



# MSA Gas Detection System

[ Wireless Solar-Powered Gas Detection System for Ammonia Monitoring at Electrical Power Plant ]

## Application

An electrical power company needed to monitor ammonia emissions resulting from their selective catalytic reduction (SCR) process (for nitrogen oxide emissions reduction). Since ammonia gas is very toxic as well as explosive in high concentrations, utility facilities are very concerned about leaks or spills.

SCR systems are usually retrofitted to an existing power plant. The installation of gas monitoring equipment can be very expensive due to the need to trench or dig up existing concrete to bury signal and control cables. To eliminate this cost, the power utility requested that the gas sensors be completely wireless.

## Product Description

The MSA Ultima® X gas sensor was designed to be solar powered and to transmit its signal wirelessly to a receiver connected to a process controller or data control system. Two systems were built for the utility company, located in the Southern US. The solar panel, batteries and charge control circuitry were specifically designed for this latitude. The solar panel is large enough to supply power to the ammonia sensor and signal radio, as well as to charge the batteries for night operation.

To completely ensure that leaks are detected no matter which way the prevailing winds are blowing, this utility elected to completely surround their ammonia delivery system. Seven sensors circle the delivery system, with 7 wireless 4-20 signals being simultaneously received at the control room. The control room operator is therefore immediately alerted to the direction of the plume of the leak.



For more information on the standard Ultima X Gas Monitor see data sheet #07-2051.

*Note: This is a representative description of this product and its potential applications. Contact MSA Custom Products at [customproducts@MSAnet.com](mailto:customproducts@MSAnet.com) for information on customizing this unit to fit a specific need.*



### Performance Specifications

<b>Temperature Range:</b>	-40 to +60°C (-40 to +140°F)
<b>Humidity:</b>	15% to 95% RH, non-condensing
<b>Accuracy:</b>	
Repeatability:	±1% full scale or 2 ppm (typical)
Linearity:	±10% full scale or 2 ppm
<b>Response Times:</b>	
T <sub>20</sub>	<12 seconds (typically 6 seconds)
T <sub>50</sub>	<30 seconds (typically 12 seconds)
<b>Power Input:</b>	7-30 VDC
<b>Relay Contact Rating:</b>	5 amp @ 220 VAC; 5 amp @ 30 VDC
<b>Typical Zero Drift:</b>	<5%/ year
<b>Typical Span Drift:</b>	<10%/ year
<b>Noise:</b>	<1% full scale
<b>Typical Sensor Life:</b>	2 years

**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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