR Sensor is an Infrared Combustible Gas Sensor. The Sensors mount remotely or integrally via a 3/4 NPT or M25 connection to the Control Unit. The Control Unit communicates to the Sensors via a proprietary protocol. The Sensors may be remotely connected up to 100 ft away from the Control Unit. All configurations of the systems which do not include the Ultima XIR are suitable for installation in Class I, Division 1, Groups A, B, C, and D Hazardous Locations, indoor and outdoor (Type 4X / IP66) and have intrinsically safe connections to Class I, Division 1, Groups A, B, C, and D Hazardous Locations in accordance with Entity requirements and Control Drawing SK3098-1057 when installed with the intrinsically safe barrier. All configurations of the systems are also Nonincendive with Nonincendive Field Wiring for installation in Class I, Division 2, Groups A, B, C and D Hazardous Locations when installed per control drawing SK3098-1108. Configurations of the systems which include the Ultima XIR are suitable for installation in Class I, Division 1, Groups B, C, and D Hazardous Locations, indoor and outdoor (Type 4X / IP66) and have intrinsically safe connections to Class I, Division 1, Groups A, B, C, and D Hazardous Locations in accordance with Entity requirements and Control Drawing SK3098-1057 when installed with the intrinsically safe barrier. All configurations of the systems are also Nonincendive with Nonincendive Field Wiring for installation in Class I, Division 2, Groups A, B, C and D Hazardous Locations when installed per control drawing SK3098-1108. The Ultima XE Sensor and Ultima XIR Sensor may be connected to any junction box with an internal volume of less than 40.04 cubic inches which has been identified, as defined within the National Electrical Code, for its intended area of installation. The Ultima XE Sensor and Ultima XIR Sensor monitor 0-100% LEL methane or propane gas-in-air atmospheres.

The Ultima XE Main Control Units provide the following: a two-digit measurement display with infrared control

functions and alarm indication, a 4-20mA measurement signal with optional HART communication, an optional XP Port with I.S. barrier, optional LEDs which indicate alarm and trouble conditions and optional relay contacts; 1 for trouble and 3 for alarm set points. The electrical ratings for the entire system, DC input, are 8-30VDC 10 watts maximum. The electrical ratings for the entire system, AC input, are 110-240VAC, 50/60 Hz, 15 watts maximum. The relay contact ratings are 5A at 250VAC or 30VDC. The Ultima XL Control Units provide the following: a 4-20mA measurement signal with HART communication, an optional XP Port with I.S. barrier, an LED which indicates alarm and trouble conditions. The operating temperature range of the systems is -40°C to +60°C and the electrical ratings for the entire system is 8-30VDC 600mA maximum. The non I.S. connections on the HART Module are 30VDC max, 1 amp. In addition, the apparatus complies with CSA-C22.2 No. 152-M1984 Performance Requirements for Combustible Gas Detectors.

The following accessories are Approved for use with the Ultima X Series Gas Detectors: "Ultima" Controller, "Ultima" Calibrator, Weatherguard (environmental guard) P/N 10028904 for the Ultima XE sensor or 10041265 for the Ultima XIR sensor.

The Ultima Controller and Ultima Calibrator are Intrinsically Safe for use in Class I, Division 1, Groups A, B, C and D Hazardous Locations, T3C, Ta = +40°C.

Nonincendive Field wiring parameters:  
Vmax = 30V, Imax = 100mA, Ci = 0, Li = 0

### **Control Unit**

#### ***A-UltimaX - a - b - c - d - e - f - g - h - i - j - k - l - m - n, Ultima XE Main***

a = Model: E or L  
b = Gas Type: 31, 32, 33, 38, or 39.  
c = Sensor Output: E or H  
d = Enclosure Type: any alpha numeric code that represents stainless steel enclosure with the 3/4 inch NPT threads or M25 Metric threads  
e = Sensor Mounting Style: S or D.  
f = Gas Sample Selection method: 0 or 3  
g = Relay / LED option: 0, 1, 2, or 3  
h = Language / Software: 0, H, or S  
i = Power Supply Option:- 0, 1, 2, 3, or 4  
j = Gas Type: 00  
k = Gas Type: 00  
l = Calibration Options: 0, 1, 2, 3, or 5  
m = Installation Hardware: Any number indicating how the product is mounted.  
n = Custom: 0 or T

#### ***A-UltimaX-XP - a - b - c - d - e - f - g - h - i - j - k - l - m, Ultima X Series***

a = Model: E or L  
b = Gas Code: 31, 32, 33, 38, or 39.  
c = Configuration: F or D2  
d = Sensor Output: 1, 2, 3, or 4  
e = Sensor Mounting Style: N, S, or D  
f = Relays and LEDs: 0, 1, or 2  
g = Display Language/Features: 0, S, or H  
h = Optional Power Supply: 0, 1, 2, 3, or 4.  
i = Gas Sample Selection: 0 or 1  
j = Integrated Accessories: 0 or 1  
k = Installation Hardware: Any number indicating how the product is mounted.  
l = Manuals: Any number indicating how the manual is supplied.  
m = Custom: 0, T, CC, or CF

## Sensors

### **A-UltX - Sens - a - b - c, Ultima XIR Sensor**

a = Gas Type: 38 or 39  
b = Enclosure Type: 2 or 3  
c = Custom: 0, T, CC, or CF

### **A-UltX - Sens - a - b - c, Ultima XE Sensor**

a = Gas Type: 31, 32, or 33  
b = Enclosure Type: 1  
c = Custom: 0, T, CC, or CF

**External Power Supplies** - 10053967 (11W), 10053966 (15W)

**Specifications** - The manufacturer's specifications are as follow;

Operating Temperature:	-40°C to +60°C
Relative Humidity:	10 to 90% RH
Supply Parameters:	8-30 Vdc, 24 Vdc (Nominal), 10 watts maximum. 110/240 Vac, 50/60 Hz, 15 watts maximum
Measurement Signal:	4-20mA
Calibration:	Infrared or HART

## **COMBUSTIBLE GAS DETECTORS, Fixed**

Stationary multi-channel 4-20 mA Combustible Gas Detector. The Ultima XE Main with X3 technology Gas Detector consists of an Ultima XE main with X3 technology Control Unit with any combination of three Detector Heads. The Detector Heads can be either an Ultima XE Detector Head (combustible or oxygen depletion) or Ultima XIR Detector Head. The Ultima XE Combustible Detector Head is either a Catalytic Combustible Gas Detector Head or an electrochemical Oxygen Depletion Gas Detector Head. The Ultima XIR Detector Head is an Infrared Combustible Gas Detector Head. The Detector Heads mount remotely or integrally via a 3/4 NPT or M25 connections to the Control Unit. The Control Unit communicates to the Detector Heads via a proprietary protocol. The Detector Heads may be remotely connected up to 100 ft away from the Control Unit when powered by the Control Unit or up to 3000 ft away from the Control Unit with boost board option when powered by AC Power Supply, input rated 120/240 V AC, 5 W max or DC Power Supply, input rated 9-30 V dc, 5 W max.

All configurations of the systems which do not include the Ultima XIR are suitable for installation in Class I, Division 1, Groups A, B, C, and D. Configurations of the systems which include the Ultima XIR are suitable for installation in Class I, Division 1, Groups B, C, and D. The Ultima XE main with X3 technology Control Units are also Nonincendive with Nonincendive field wiring for installation in Class I, Division 2, Groups A, B, C, and D Hazardous (Classified) Locations when installed per control drawing SK3098-1108. The operating temperature range of the systems is -40°C to +60°C and the electrical ratings for the entire system is 7-30VDC, 10 watts maximum. The relay contact ratings are 5A at 250VAC or 30VDC. In addition, the apparatus complies with CSA-C22.2 No. 152-M1984 Performance Requirements for Combustible Gas Detectors.

The following accessories are Approved for use with the Ultima X Series: "Ultima" Controller, "Ultima" Calibrator, Weatherguard (environmental guard) P/N 10028904 for the Ultima XE sensor or 10041265 for the Ultima XIR sensor.

The Ultima Controller and Ultima Calibrator are Intrinsically Safe for use in Class I, Division 1, Groups A, B, C and D Hazardous (Classified) Locations, T3C, Ta = +40°C.

Nonincendive Field wiring parameters:  
Vmax = 30V, Imax = 100mA, Ci = 0, Li = 0

## Control Unit

### **A-Ultima X3-a-b-c-d-e-f-g-h-i-j-k-l-m-n-o-p-q-r Ultima XE Main with X3 Technology**

a = Model: E

b = Enclosure Type: any alpha numeric code that represents the 3/4 inch NPT threads or M25 Metric threads

c = Sensor Output: M

d = Relay / LED option: 0, 1, 2 and 3.

e = Connection for external Power Supply Option: 0 = None; 3 = 12 VDC external, 4 = 24 VDC external. Note, external power supplies not FM Approved. .

f = Language option: 0

g = Hardware / Software option: 0

h = Signal Boost option: 0 or 1

i\* = Gas type sensor 1: 13, 14, 31, 32, 33, 38 or 39.

j = Sensor 1 mounting / power: 0, 1, 2 or 3

k = A number indicating how the product is mounted.

L\* = Gas type sensor 2: 13, 14, 31, 32, 33, 38 or 39.

m = Sensor 2 mounting / power: 0, 1, 2 or 3

n = A number indicating how the product is mounted.

o\* = Gas type sensor 3: 13, 14, 31, 32, 33, 38 or 39.

P = Sensor 3 mounting / power: 0, 1, 2 or 3

q = A number indicating how the product is mounted.

r = Custom: 0 or T

\* = One of the three gas sensor types shall be either: 31, 32, 33, 38 or 39

## Sensors

### **A-UltX - Sens - a - b - c, Ultima XIR Sensor**

a = Gas Type: 38 or 39

b = Enclosure Type: 2 or 3

c = Custom: 0

### **A-UltX - Sens - a - b - c, Ultima XE Sensor**

a = Gas Type: 13, 14, 31, 32, or 33

b = Enclosure Type: 1

c = Custom: 0

## Specifications - The manufacturer's specifications are as follow:

Operating Temperature: -40°C to +60°C

Relative Humidity: 10 to 90% RH

Supply Parameters: 7-30 Vdc, 24 Vdc (Nominal), 10 watts maximum.

Measurement Signal: 4-20mA

Calibration: Infrared

## COMBUSTIBLE GAS DETECTORS, Fixed

Stationary 4-20mA Stand-Alone Combustible Gas Detector Head. The Ultima XI Gas Monitor is Explosionproof for installation in Class I, Division 1, Groups B, C and D; Class I, Division 2, Groups A, B, C and D Hazardous (Classified) Locations. Suitable for indoor and outdoor (Type 4X / IP66). The Ultima XI monitors 0-100% LEL methane or propane gas-in-air atmospheres. The instrument provides a 4-20 mA measurement signal. The Ultima XI is an Infrared Combustible Gas Detector Sensor. The operating temperature range for the sensor is -40°C to +60°C the electrical ratings are 7-30 VDC, 800 mA max. In addition, the apparatus complies with CSA-C22.2 No. 152-M1984 Performance Requirements for Combustible Gas Detectors.

The following accessories are Approved for use with the Ultima XI Gas Monitor: Weatherguard (environmental guard) P/N 10041265.

### **COMBUSTIBLE AND OXYGEN DEPLETION GAS DETECTOR CONTROL UNITS, Fixed**

Stationary Single Channel 4-20 mA Combustible or Oxygen Depletion Gas Detector Control Unit. There are two variations of the Ultima X Control Unit, Ultima XE Main (with Display) and Ultima XL (without Display). The Ultima XE Main and Ultima XL Control Unit have an optional XP Port with I.S. barrier for HART communication. The Control Units are also provided with an optional HART Module. The Ultima XE Main Control Unit optional XP Port with I.S. barrier is either integral to the Control Unit or remote to the Control Unit. The XP Port with I.S. barrier provides intrinsically safe connections. The XP Port with I.S. barrier provides a lead seal for the explosion proof enclosure permitting the user to interface with the control unit while powered and functioning. The Ultima X Control Unit is suitable for installation in Class I, Division 1 and 2, Groups A, B, C, and D; Class I, Zone 1 and 2 Group IIC Hazardous (Classified) Locations, indoor and outdoor (Type 4X/IP66) and may provide intrinsically safe connections to Class I, Division 1, Groups A, B, C, and D; Class I, Zone 1, Group IIC Hazardous (Classified) Locations in accordance with Entity requirements and Control Drawing SK3098-1057. The Ultima X control units monitor FM Approved Combustible Gas Detector heads which monitor 0-100% LEL gas-in-air atmospheres. The Ultima X control units monitor FM Approved Oxygen Depletion detector heads which monitor up to 21% O<sub>2</sub> gas-in-air atmospheres. The control unit communicates to the detector head via a proprietary protocol. The control unit provides a 4-20mA signal proportional to the gas detector head's measuring range of gas of interest and trouble signals.

The Ultima XE Main Control Units provide the following: a two-digit measurement display with infrared control functions and alarm indication, a 4-20mA measurement signal with optional HART communication, an optional XP Port with I.S. barrier, optional LEDs which indicate alarm and trouble conditions and optional relay contacts; 1 for trouble and 3 for alarm set points. The electrical ratings for the entire system, DC input, are 8-30VDC 10 watts maximum. The electrical ratings for the entire system, AC input, are 110-240VAC, 50/60 Hz, 15 watts maximum. The relay contact ratings are 5A at 250VAC or 30VDC. The Ultima XL Control Units provide the following: a 4-20mA measurement signal with HART communication, an optional XP Port with I.S. barrier, an LED which indicates alarm and trouble conditions. The operating temperature range of the systems is -40°C to +60°C and the electrical ratings for the entire system is 8-30VDC 600mA maximum. The non I.S. connections on the HART Module are 30VDC max, 1 amp. In addition, the apparatus complies with CSA-C22.2 No. 152-M1984 Performance Requirements for Combustible Gas Detectors.

#### ***A-UltimaX - a - b - c - d - e - f - g - h - i - j - k - l - m - n, Ultima XE Main***

a = Model: E or L

b = Gas Type: 13, 14, 31, 32, 33, 38, 39, 51, 52, 53, 58 or 59.

c = Sensor Output: E or H

d = Enclosure Type: any alpha numeric code that represents stainless steel enclosure with the ¾ inch NPT threads or M25 Metric threads

e = Sensor Mounting Style: S or D.

f = Gas Sample Selection method: 0 or 3

g = Relay / LED option: 0, 1, 2, or 3

h = Language / Software: 0, H, or S

i = Power Supply Option: 0, 1, 2, 3, or 4

j = Gas Type: 00

k = Gas Type: 00

l = Calibration Options: 0, 1, 2, 3, or 5

m = Installation Hardware: Any number indicating how the product is mounted.

n = Custom: 0 or T

#### ***A-UltimaX-XP - a - b - c - d - e - f - g - h - i - j - k - l - m, Ultima X Series***

a = Model: E or L

b = Gas Type: 13, 14, 31, 32, 33, 38, 39, 51, 52, 53, 58 or 59.

c = Configuration: F or D2

d = Sensor Output: 1, 2, 3, or 4

e = Sensor Mounting Style: N, S, or D



f = Relays and LEDs: 0, 1, or 2  
g = Display Language/Features: 0, S, or H  
h = Optional Power Supply: 0, 1, 2, 3, or 4.  
i = Gas Sample Selection: 0 or 1  
j = Integrated Accessories: 0 or 1  
k = Installation Hardware: Any number indicating how the product is mounted.  
l = Manuals: Any number indicating how the manual is supplied.  
m = Custom: 0, T, CC, or CF

#### *Entity Parameters*

$U_o = 6.14\text{VDC}$ ,  $I_o = 170\text{mA}$ ,  $C_o = 34\mu\text{F}$ ,  $L_o = 1.3\text{mH}$ ,  $P_o = 260\text{ mW}$

### **OXYGEN DEPLETION GAS DETECTORS, Fixed**

Stationary Single Channel 4-20 mA Oxygen Depletion Gas Detector. The Ultima X Gas Detector consists of an Ultima X Control Unit with an Ultima XE Detector Head. There are two variations of the Ultima X Control Unit, Ultima XE Main (with Display) and Ultima XL (without Display). The Ultima XE Main and Ultima XL Control Unit have an optional XP Port with I.S. barrier for HART communication. The Control Units are also provided with an optional HART Module. The Ultima XE Main Control Unit optional XP Port with I.S. barrier is either integral to the Control Unit or remote to the Control Unit. The XP Port with I.S. barrier provides intrinsically safe connections. The XP Port with I.S. barrier provides a lead seal for the explosion proof enclosure permitting the user to interface with the control unit while powered and functioning.

The Ultima XE Sensor is an Electrochemical Oxygen Depletion Gas Sensor. The Sensor mounts remotely or integrally via a 3/4 NPT or M25 connection to the Control Unit. The Control Unit communicates to the Sensor via a proprietary protocol. The Sensor may be remotely connected up to 100 ft away from the Control Unit. All configurations of the systems are suitable for installation in Class I, Division 1, Groups A, B, C, and D Hazardous Locations, indoor and outdoor (Type 4X / IP66) and have intrinsically safe connections to Class I, Division 1, Groups A, B, C, and D Hazardous Locations in accordance with Entity requirements and Control Drawing SK3098-1057 when installed with the intrinsically safe barrier. All configurations of the systems are also Nonincendive with Nonincendive Field Wiring for installation in Class I, Division 2, Groups A, B, C and D Hazardous Locations when installed per control drawing SK3098-1108. The Ultima XE Detector Heads monitor 0-10% O<sub>2</sub> or 0-21% O<sub>2</sub> gas-in-air atmospheres.

The Ultima XE Main Control Units provide the following: a two-digit measurement display with infrared control functions and alarm indication, a 4-20mA measurement signal with optional HART communication, an optional XP Port with I.S. barrier, optional LEDs which indicate alarm and trouble conditions and optional relay contacts; 1 for trouble and 3 for alarm set points. The electrical ratings for the entire system, DC input, are 8-30VDC 10 watts maximum. The electrical ratings for the entire system, AC input, are 110-240VAC, 50/60 Hz, 15 watts maximum. The relay contact ratings are 5A at 250VAC or 30VDC. The Ultima XL Control Units provide the following: a 4-20mA measurement signal with HART communication, an optional XP Port with I.S. barrier, an LED which indicates alarm and trouble conditions. The operating temperature range of the systems is -40°C to +60°C and the electrical ratings for the entire system is 8-30VDC 600mA maximum. The non I.S. connections on the HART Module are 30VDC max, 1 amp.

The following accessories are Approved for use with the Ultima X Series Gas Detectors: "Ultima" Controller, "Ultima" Calibrator, Weatherguard (environmental guard) P/N 10028904 for Ultima XE sensor

The Ultima Controller and Ultima Calibrator are Intrinsically Safe for use in Class I, Division 1, Groups A, B, C and D Hazardous Locations, T3C, Ta = +40°C.

Nonincendive Field wiring parameters:  
 $V_{\text{max}} = 30\text{V}$ ,  $I_{\text{max}} = 100\text{mA}$ ,  $C_i = 0$ ,  $L_i = 0$

## Control Unit

### **A-UltimaX - a - b - c - d - e - f - g - h - i - j - k - l - m - n, Ultima XE Main**

a = Model: E or L  
b = Gas Type: 13 or 14  
c = Sensor Output: E or H  
d = Enclosure Type: any alpha numeric code that represents stainless steel enclosure with the 3/4 inch NPT threads or M25 Metric threads  
e = Sensor Mounting Style: S or D.  
f = Gas Sample Selection method: 0 or 3  
g = Relay / LED option: 0, 1, 2, or 3  
h = Language / Software: 0, H, or S  
i = Power Supply Option: 0, 1, 2, 3, or 4  
j = Gas Type: 00  
k = Gas Type: 00  
l = Calibration Options: 0, 1, 2, 3, or 5  
m = Installation Hardware: Any number indicating how the product is mounted.  
n = Custom: 0 or T

### **A-UltimaX-XP - a - b - c - d - e - f - g - h - i - j - k - l - m, Ultima X Series**

a = Model: E or L  
b = Gas Code: 13 or 14  
c = Configuration: F or D2  
d = Sensor Output: 1, 2, 3, or 4  
e = Sensor Mounting Style: S or D  
f = Relays and LEDs: 0, 1, or 2  
g = Display Language/Features: 0, S, or H  
h = Optional Power Supply: 0, 1, 2, 3, or 4.  
i = Gas Sample Selection: 0 or 1  
j = Integrated Accessories: 0 or 1  
k = Installation Hardware: Any number indicating how the product is mounted.  
l = Manuals: Any number indicating how the manual is supplied.  
m = Custom: 0, T, CC, or CF

## Sensors

### **A-UltX - Sens - a - b - c, Ultima XE Sensor**

a = Gas Type: 13 or 14  
b = Enclosure Type: 1  
c = Custom: 0, T, CC, or CF

**External Power Supplies** - 10053967 (11W), 10053966 (15W)

**Specifications** - The manufacturer's specifications are as follow;

Operating Temperature: -40°C to +60°C  
Relative Humidity: 10 to 90% RH  
Supply Parameters: 8-30 Vdc, 24 Vdc (Nominal), 10 watts maximum.  
110/240 Vac, 50/60 Hz, 15 watts maximum  
Measurement Signal: 4-20mA  
Calibration: Infrared or HART

### **OXYGEN DEPLETION GAS DETECTORS, Fixed**

Stationary multi-Channel 4-20 mA Oxygen Depletion Gas Detector. The Ultima XE main with X3 technology Gas Detector consists of an Ultima XE main with X3 technology Control Unit with any combination of three Detector Heads. The Detector Heads can be either an Ultima XE Detector Head (combustible or oxygen depletion) or Ultima XIR Detector Head. The Ultima XE Detector Head is either a Catalytic Combustible Gas Detector Head or an electrochemical Oxygen Depletion Gas Detector Head. The Ultima XIR Detector Head is an Infrared Combustible Gas Detector Head. The Detector Heads mount remotely or integrally via a 3/4 NPT or M25 connections to the Control Unit. The Control Unit communicates to the Detector Heads via a proprietary protocol. The Detector Heads may be remotely connect up to 100 ft away from the Control Unit or up to 3000 ft away from the Control Unit with boost board option when powered by AC Power Supply, input rated 120/240 V AC, 5 W max or DC Power Supply, input rated 9-30 V dc, 5 W max. All configurations of the systems which do not include the Ultima XIR are suitable for installation in Class I, Division 1, Groups A, B, C, and D. Configurations of the systems which include the Ultima XIR are suitable for installation in Class I, Division 1, Groups B, C, and D. The Ultima XE main with X3 technology Control Units are also Nonincendive with Nonincendive field wiring for installation in Class I, Division 2, Groups A, B, C, and D Hazardous (Classified) Locations when installed per control drawing SK3098-1108. The operating temperature range of the systems is -40°C to +60°C and the electrical ratings for the entire system is 7-30VDC, 10 watts maximum. The relay contact ratings are 5A at 250VAC or 30VDC.

The following accessories are Approved for use with the Ultima X Series: "Ultima" Controller, "Ultima" Calibrator, Weatherguard (environmental guard) P/N 10028904 for the Ultima XE sensor or 10041265 for the Ultima XIR sensor.

The Ultima Controller and Ultima Calibrator are Intrinsically Safe for use in Class I, Division 1, Groups A, B, C and D Hazardous (Classified) Locations, T3C, Ta = +40°C.

#### **Control Unit**

##### ***A-Ultima X3-a-b-c-d-e-f-g-h-i-j-k-l-m-n-o-p-q-r, Ultima XE Main with X3 Technology***

a = Model: E

b = Enclosure Type: any alpha numeric code that represents the 3/4 inch NPT threads or M25 Metric threads

c = Sensor Output: M

d = Relay / LED option: 0, 1, 2 and 3.

e = Connection for external Power Supply Option: 0, 3 or 4.

f = Language option: 0

g = Hardware / Software option: 0

h = Signal Boost option: 0 or 1

i\* = Gas type sensor 1: 13, 14, 31, 32, 33, 38 or 39.

j = Sensor 1 mounting / power: 0, 1, 2 or 3

k = A number indicating how the product is mounted.

L\* = Gas type sensor 2: 13, 14, 31, 32, 33, 38 or 39.

m = Sensor 2 mounting / power: 0, 1, 2 or 3

n = A number indicating how the product is mounted.

o\* = Gas type sensor 3: 13, 14, 31, 32, 33, 38 or 39.

P = Sensor 3 mounting / power: 0, 1, 2 or 3

q = A number indicating how the product is mounted.

r = Custom: 0 or T

\*One of the three gas sensor types shall be either Sensor Type: 13 or 14

#### **Sensors**

##### ***A-UltX - Sens - a - b - c, Ultima XIR Sensor***

a = Gas Type: 38 or 39

b = Enclosure Type: 2 or 3

c = Custom: 0



**A-UltX - Sens - a - b - c, Ultima XE Sensor**

a = Gas Type: 13, 14, 31, 32, or 33

b = Enclosure Type: 1

c = Custom: 0

**Specifications** - The manufacturer's specifications are as follow;

Operating Temperature: -40°C to +60°C

Relative Humidity: 10 to 90% RH

Supply Parameters: 7-30 Vdc, 24 Vdc (Nominal), 10 watts maximum.

Measurement Signal: 4-20mA

Calibration: Infrared

**FM Approved for:**

Mine Safety Appliances Co.

1000 Cranberry Woods Drive

Cranberry Township, PA 16066

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

CSA/CAN C22.2 No.	2005	CSA C22.2 No. 213	1987
CAN/CSA C22.2 61010-1	2004	CSA/CAN C22.2 No. 157-92	1992
CSA C22.2 No. 0.4	1982		
CSA C22.2 No. 0.5	1982		
CSA C22.2 No. 94	1991		
CSA C22.2 No. 152	2003		
6340 (Draft)	2002		
CSA/CAN C22.2 No. 30	1986		
M1986 (Reaffirmed 2003)			
CSA/CAN C22.2 No. 142	1987		
M1987 (Reaffirmed 2000)			

Original Project ID: 3022220

Canadian Project ID: 3027754C

Approval Granted: January 30, 2007

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
3029381	May 22, 2007		
080312	May 5, 2008		
3032677	June 30, 2008		

FM Approvals LLC

  
Patrick Byrne  
Technical Team Manager

July 3, 2008  
Date