



# Ultima<sup>®</sup> *Plus* Digital Network System

[ Digital communications for the Ultima family of products ]



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The Ultima **Plus** digital network system is a state-of-the-art, high-performance gas detection system that combines the proven gas detection of the Ultima gas monitor with the latest digital communication technology.

Ultima **Plus** components can be placed anywhere along the network. Each device has its own identity and the capability to communicate and interact with any other device along that network.

## System Features

- Peer-to-peer communication
- Failsafe system operation
- Elimination of a central supervisory controller or computer
- Reduced wiring and installation costs
- Unlimited number of system configurations and layouts

## System Components



### Ultima **Plus** Gas Monitor

- The heart of the Ultima **Plus** system providing all of the gas detection capabilities for the network.
- Detects the threat of build up of combustible gases, the presence of toxic gases, and oxygen deficiency and enrichment.



### Ultima **Plus** Relay Module

- Provides all alarm relay contacts for each of the three alarm levels and fault conditions within the gas monitors.



### Ultima **Plus** Display Module

- Provides remote viewing status for up-to eight gas monitors, displays gas reading, alarm and fault conditions, along with date of last calibration.

## Operation

These three components work as building blocks for your specific gas detection needs. Determine where your gas detection needs are, what type of alarm relays are necessary, and whether or not a central viewing area for all system conditions is desired and you have configured your own Ultima **Plus** digital network system.

The digital network system typically operates over two sets of twisted-pair wires in a common jacket; one pair for digital communication and the other pair for power. All of the Ultima products, along with many available peripheral devices, can be easily connected to the network through these two twisted cable pairs.

Each device “talks” back and forth with other devices on the network ensuring system integrity. This approach eliminates the need for a central supervisory controller or computer.

Simply hang all of the devices off one cable, power the system, and you have all your gas detection needs met. This all translates into lower up-front system costs, reduced installation costs and higher system reliability.

## Topology Options

The Ultima **Plus** network can accommodate virtually any wiring configuration, allowing up to 8850 feet of communication cable. Repeaters and routers can be added to increase overall system length.

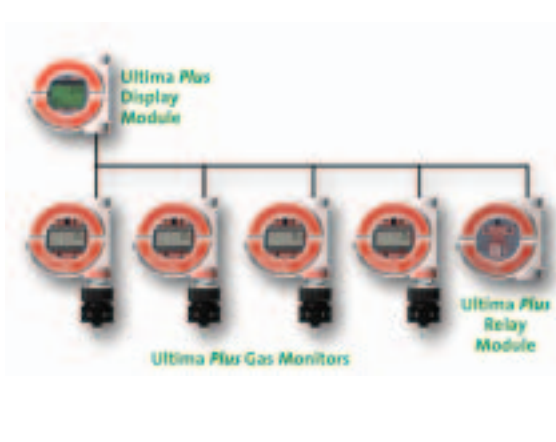
## System Configuration

Ultima **Plus** network systems can be configured in three ways:

### Locally-Configured

For system sizes requiring no greater than 40 gas monitors, 5 relay modules and 5 display modules, a local mode system can be configured on-site. Ultima **Plus** devices are shipped un-configured to the user. Each device is wired in place, powered, and configured by “binding” each Ultima **Plus** gas monitor to relay and / or display modules with the hand-held Ultima Calibrator or Controller. Binding each device is done in seconds. Once completed, the system is ready for complete monitoring operations.

## Topology Examples



Bus Topology



Free Topology

## Factory-Configured

All system requirements, including device numbers, relay controls, and display needs are provided by the end user. The system is configured at the MSA factory and shipped to the customer ready-to-install. Installation becomes a simple matter of mounting each device in place, connecting communication and power cables and powering up the system.

## PC-Configured

This option allows the customer to configure a

system on-site with a PC. Ultima **Plus** devices are shipped un-configured to the user. The user mounts each device, connects communication and power cables to each unit. The system is then configured by the user with a PC and a network software package.

## Expansion and Interfacing

Expansion of any digital network system is as easy as ordering a new component, wiring that component into the network, and configuring the device to communicate

with other user-defined network points.

Ultima **Plus** systems are also capable of interfacing with a number of PC-based Graphical User Interfaces (GUI's) providing complete readout with enhanced graphics, complex control schemes, history and trending, as well as report generation.

Ultima **Plus** networks can also interface with other popular networks such as ModBus, FieldBus, Allen-Bradley Device-Net, standard RS-485.

## Specifications

### Network Only

<b>Number of gas monitors-Relay or Display Modules per segment-</b>	Up to 64- Multiple segments can be connected through the use of routers.
<b>Transmission Speed-</b>	78 kilobits-per-second
<b>Network Wiring-</b>	Two twisted-pairs - unshielded 22 to 16 AWG recommended
<b>Network Length in Doubly-Terminated Bus Topology-</b>	8,850 ft. with no repeaters
<b>Network Length in Singly-Terminated Free Topology-</b>	1,640 ft. with no repeaters
<b>Network Function-</b>	Free topology, transformer-isolated pair transceiver
<b>Network Polarity-</b>	Polarity insensitive
<b>EMI-</b>	Complies with FCC Part 15
<b>ESD-</b>	Designed to comply with IEC801-2, Level 4
<b>Radiated Electromagnetic Susceptibility-</b>	Complies with IEC801-3, Level 3
<b>Listings-</b>	UL 1950, CSA C22.2 No. 950
<b>Operating Temperature-</b>	-40° to +85°C
<b>Operating Humidity-</b>	15-90% RH at 50°C non-condensing

### Network Devices

See specifications for Ultima Gas Monitor, Ultima Relay or Display module or other peripheral devices.

**Note:** This Data Sheet contains only a general description of the product shown. While uses and performance capabilities are described, under no circumstances should the product be used except by qualified, trained personnel, and not until the instructions, labels or other literature accompanying the product have been carefully read and understood and the precautions therein set forth followed. Only they contain the complete and detailed information concerning this product.

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