

X to the Power of 3

X³ Technology

MSA

X³ Technology

- ModBUS output
- Multisensing
 - Up-to 3 sensors per transmitter
- Signal Boost



ModBUS Output

- ModBUS RTU
- Industry standard
- More available data than any sensor / transmitter on the market
 - Over 200 datum
- Prosoft Tested
 - Certified
 - Compatible with Allen-Bradley PLC

Multi-sensing

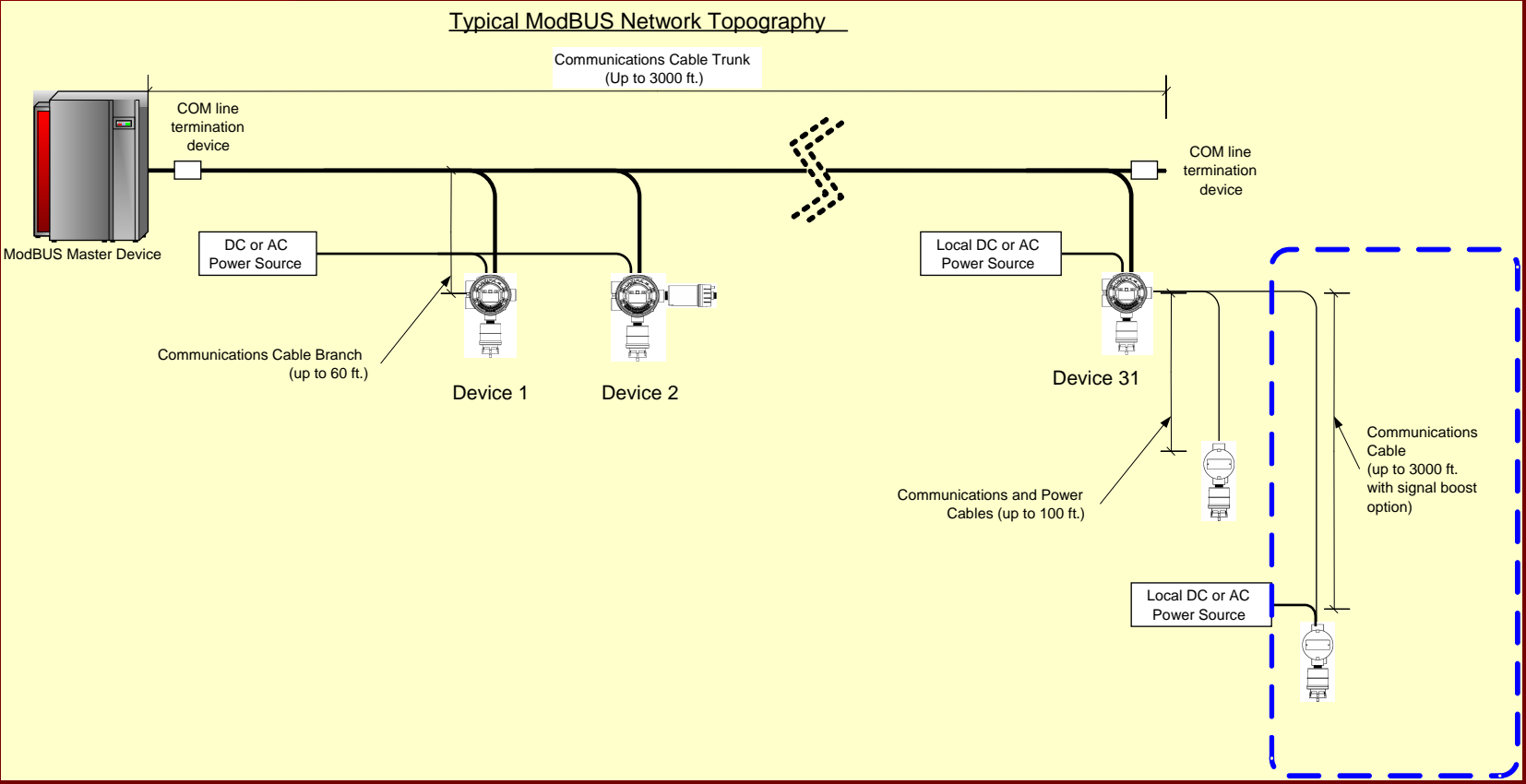
- Up-to 31 monitors on one network
- Up-to 3 sensors per monitor
- Total of 93 sensors on one bus network
 - Half duplex
 - Multi-drop



Power Parameters

Configuration			Maximum Power Cable Length in Feet (with nominal 24 VDC Transmitter Supply)					
Catalytic	XIR	E-Chem	16 AWG Cable [4.2 Ohm per 1K ft.]		14 AWG Cable [2.6 Ohm per 1K ft.]		12 AWG Cable [1.8 Ohm per 1K ft.]	
			No Relays	Relay Option	No Relays	Relay Option	No Relays	Relay Option
0	0	3	4500	3500	7200	5500	10000	7500
0	2	1	2000	1500	2750	2500	4000	3500
0	1	2	3000	2250	4500	3500	6250	5000
1	0	2	3500	2750	5500	4250	7500	6000
1	1	1	2000	1500	2750	2500	4000	3500
2	0	1	2500	1750	3500	3000	5000	4000
3	0	0	2000	1500	2750	2500	3750	3500

Network Topography



Maximum Sensor Combinations (without remote power)

Echem	Cata	IR
3	0	0
2	1	0
2	0	1
1	1	1
1	2	0
1	0	2
0	3	0

Maximum Sensor Combinations (without remote power)

Echem	Cata	IR
3	0	0
2	1	0
2	0	1
1	1	1
1	2	0
1	0	2
0	3	0

ONLY 1 Catalytic allowed with an IR sensor

Examples

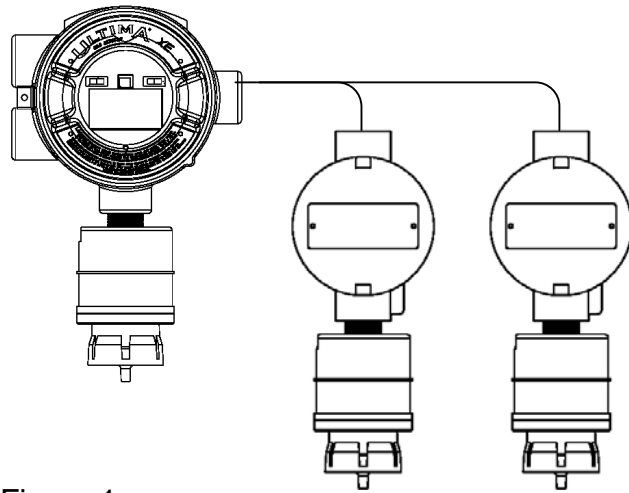


Figure 1:

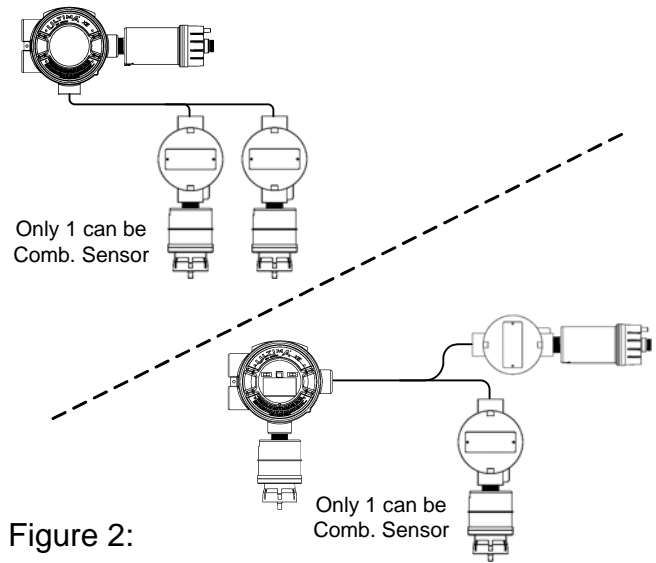


Figure 2:

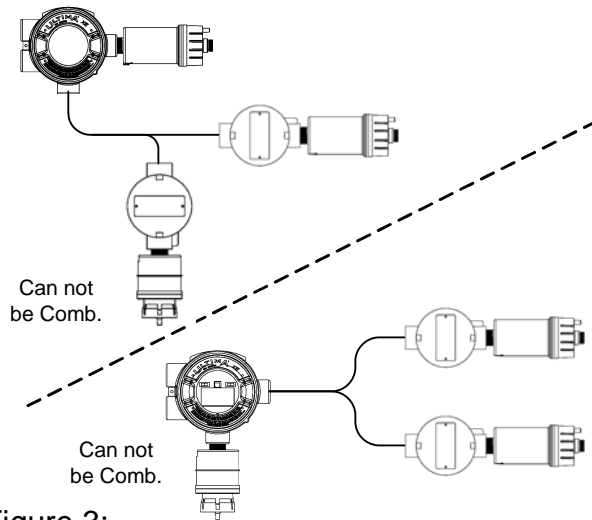


Figure 3:

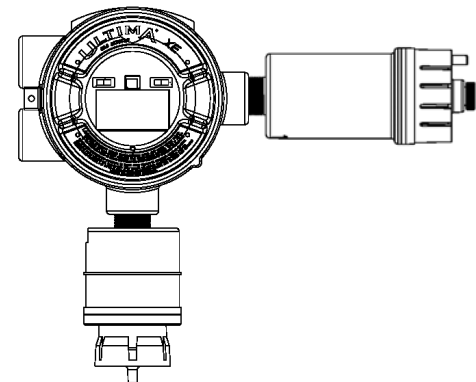
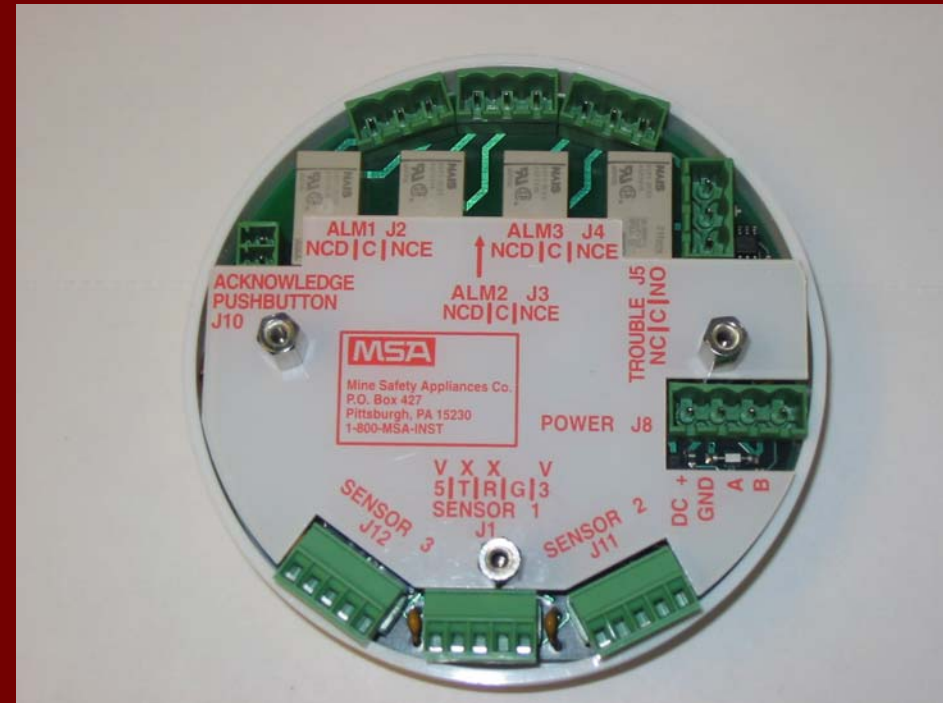


Figure 4:

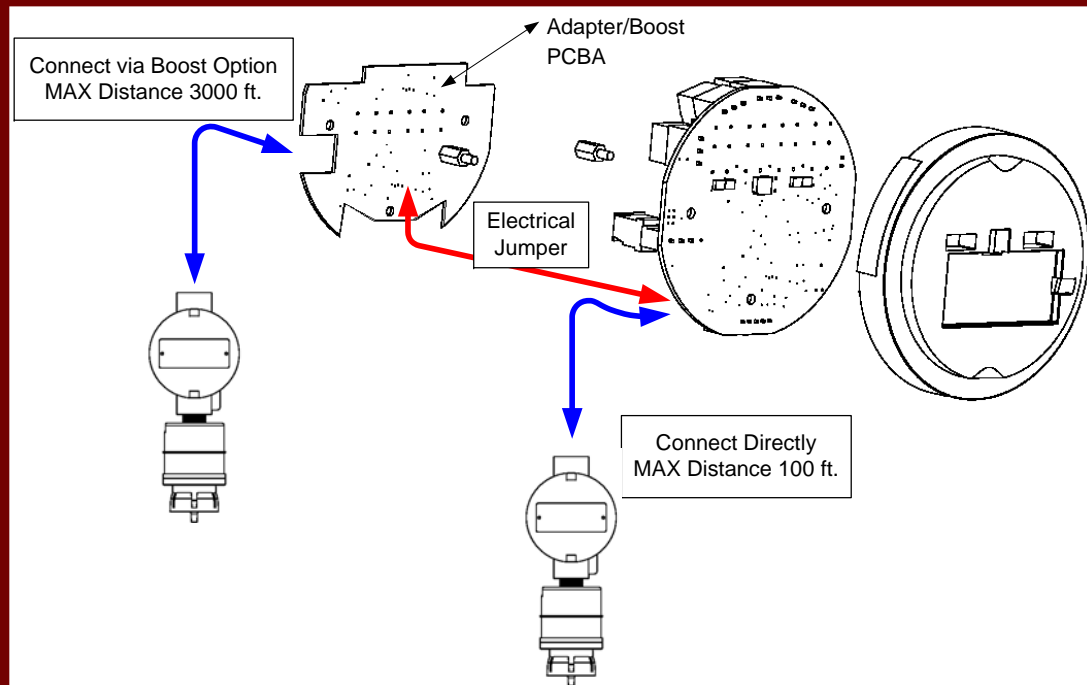
Main PCB

- Same sensor to main PCB wiring scheme
- Total of three sensor connectors
- 100 ft - 4 wire
 - 2 power
 - 2 comms
- 3000 ft – 5 wire
 - 2 power
 - 3 comms



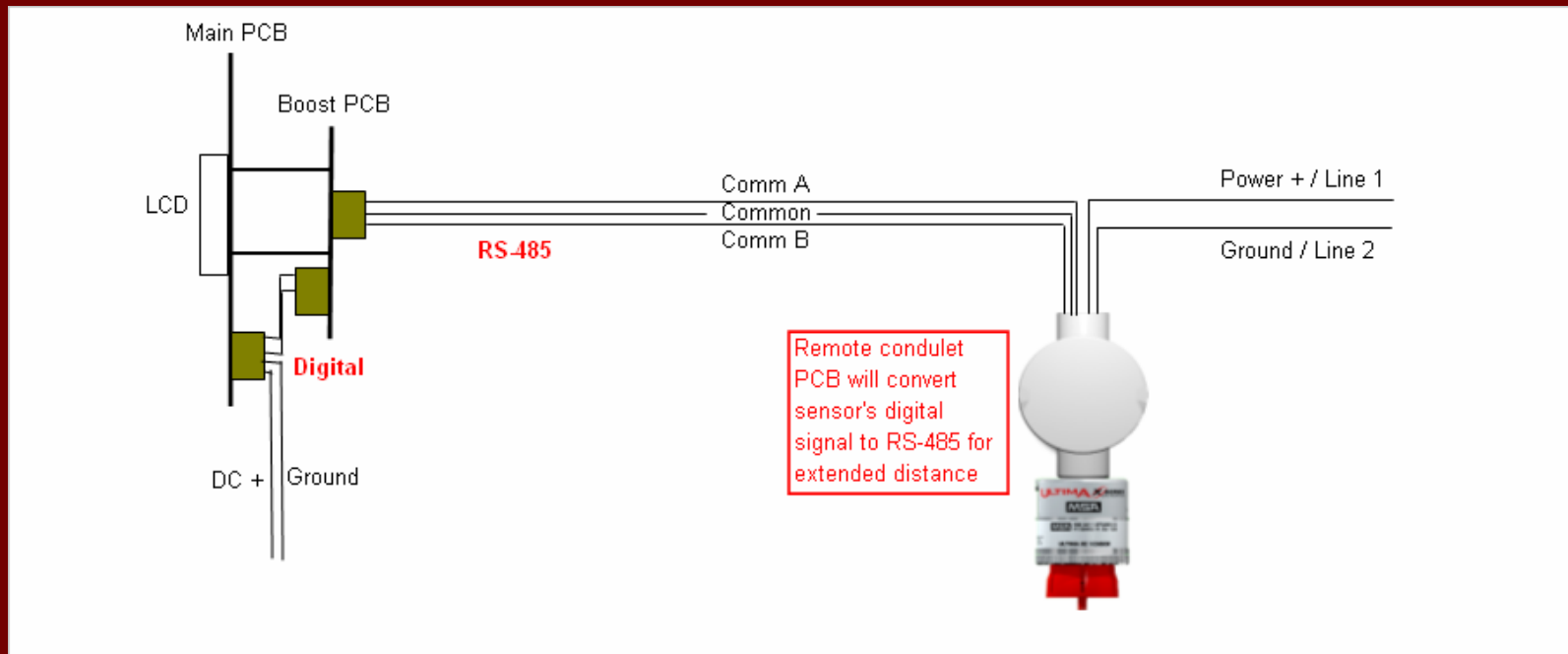
Signal Boost Requirements

- Signal converter PCB added to main enclosure if signal boost needed for any sensor



Signal Boost Requirements

- Signal converter PCB required at each remote sensor
- External power supply required for remote sensors



Display Sequence

- Similar display sequence as standard X
 - Gas type
 - Gas reading
- Sensor flag details sensor number



Fault Condition

- Fault message appears for particular sensor
- Display locks
- Condition must be acknowledged before display will cycle.

Alarm Condition

- Alarm flag is displayed
- Display locks
- Display clears
 - Unlatched alarm clears
 - IR / push-button reset after latched alarm condition goes below set point

Relay Configurations

- Standard (as shipped)
 - Each sensor alarm tied to different relay

	Relay 1	Relay 2	Relay 3
Sensor 1	Alarm 1 enabled	Alarm 2 enabled	Alarm 3 enabled
Sensor 2	Alarm 1 enabled	Alarm 2 enabled	Alarm 3 enabled
Sensor 3	Alarm 1 enabled	Alarm 2 enabled	Alarm 3 enabled

Relay Configurations

- Optional setting through Controller
 - Each sensor tied to different relay
 - One alarm set point per sensor

	Relay 1	Relay 2	Relay 3
Sensor 1	Alarm 1 enabled	Alarm 2 disabled	Alarm 3 disabled
Sensor 2	Alarm 1 disabled	Alarm 2 enabled	Alarm 3 disabled
Sensor 3	Alarm 1 disabled	Alarm 2 disabled	Alarm 3 enabled

ATO Ordering

- New ATO code
- A-UltimaX3
- Same gases available as with Ultima X
- Allows for maximum flexibility
- Notable exceptions
 - Controller, calibrator and pump assembly will be ordered separate as part numbers

Calibration

- Will require a two man calibration with increased remote sensing distances
- Sensor exchange program – coming soon



Product Exposure

- Weftec
 - New Orleans
 - October 3-5
- ISA
 - Houston
 - October 5-7

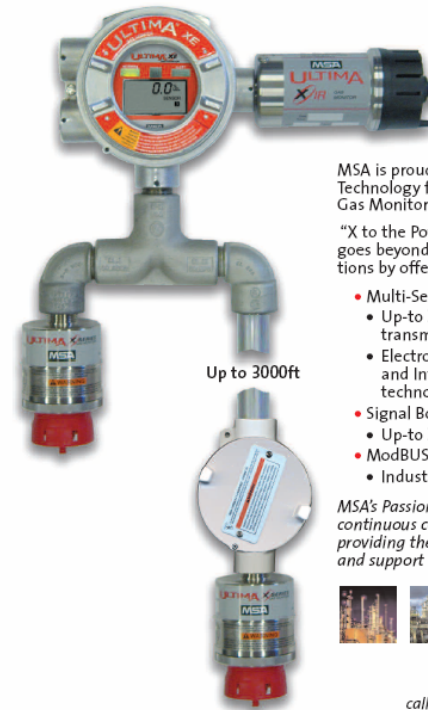


Advertising

- Water & Wastewater Digest - September
- InTech – September
- Industrial Hygiene News – November (Cover)
- Industrial Safety Hygiene News – November (Cover)

Beyond Xpectations.

Always the standard...Always expanding

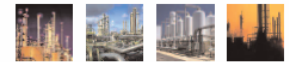


MSA is proud to announce X³™ Technology for the Ultima® X Series Gas Monitors.

"X to the Power of 3 Technology" goes beyond customers' expectations by offering:

- Multi-Sensing
 - Up-to 3 sensors per transmitter
 - Electrochemical, Catalytic and Infrared sensing technologies
- Signal Boost
 - Up-to 3000ft remote sensing
 - ModBUS Output
 - Industry-standard RTU format

MSA's Passion for Safety is the continuous commitment to providing the best products, service and support in the industry.



For more information, call 1-800-MSA-INST or visit us at www.msagasdetection.com.



X³ Technology

- ModBUS RTU output

MARKET NORM TODAY

- Multi-sensing capabilities, allowing up-to three sensors to one monitor

MARKET MAX TODAY IS 2 SENSORS

- Signal boost option, allowing for up-to 3000ft. between remote sensor and monitor

MARKET MAX TODAY IS 650 ft.

X³ Technology Launch Date
October.28.2004

X to the Power of 3

ULTIMA[®]

X³

TECHNOLOGY

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