Mine Safety Appliances Company • 1000 Cranberry Woods Dr. • Cranberry Twp., PA 16066

Ultima® X Series Gas Monitors – ATO Order Form

A-ULTIMA X-XP	___	___	___	___	___	___	___	___	___	___	___	___	___
	1	2	3	4	5	6	7	8	9	10	11	12	13

1 Model
E = Explosion proof, with display
I = XI (IR sensor with no display)
L = Explosion proof, no display
Catalytic & Electrochemical
Infrared
J = X series junction box (No electronics)

2 Gas Code –see list for gas type
NOTE: The following codes will provide enclosure and electronics only. No sensor components or sensor body housing.
01 = "Standard" toxics and oxygen
02 = Catalytic
03 = IR Combustible
04 = "Reactive" toxics (ex. Cl_2, HCl, ClO_2, NH_3, HF, EtO)
05 = IR CO_2
Note: If (2) = IR, (4) ≠ 0.
For XIR sensors use A-ULTX-SENS

3 Configuration
• A = ATEX w/metric threads
• B = ATEX w/NPT threads
* C = CSA approval w/NPT threads
> F = FM approval ($_cFM_{us}$) w/NPT threads
+ U = UL approval w/NPT threads
• I = IEC approval w/metric threads

4 Sensor Output
0 = No PCBA, (Use when ordering sensor body & sensor only)
1 = 2-Wire mA output
2 = 2-Wire (mA + HART) output
3 = 3-Wire mA output
4 =3-Wire (mA + HART) output
Note: If (2) = IR, (4) ≠ 0.
For XIR sensors use A-ULT-SENS

5 Sensor Mounting Style
S = Sensor mounted on control unit
D = Sensor mounted on remote housing
N = No condulet (choose for sensor/sensor body only)

6 Relays and LEDs
0 = No relays and no LEDs *(Required if 2-wire)*
Not permitted if (4) = 4
1 = LEDs, no relays *(Required if Model = L) 3-wire*
2 = Relays and LEDs *3-wire*

7 Display Language/Features
0 = English
S = Spanish
H = English with custom horn software

8 Optional Power Supply
0 = None
1 = 12 VDC Internal
2 = 24 VDC Internal
3 = 12 VDC External (Bracket not included)
4 = 24 VDC External (Bracket not included)
NOTE: Power supplies not available for ATEX or IEC – matrix 8

9 Gas Sample Selection
0 = None – Standard diffusion method
1 = Flow cap assembly
XE
XIR

10 Integrated Accessories
0 = None
1 = XP HART port
(requires cable P/N 10081441 FM)
2 = Reset/Cal switch – approved for Div. 1, Gr. B-D only
3 = Both XP HART port and Reset/Cal switch (UL)
Note: option 3 requires use of a HART module

11 Installation Hardware
0 = None
1 = Brackets
2 = Duct Mount Kit
3 = Brackets + Duct Mount Kit

12 Manuals – *alternate quantities can be ordered separately*
0 = Standard
1 = Hardcopy + CD

13 Custom Features
0 = None
C = Custom operation necessary
T = Custom Tagging, SS
TC = Custom Tagging/Custom operations necessary
CC = Certificate of calibration request

Sensor Selection Table

	0	None
	11	Carbon Monoxide 0-100 PPM
	12	Carbon Monoxide 0-500 PPM
=	13	Oxygen 0- 10%
=	14	Oxygen 0-25%
	15	Hydrogen Sulfide 0-10 PPM
	16	Hydrogen Sulfide 0-50 PPM
	17	Hydrogen Sulfide 0-100 PPM

" ~	18	Chlorine 0-5 PPM
	20	Nitric Oxide 0-100 PPM
	22	Hydrogen Cyanide 0-50 PPM
" ~	23	Hydrogen Chloride 0-50 PPM
" ~	24	Chlorine Dioxide 0-3 PPM
	25	Hydrogen Sulfide 0-500PPM
" ~	26	Hydrogen Fluoride 0-10 PPM
" ~	28	Chlorine 0-10 PPM
	31	Combustible gas 0-100% LEL - Natural Gas & H_2
	32	Combustible gas 0-100% LEL – Petroleum Vapors
	33	Combustible gas 0-100% LEL – Solvents
N}"^	34	Acetylene IR 0-2.5%
N }"	35	Carbon Dioxide IR 0-0.5%
}"	36	Carbon Dioxide IR 0-2%
N } "	37	Carbon Dioxide IR 0-5%
N **	38	IR combustible 0-100% LEL- Methane
**	39	IR combustible 0-100% LEL – Propane
	41	Phosphine 0-2 PPM
	42	Arsine 0-2 PPM
	43	Silane 0-25 PPM
" ~	45	Diborane 0-50 PPM
" ~	46	Bromine 0-5 PPM
" ~	47	Fluorine 0-10 PPM
" ~	48	Ammonia 0–100 PPM
	49	Hydrogen 0-1000 PPM
" ~	50	Ethylene Oxide 0-10 PPM
	51	Comb. Gas 0-100% LEL - ATEX - 4.4% CH4 Natural Gas and H2
	52	Comb. Gas 0-100% LEL - ATEX - 1.7% Propane Petroleum Vapors
	53	Comb. Gas 0-100% LEL - ATEX - 1.7% 1.7% Propane Solvents
"~	54	Ammonia 0-1000 PPM
} " x	55	Solvent Tolerant O2
	57	Carbon Monoxide 0-1000 PPM
N	58	Comb Gas IR – Methane 0-100% LEL – ATEX - 4.4% CH4
N	59	Comb Gas IR - Non Methane 0-100% LEL – ATEX 1.7% Propane
"~	61	Chlorine 0-20 PPM
} " x	62	Solvent & CO2 Tolerant Oxygen (0 -25%)
} " x	63	Low oxygen (0 -25%)
} " x	64	Low solvent tolerant oxygen (0 -25%)
~	70	Sulfur Dioxide 0-25 PPM
~	71	Sulfur Dioxide 0-100 PPM
~	72	Nitrogen Dioxide 0-10 PPM

Selection Guide for Ultima X Combustible (Catalytic)

CATEGORY 31: NATURAL GAS & H2
Span is set at 25% LEL with 0.6% Propane

Acetaldehyde	Ethylene	Methanol
Acetylene	Ethylene Dichloride	Methylene Chloride
Butadiene, 1, 3	Hydrogen	Monomethyl Amine
Carbon Monoxide	MAPP Gas	Trigonox B
Ethane	Methane	

CATEGORY 32: PETROLEUM VAPORS
Span is set at 40% LEL with 0.6% Propane

1, 1, 1-Trichloroethane	Cyclohexane	Pentane (n)
Acetic Acid	Dimethoxyethane	Pentane (iso)
Acetone	Dioxane, 1, 4	Pentene
Acrolein	Epichlorhydrin	Propane
Acrylonitrile	Ethanol	Propanol (n)
Allyl chloride	Ether, Diethyl	Propanol (iso)
Benzene	Ether, Dimethyl	Propylene
Butane (n)	Ethylene Oxide	Propylene Oxide
Butane (iso)	Freon 152°	Tetrahydrofuran
Butanol (iso)	Gasoline	Toluene
Butene – 1	Hexane	Trichloroethylene
Butene - 2	Isoprene	Triethylamine
Butyl Acetate (n)	Methyl Acetate	Vinyl Acetate
Butylene	Methyl Chloride	Vinyl Chloride
Butyraldehyde	Methyl Propene (2)	
Chlorobenzene	Methyl t-Butyl Ether	

CATEGORY 33: GENERAL SOLVENTS
Span is set at 55% LEL with 0.6% Propane

Amyl alcohol	Ethyl Acrylate	Mthyl. Iso. Ket.
Butanol (n)	Ethyl Benzene	Mthyl Methacrylate
Butyl Acrylate	Heptane	Naphtha, VM&P
Cellosolve	Hexene	Octane (iso)
Di isopropylamine	JP - 4	Propyl Acetate
Diethylamine	Methyl Cellosolve	Styrene
Ethyl Acetate	Methyl Ethyl Ketone	Xylene

If application includes gases in more than one category, specify highest number category.

SELECTION GUIDE FOR ULTIMA XIR COMBUSTIBLE

CATEGORY 38: Methane Calibration

	Controller Code	Cal Cylinder	Cylinder P/N	Cal Span Value
Methane	1	2.5% Methane	10028032	50% LEL

CATEGORY 39: Non-Methane Calibration

	Controller Code	Cal Cylinder	Cylinder P/N	Cal Span Value
Propane	2	0.6% Propane	10028034	29% LEL
Ethane	3	0.6% Propane	10028034	25% LEL
Butane	4	0.6% Propane	10028034	28% LEL
Pentane	5	0.6% Propane	10028034	33% LEL
Hexane	6	0.6% Propane	10028034	41% LEL
Cyclopentane	7	0.6% Propane	10028034	30% LEL
Ethylene	8	0.1% Propane	711054	28% LEL

For sensing multiple gases always calibrate for the least sensitive gas or vapor expected to be measured (highest response factor within category).

All other combustible gas span values available upon request.

Key:

+	UL approved, Class I, Div 1 & 2, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G for IR, Groups F, G for E-chem and catalytic; Class III
>	FM approved Class I, Div. 1 & 2, Groups A, B, C, D for oxygen, catalytic and IR
*	CSA approved Class I, Div. 1, Groups A, B, C & D for E-chem and catalytic, Groups B, C & D for IR
**	$530 for Ultima XL only
●	ATEX or IEC approved Ex d IIc T4, IP66
^	Available as custom product only
x	XP Stainless Steel only
--	X^3IR must have condulet
~	Available with intrinsically safe barrier and ATEX approval or UL Div 2 approval
"	Not available as XL model
}	Not available as XT model
N	Not available on XPL
=	Not to be used in Helium or Argon backgrounds. Use #62 in its place