MeshGuard
RAE Systems by Honeywell Battery-Powered Wireless Gas Detector
MeshGuard

Battery-Powered Wireless Gas Detector

The RAE Systems by Honeywell MeshGuard gas detection monitor is a key building block of the MeshGuard intelligent network of connected sensors for gas detection in industrial safety and oil and gas applications.

The MeshGuard system is designed for quick deployment in areas where low cost/high ROI solutions are required. MeshGuard is available with field-replaceable precision sensors specifically designed to sense toxic and flammable gases.

Applications

- Oil and gas drilling operations
- Oil and gas production
- Plant maintenance turnarounds
- Industrial safety
- Tank farms
- Shipyards and maritime

Key Features

- Self-forming wireless network; units come online automatically
- Compact and lightweight
- IP-65 rated weather resistant, and splash guard equipped for sensor protection
- Multiple controller options for real-time wireless data collection and viewing
- Self-healing network automatically routes data back to controller through best wireless path available
- Battery powered operation for up to 6 months
- SolarPak provides 24/7 uptime
- Intrinsically Safe
- Magnetic mounting option for quick and easy MeshGuard installation

Fastest deployment and decommissioning time

Simple to install and operate

Rugged and reliable

Versatile to accommodate many applications
MeshGuard

Battery-Powered Wireless Gas Detector

**DETECTOR SPECIFICATIONS**

**Basic parameters**
- Visual Alarm: 2 super-bright red LEDs
- Audible Alarm: 90dB @ 30cm
- Calibration: Two-point field calibration
- RF Frequency: 2.4GHz ISM Band, IEEE 802.15.4 standard compliant
- Operating Range: 300 meters / 985 feet (line of sight)
- Keypad: Three operation and programming keys
- Display: Customised LCD (1” x 1.5”/ 72mm x 108mm) with backlight
- Power Supply: Disposable Lithium Battery, +3.6V (optional rechargeable external battery for extended run time)
- Operating Time:
  - Toxic Gas Sensors: Up to 6 months on internal battery (up to 2 years on external)
  - Flammable Gas Sensor: Up to 21 days on external PowerPak battery
  - LEL IR Gas Sensor: Up to 2 months on internal battery** (up to 1 year on external)
- IP Rating: IP-65

**Environmental parameters**
- Operating Temperature:
  - -40° C to +50° C (-40° F to 122° F) for LEL, LEL IR, CO and H2S sensors.
  - Other sensors: -20° C to +50° C (-4° F to 122° F)
- Humidity: 5% to 95% relative humidity, non-condensing

**Physical parameters**
- Size: 26.5cm x 9.5cm x 5.5cm (10.5” L x 3.7” W x 2.1” H)
- Weight: 0.6kg (1.3 lbs)

**Certifications**
- Wireless Frequency: ISM license free band, IEEE 802.15.4 2.4 GHz
- Wireless Approvals: PCC Part 15, CE R&TTE, Others***
- Radio Module: Supports RM2400A
- Certifications:
  - US and Canada: Class I, Division 1, Groups A, B, C, D, T4
  - Europe: ATEX IM1/II 1G Ex ia I/IIC T4
  - Customs Union: PO Ex e1ⅠMa/0Ex ia IIC T4 Ga
  - P9 Ex d i Mb/1Ex d ia IIC T4 Gb
  - Contact manufacturer for country-specific certification

**SENSOR SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Range</th>
<th>Resolution</th>
<th>Response Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2S</td>
<td>0 to 100 ppm</td>
<td>0.1 ppm</td>
<td>T90 &lt; 30 sec / T10 &lt; 30 sec</td>
</tr>
<tr>
<td>H2S</td>
<td>0 to 1000 ppm</td>
<td>1 ppm</td>
<td>T90 &lt; 45 sec / T10 &lt; 45 sec</td>
</tr>
<tr>
<td>LEL / LEL IR</td>
<td>0 to 100% LEL</td>
<td>1% LEL</td>
<td>T90 &lt; 30 sec / T10 &lt; 30 sec</td>
</tr>
<tr>
<td>CO</td>
<td>0 to 2000 ppm</td>
<td>1 ppm</td>
<td>T90 &lt; 30 sec / T10 &lt; 30 sec</td>
</tr>
<tr>
<td>CO2 IR</td>
<td>0 to 50% Vol</td>
<td>0.01% Vol</td>
<td>T90 &lt; 30 sec / T10 &lt; 30 sec</td>
</tr>
<tr>
<td>O2</td>
<td>0 to 25% Vol</td>
<td>0.1% Vol</td>
<td>T90 &lt; 30 sec / T10 &lt; 30 sec</td>
</tr>
<tr>
<td>NH3</td>
<td>0 to 100 ppm</td>
<td>1 ppm</td>
<td>T90 &lt; 30 sec / T10 &lt; 90 sec</td>
</tr>
<tr>
<td>Cl2</td>
<td>0 to 10 ppm</td>
<td>0.1 ppm</td>
<td>T90 &lt; 30 sec / T10 &lt; 30 sec</td>
</tr>
<tr>
<td>SO2</td>
<td>0 to 20 ppm</td>
<td>0.1 ppm</td>
<td>T90 &lt; 60 sec / T10 &lt; 60 sec</td>
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<td>T90 &lt; 60 sec / T10 &lt; 60 sec</td>
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<tr>
<td>HCN</td>
<td>0-50 ppm</td>
<td>0.5 ppm</td>
<td>T90 &lt; 200 sec / T10 &lt; 200 sec</td>
</tr>
<tr>
<td>NO</td>
<td>0-250 ppm</td>
<td>0.5 ppm</td>
<td>T90 &lt; 45 sec / T10 &lt; 45 sec</td>
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<td>PH3</td>
<td>0-20 ppm</td>
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<td>T90 &lt; 60 sec / T10 &lt; 60 sec</td>
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<tr>
<td>HCl</td>
<td>0-15 ppm</td>
<td>1 ppm</td>
<td>T90 &lt; 200 sec / T10 &lt; 200 sec</td>
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<td>ETO-A</td>
<td>0-100 ppm</td>
<td>1 ppm</td>
<td>T90 &lt; 45 sec / T10 &lt; 45 sec</td>
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<td>ETO-B</td>
<td>0-10 ppm</td>
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<td>T90 &lt; 45 sec / T10 &lt; 45 sec</td>
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<td>ETO-C</td>
<td>0-500 ppm</td>
<td>10 ppm</td>
<td>T90 &lt; 45 sec / T10 &lt; 45 sec</td>
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<tr>
<td>NO2</td>
<td>0-20 ppm</td>
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<td>HF</td>
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<td>T90 &lt; 200 sec / T10 &lt; 200 sec</td>
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**MeshGuard Ordering Information**

MeshGuard Detector Includes:
- MeshGuard detector with sensor as specified
- Operation and maintenance manual
- Calibration gas test adapter
- High-capacity Lithium battery installed
- Maintenance tool

**Mesh Guard System Configuration Options**

**FMC 2000 Controller**
- Supports up to 24 MeshGuard Detectors

**PC Controller**
- Supports up to 500+ MeshGuard Detectors

**RAEPoint**

- MeshGuard inside protective stainless-steel housing

**MeshGuard Sensor Specifications**

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**Specifications are subject to change**

**MeshGuard LEL IR units operating in temperatures below -20°C (-4°F) may require a PowerPak external battery for extended runtimes**

**Contact Honeywell for country specific wireless approvals and certificates**
RAE Systems

RAE Systems by Honeywell MeshGuard monitors detect a wide range of gases and quickly relay their data to a central controller in a self-forming, self-healing mesh radio network.

MeshGuard is rapidly deployable in industrial and remote monitoring applications. All detectors are certified for the most hazardous environments—Class I, Division 1 or Zone 0. A variety of accessories are available for use with the MeshGuard wireless gas detection system.

RAE PowerPak

The RAE PowerPak is a rechargeable, external battery used to extend the run time of MeshGuard detectors.

PowerPak is Class I, Division 1 (Zone 0) certified

Hot swappable in the field

PowerPak can operate an LEL detector for 20+ days, or an electrochemical sensor for 18+ months

**SPECIFICATIONS**

<table>
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<tr>
<th>Specifications</th>
<th>Details</th>
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<tr>
<td>Size</td>
<td>14.25” H x 10.2” W x 5.75” D (36.2cm x 26cm x 14.6 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>15kg (33 lbs) with four internal batteries</td>
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<tr>
<td>Operating Temperature</td>
<td>-40° C to +55° C (-40° F to 131° F)</td>
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                      | Europe: ATEX IML/II 1G Ex ia I/IIC T4  
                      | Customs Union: PO Ex ia I Ma/0Ex ia IIC T4 Ga  
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*Specifications are subject to change.

Mesh Router

The Mesh Router allows wireless sensor networks to be deployed at greater distances from a central controller. MeshGuard Monitors and Routers work together to find the best possible transmission path for the sensor readings.

The MeshRouter displays the realtime wireless signal strength at any given location, which enables rapid determination of suitable locations for MeshGuard Monitors.

The Mesh Router is a Class I, Division 1 (Zone 0) portable wireless device that has two primary functions:

1. To extend the wireless transmission range between points.
2. As a system deployment tool. Prior to deploying detectors, the Mesh Router can provide real-time signal strength at any given location.

The Mesh Router can operate continously for 10+ days with an internal battery or 45+ days with an external PowerPak.
MeshGuard Accessories

Battery-Powered Wireless Gas Detector

RadiantReader
Real-time Wireless Communication

The RadiantReader acts as a hub to connect wireless gas monitors to a PC running ProRAE Guardian for real-time data insight and management.

- RadiantReader can communicate with up to 100 remote monitors directly.
- ProRAE Guardian supports up to five RadiantReaders to give a total capacity of 500 monitors.
- The RadiantReader can connect directly with a PC via its COM port, or one or more RadiantReaders can be networked through a TCP/IP connection via Ethernet to push sensor data to ProRAE Guardian or third party control system through MODBUS TCP/IP.
- A networked setup allows visibility of 500 monitors on other PCs running ProRAE Guardian.

EchoView

The RAE Systems by Honeywell EchoView is a portable, intrinsically safe (Class I, Division 1 and Zone 0) alarm notification device that allows you to monitor your sensor network remotely. It displays the sensor readings of up to 16 MeshGuard Monitors on a wireless network and retrieves all monitor information that is typically viewed on the system controller.

- Class I, Division 1 (Zone 0) certified
- Customs Union: Ex ia IIC T4 Ga/PO Ex ia I Ma
- Allows users to be away from the controller and still be notified of alarm conditions
- The EchoView gets all sensor readings directly from the controller
- 10+ days run time with internal battery, 45+ days run-time with external PowerPak
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