



## JUPITER, GAS DETECTION SYSTEM - MODEL HVS4000



### Features

- Integral Galvanic Isolation
- One Person Adjustment-Free Calibration
- Two Discrete LED Indicators
- Sensor can be remote mounted up to 2,000 ft. (610m)
- Remaining Sensor Life Indication
- 4-20 mA Analog Output
- Dual Redundant MODBUS RS-485 User Interface
- Three discrete output relays for status indication

### Benefits

- Design permits hot swapping of electrochemical sensors, simple installation with low cost of ownership.
- Uses a magnetically activated, non intrusive, calibration method.
- Indicates alarm and warning conditions
- Increased installation flexibility
- Reduces downtime by providing “heads-up” on sensor life
- Transmits fault, calibration, and gas concentration levels to a remote display, computer, or other device such as an alarm, dispensing device or master controller.
- Provides remote operation of HVS4000, using 2 redundant channels, to change alarm and warning relay settings, clear selected faults, issue calibration requests and other functions.
- Easy connection to commonly used indicators such as beacons, horns and sounders.

### Description

The Halogen Valve Systems’ Jupiter gas detection system (Model HVS4000) has a 24 VDC-powered base control unit and an interface module and electrochemical cell located in the sensor housing.

The Jupiter monitors a variety of hazardous and toxic gases in parts per million (ppm), including: ammonia, carbon monoxide, chlorine, chlorine dioxide, hydrogen chloride, hydrogen sulfide, nitric oxide, nitrogen dioxide, oxygen deficiency, ozone, and sulfur dioxide. The Jupiter system operates as a universal gas detector by simply replacing the sensors.

The microprocessor-based electronics of the interface module process information at the sensor site and communicate detected gas values to the base unit for data control and display.

The Jupiter system is certified as explosion-proof with intrinsically safe inputs for use in hazardous locations. It can also be used for general-purpose, non-hazardous applications.

### Applications

- Water Treatment Facilities
- Wastewater Treatment Facilities
- Hazardous Gas Use Facilities

### Requiring Gas Detection for:

- Toxic gas storage rooms
- Toxic gas use rooms
- Laboratory facilities
- Toxic gas perimeter areas
- Confined hazardous gas areas

# JUPITER, GAS DETECTION SYSTEM

## System Specifications

<b>Sensor Type:</b>	Electrochemical cell
<b>Typical Life:</b>	2 to 3 years under typical conditions (Electrochemical Cell)
<b>Malfunctions Monitored:</b>	Calibration Errors, Data Memory Errors
<b>Measuring Ranges:</b>	Ammonia (NH <sub>3</sub> ): 0-50, 0-100ppm Carbon Monoxide (CO): 0-100, 0-500 ppm Chlorine (Cl <sub>2</sub> ): 0-10, 0-20 ppm Chlorine Dioxide (ClO <sub>2</sub> ): 0-3 ppm Hydrogen Chloride (HCL): 0-20ppm Hydrogen Sulfide (H <sub>2</sub> S): 0-20, 0-50ppm Nitric Oxide (NO): 0-100ppm Nitrogen Dioxide (NO <sub>2</sub> ): 0-20ppm Oxygen (O <sub>2</sub> ): 0-25% by volume Ozone (O <sub>3</sub> ): 0-1 ppm Sulfur Dioxide (SO <sub>2</sub> ): 0-20 ppm

<b>Response Time:</b> (100% FS Gas Applied):	
Cl <sub>2</sub> and ClO <sub>2</sub> :	T90 < 60 sec
CO, H <sub>2</sub> S and NO <sub>2</sub> :	T90 < 30 sec
HCl:	T90 < 100 sec
NH <sub>3</sub> and O <sub>3</sub> :	T90 < 90 sec
NO and SO <sub>2</sub> :	T90 < 10 sec
O <sub>2</sub> :	T90 < 15 sec

**Repeatability:** ± 2% of full scale except ± 0.1ppm for O<sub>3</sub> ± 0.2ppm for ClO<sub>2</sub> and ± 0.1% of full scale for O<sub>2</sub>

**Zero Drift:** < 5% per year

**Warranty:** Two years for the base unit and interface module; One year for the electrochemical cell

**Approvals:** CSA, ATEX, CE Marking, GOST

## Environmental Specifications

**Operating Temperature Range:**  
(For all gases other than NH<sub>3</sub> and H<sub>2</sub>S):  
-4°F to +122°F (-20°C to +50°C)  
Ammonia: -40°F to +104°F (-40°C to +40°C)  
H<sub>2</sub>S: -40°F to +122°F (-40°C to +50°C)

**Storage Temperature Range** (Base Unit and Interface Module):  
-40°F to +185°F (-40°C to +85°C)

**Storage Temperature Range (cells)\*:**  
32°F to +68°F (0°C to +20°C)

**Humidity Range\*:** 15% to 90% relative humidity, non-condensing

**Pressure Range:** Atmospheric ± 10%

\* Electrochemical cells are sensitive to changes in humidity, particularly at temperatures above 25°C. For these applications, consult our factory

## Mechanical Specifications

<b>Base Unit</b>	
<b>Length</b>	6.6 inches (168 mm)
<b>Height</b>	3.3 inches (84 mm)
<b>Width</b>	4.4 inches (112 mm)
<b>Weight</b>	5.5 pounds (2.5 kg)
<b>Mounting Holes</b>	4.9 inches (124 mm) center to center

<b>Interface Module</b>	
<b>Length</b>	6.6 inches (168 mm)
<b>Diameter</b>	1.75 inches (44 mm)
<b>Weight</b>	1.0 pounds (0.45 kg)
<b>Mounting</b>	0.75 inch NPT
<b>Housing</b>	Anodized Aluminum

## Electrical Specifications

**General Purpose**  
**Installations:** Maximum distance between the HVS 4000 and the power source @ 24VDC nominal (600 Ω load resistor maximum) is 3,000 feet (910 meters)

**Input Power:** 20 to 36VDC range; +24VDC nominal to 0.120amps

**Relay Ratings:** 8A @ 250 VAC / 8A @ 30VDC res. max. (3X) SPDT – Warning, Alarm & Fault

**Output Current:** (600 Ω maximum @ 24VDC)  
Signal Range: 4-22mA  
Fault: < 1.0mA  
Start-up: 4mA  
Calibration: 1.5mA  
Detection Range: 4-20mA  
Over-range: 22mA

**Electrical Classification:** Class I, Division 1 & 2, Groups B, C and D; Class II, Div. 1 & 2, Groups E, F, & G; Class III; Exd ia IIB + H2 T5, Type 4X EEx D mb IIC (-40°C ≤ Ta ≤ +75°C)

**Status Indicator:** LED Display with Normal, Gas Present, Fault and Calibration Cues

**RS-485 Output:** Dual redundant MODBUS RTU, suitable for linking up to 128 units or up to 247 units with repeaters

**Baud Rate:** 2400, 4800, 9600, or 19200 BPS

**Cable Requirements:** 3 wire shielded cable. Maximum between for analog output from the base unit (600 ohms max.):  
14 AWG - 2000 ft. (610m)

Remote mounting of the interface module requires a 4 wire shielded cable to the base unit:  
14 AWG - 2000 ft. (610m)

**Standard Configuration:** HVS4000-xx-0-xx (xx=sensor type)

*Specifications subject to change without notice.*

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