



Monitor up to four remote  
refrigerant sensors

# Vulcain 301EM mechanical room controller



## User Friendly

- Easy to read LCD display
- Auto-diagnostic capabilities

## Economical Solution

- Cost-effective answer for installation in hazardous locations

## Flexible Operation

- Able to operate with up to four remote sensors at a time
- Various sensors available to simultaneously detect a range of different gases
- Robust and reliable RS-485 Modbus communication

## Output Adaptability

- Three 24 Vdc alarm outputs and four 4-20 mA outputs

## Safety Measures

- Four fully programmable relays
- Three alarm levels with built-in visual indicators and audible alarm

## Beneficial Options

- Convenient stand-alone or network operation

**The Vulcain 301EM Expansion Module acts as a controller for up to four remote refrigerant sensors and suits a variety of gas detection system solutions.**

Easily configured to meet ASHRAE 15, B-52 and International Mechanical Code requirements, the 301EM is commonly used to optimize gas detection in mechanical and chiller rooms. A full complement of sensors (including toxic, oxygen, combustible gases and a full line of refrigerant sensors), horns, strobes and remote panels provide added flexibility to suit a variety of gas detection system solutions.


## ASHRAE No 15-2001 Mechanical Standard and B-52 Code Compliance

The ASHRAE and B-52 security standards have been established to minimize risk and protect the safety of mechanical room personnel and the environment at large. Available in a special configuration, the 301EM mechanical room controller has been carefully designed to meet and even exceed these rigorous standards. The Vulcain 301EM can be configured to offer automatic fan, horn and strobe activation in addition to manual fan activation. Latching relay for manual alarm recognition, silence key for manual horn deactivation, built-in 24 Vdc outputs for horn operation, and 2 breakglass switch accessories for manual alarm activation ensure optimal performance.



# Technical summary



General Specification				
Use	Wall mounted mechanical room controller for use with Vulcain range of gas sensors. Four (4) onboard relays can be used to activate alarms or deactivate equipment.			
Power Requirement	22-27 Vac, 29-38 Vdc, 2A max @ 29Vdc			
Size	28 x 20.3 x 7 cm (11.02 x 7.99 x 2.73 in.)			
Weight	1.02 kg (2.25 lb.)			
Distance Between Controller and Sensor	Vulcain 301IRFS refrigerant sensors: Up to 200 ft. / 60.9 m Vulcain S301D2 toxic/combustible sensors: Up to 500 ft. / 152.4 m			
Visual Indicators	Normal Operation	Green LED		
	Alarm Level 1	Red LED		
	Alarm Level 2	Red LED		
	Alarm Level 3	Red LED		
	Signal Tx	Blinking amber LED		
	Failure Indication	Yellow LED		
Alarm Levels	3 with high and low setpoints			
Outputs	4 DPDT relays (alarms and/or fault), buzzer Three 24 Vdc, 250 mA (per output) Four 4-20 mA outputs Modbus RFS option: 24 Vdc built-in red strobe RFSa option: 24 Vdc built-in red strobe & 105 dBA horn			
Relay Output Rating	5 A, 30 Vdc or 250 Vac (resistive load)			
Gases Detected	Gases Detected	Detection Range	Operating Temperature	Operating Humidity Range
	301IRFS			
	Trichlorofluoromethane (R11)	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	Dichlorodifluoromethane (R12)	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	Chlorodifluoromethane (R22)	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	Dichlorotrifluoroethane (R123)	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	Dichlorodifluoromethane (R125)	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	Tetrafluoroethane (R134a)	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	Heptafluoropropane (FE-227) (HFC-227ea)	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	R404a	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	R507a (AZ50)	0-1000 ppm	0 to 40 °C (32 to 104°F)	0-95% non-condensing
	Gases Detected	Detection Range	Operating Temperature	Operating Humidity Range
	301D2			
	Hydrogen Sulfide (H <sub>2</sub> S)	0-50 ppm	-40 to 40°C (-40 to 104°F)	0 - 90% RH, non-condensing
	Carbon Monoxide (CO)	0-250 ppm	-20 to 40°C (-4 to 104°F)	0 - 90% RH, non-condensing
	Oxygen (O <sub>2</sub> )	0-25%	-20 to 40°C (-4 to 104°F)	5 - 95% RH, continuous
	Nitrogen Dioxide (NO <sub>2</sub> )	0-10 ppm	-20 to 40°C (-4 to 104°F)	15 - 90% RH, non-condensing
	Nitric Oxide (NO)	0-100 ppm	-20 to 40°C (-4 to 104°F)	15 - 90% RH, non-condensing
	Sulfur Dioxide (SO <sub>2</sub> )	0-10 ppm	-20 to 40°C (-4 to 104°F)	15 - 90% RH, non-condensing
	Ethylene Oxide (ETO)	0-20 ppm	-20 to 50°C (-4 to 122°F)	15 - 90% RH, non-condensing
	Hydrogen Cyanide (HCN)	0-50 ppm	-20 to 40°C (-4 to 104°F)	15 - 90% RH, non-condensing
	Ozone (O <sub>3</sub> )	0-2 ppm	-20 to 40°C (-4 to 104°F)	15 - 90% RH, non-condensing)
	Hydrogen Fluoride (HF)	0-10 ppm	-20 to 35°C (-4 to 95°F)	15 - 90% RH, non-condensing
	Hydrogen Chloride (HCl)	0-25 ppm	-20 to 40°C (-4 to 104°F)	15 - 95% RH, non-condensing
	Silane (SiH <sub>4</sub> )	0-10 ppm	-20 to 40°C (-4 to 104°F)	20 - 95% RH, non-condensing
	Chlorine (Cl <sub>2</sub> )	0-15 ppm	-20 to 40°C (-4 to 104°F)	10 - 95% RH, non-condensing
	Combustibles - Catalytic	0-100% LEL	-40 to 50°C (-40 to 122°F)	0 - 80% RH, non-condensing
	Combustibles - Infrared	0-100% LEL	-40 to 50°C (-40 to 122°F)	0 - 99% RH, non-condensing
	Combustibles - Infrared	0-100% LEL	-40 to 75°C (-40 to 167°F)	0 - 99% RH, non-condensing
	CO <sub>2</sub> - Infrared	0-5%	-20 to 50°C (-4 to 122°F)	0 - 99% RH, non-condensing
	Fluor (F <sub>2</sub> )	0-2.6 ppm	-10 to 40C (14 to 104F)	15-90% non-condensing
	Accuracy is ± 3%			
Ratings and Certifications				
Certified to	CAN/CSA C22.2 No. 61010-1  116662			
Conforms to	ANSI/UL 61010-1			

As world leaders in gas detection solutions, Honeywell Analytics' Vulcain range of gas detection systems has been designed to provide efficient, practical and cost-effective equipment to protect people from a variety of forms of hazardous gases and to efficiently monitor and control indoor air quality. The equipment is also extremely simple to install and easy to operate and maintain.

## The Vulcain range of fixed gas detection and air monitors



### Vulcain Sensors

From refrigerants to toxic and combustible gases, Honeywell Analytics' Vulcain line has a sensor designed for any industrial or commercial application. With award winning sensor technology, this line of sensors is the answer to any fixed HVAC, IAQ or gas detection concerns.

### Find out more

For more information on Honeywell Analytics' Vulcain line of products, visit [www.honeywellanalytics.com](http://www.honeywellanalytics.com) or contact us at 800 563 2967

### Customer business center

#### Canada

Honeywell Analytics  
4005 Matte Blvd., Unit G  
Brossard, QC, Canada  
J4Y 2P4  
Toll free: +1 800 563 2967  
Tel: +1 450 619 2450  
Fax: +1 888 967 9938  
[detectgas@honeywell.com](mailto:detectgas@honeywell.com)  
[www.honeywell.com](http://www.honeywell.com)

### Customer business center

#### USA, Central and South America

Honeywell Analytics  
Suite 100  
400 Sawgrass Corporate Parkway  
Sunrise, FL  
33325  
Tel: +1 954 514 2700  
Toll free: +1 800 538 0363  
Fax: +1 954 514 2784  
[detectgas@honeywell.com](mailto:detectgas@honeywell.com)  
[www.honeywell.com](http://www.honeywell.com)

### Customer business centre

#### Europe and the rest of the world

Honeywell Analytics  
Wilstrasse 11-U11  
CH-8610 Uster  
Switzerland  
Tel: +41 (0) 44 943 4300  
Fax: +41 (0)44 943 4398  
[gasdetection@honeywell.com](mailto:gasdetection@honeywell.com)  
[www.honeywell.com](http://www.honeywell.com)

### Vulcain Controllers

Designed for industrial or commercial use, the Vulcain 301C monitors and controls toxic gases, combustible gases and oxygen hazards. With the same simple installation and operation and flexibility as the Vulcain 301C, the Vulcain 301EM is specifically designed to fulfill the requirements of a mechanical room.



Vulcain 301M

### Stand-Alone Dual Gas Monitor

For applications where gas detection is only needed at one or two points, the Vulcain 301M offers a simple solution. While continually monitoring for CO, a remote sensor can also be integrated to detect CO, NO<sub>2</sub>, propane, hydrogen or methane with a remote sensor that can be placed up to 200' away.



Vulcain 90DM<sub>4</sub>

### Commercial CO<sub>2</sub> Detection

Using proven infrared dual sensing technology to detect carbon dioxide (CO<sub>2</sub>) the Vulcain 90DM<sub>4</sub> can be either wall or duct mounted to monitor CO<sub>2</sub> levels in your commercial environment.

# Honeywell