

# Ultima® OPIR-5 Open Path Gas Detector



## Installation Guidelines

### 1 Location

#### Factors to consider when selecting locations:

- It is recommended to install the detector on a solid foundation not prone to future ground settling.
- The system should be accessible for occasional response checks.
- The Receiver and Source should be mounted so that the display is visible to aid in alignment.
- Install in low traffic areas—the line of sight between the Source and Receiver should be free from obstructions such as:
  - Parked vehicles or moveable machinery
  - Frequent operator traffic or animal crossings
- Although the Source and Receiver are designed to resist radio frequency interferences, they should not be mounted close to radio sources, near strong magnetic fields or around concentrated sources of heat (i.e. boiler, engine).
- There should be a 3 ft clearance around both the Source and Receiver free from piping, the ground etc.
- Highly reflective surfaces can interfere with units placed in close enough proximity.
- Although the Ultima OPIR-5 Detector is FM 6325 approved, which ensures vibration tolerance, it is recommended to mount away from sources of excessive vibration and away from high voltage/high current power lines.

### 2 Power & Wiring Requirements

#### Power Requirements

The Ultima OPIR-5 Detector is powered by 24 VDC  $\pm$  10% operating.

Electrical Recommendations	
INPUT POWER	20–36 VDC range
SOURCE	24 VDC @ 12 W (max.)
RECEIVER (W/RELAYS)	24 VDC @ 10 W (max.)

Consult factory for lower power consumption options for other configurations.

If the units do not receive adequate power, this can affect unit performance and have the potential to cause erroneous behavior.

	Source	Receiver
OPERATING	0.64 A maximum at 20 VDC input voltage	0.50 A maximum at 20 VDC input voltage
IN-RUSH*	1.66 A maximum at 36 VDC	1.3 A maximum at 36 VDC

\* In-Rush refers to the instantaneous input current drawn by the device when first turned on

#### Cable Requirements

Customers must derive the distance from power supply to device based on cable specifications, expected maximum ambient temperature and cable temperature rise, estimated connection losses, allowances for error in distance measurement, and other variables particular to the customer installation.

#### Sample distances from power supply to Source and Receiver:

Terminal Type	Push	Screw
MAX WIRE SIZE	16 AWG 1.5 mm <sup>2</sup>	14 AWG 2.5 mm <sup>2</sup>
TYPICAL RESISTANCE	5.00 ohms/1,000 ft 16.0 ohms/1,000 m	3.00 ohms/1,000 ft 9.00 ohms/1,000 m
SOURCE	625 ft 195 m	1,040 ft 347 m
RECEIVER	800 ft 250 m	1330 ft 444 m

#### Sample distances from Receiver to analog output load:

AWG	Ohms/1,000 ft	Feet	Meters
#20	11	4550	1,390
#18	7	7140	2,180
#16	5	10,000	3,050

*Because every life has a **purpose**...*

### 3 Environmental Considerations

- Heaters are installed on the windows to prevent condensation—the heater is not designed to keep ice off the lenses.

### 4 Start Up & Warm Up Procedure

- The recommended time for start-up is two minutes
- The recommended time for warm-up time is a minimum of two hours
- After the initial application of power and warm-up, verify that all signal outputs to and from devices and modules are within specification.
- Initial alignment, alignment checking and testing should be performed.

### 5 Alignment

Once the units are installed, it is important to have proper alignment between the Source and Receiver.

1. Measure the distance between the Source and Receiver to determine the optimal adjustment (AJ) value.
2. It is recommended that two people are involved in aligning the unit to speed up the process.  
One person should be at the Source and one person should be at the Receiver.

For additional guidance on alignment, please refer to the [Alignment Guideline document](#) and [video](#).

#### Did you know...

When multiple units are installed, it is important to have adjacent Source and Receivers in order to avoid interference issues. *Figure 1* is an example of a proper install, while *Figure 2* shows incorrect placement of the Source and Receivers.

Figure 1—Correct Placement

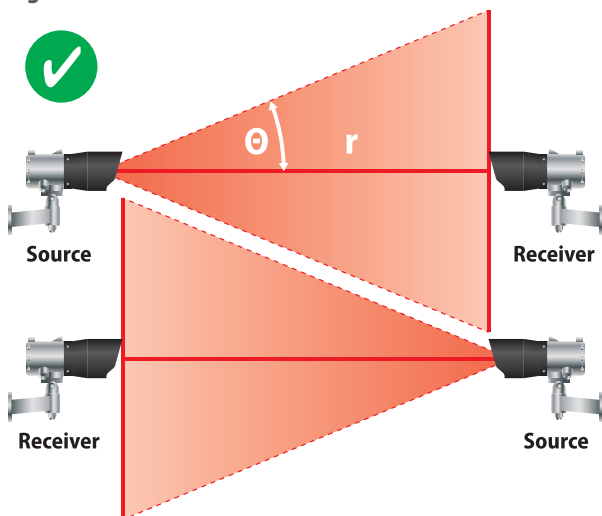
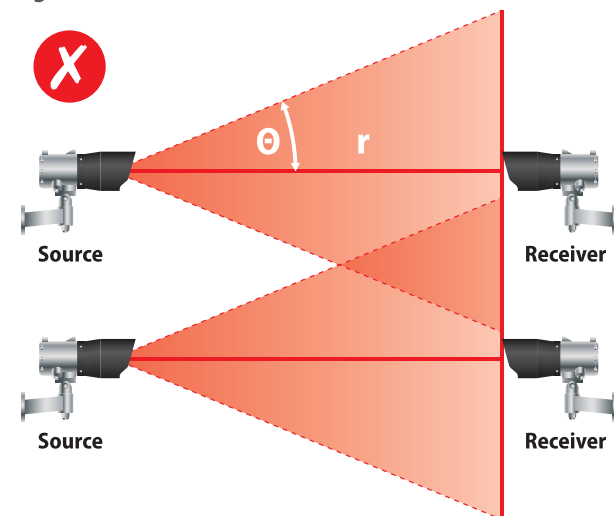


Figure 2—Incorrect Placement



Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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**MSA – The Safety Company**  
1000 Cranberry Woods Drive  
Cranberry Township, PA 16066 USA  
Phone 724-776-8600  
[www.MSAafety.com](http://www.MSAafety.com)

**U.S. Customer Service Center**  
Phone 1-800-MSA-INST  
Fax 1-800-967-0398

**MSA Canada**  
Phone 1-800-672-2222  
Fax 1-800-967-0398

**MSA Mexico**  
Phone 01 800 672 7222  
Fax 52 - 44 2227 3943