



# ChemRAE

## Portable, Wireless, Chemical Warfare Agent Detection

ChemRAE is the latest in state-of-the-art handheld Chemical Warfare Agent detection and identification systems. It is RAE Systems' next-generation sensor technology based on tested and proven Open Loop Ion Mobility Spectrometry (IMS) technology. The ChemRAE uses an improved Ion Mobility Cell™, which provides enhanced selectivity and sensitivity. It is designed to detect Chemical Warfare Agents (CWAs) and toxic industrial chemicals (TICs).

ChemRAE can be used as a stand-alone portable monitor or integrated into an AreaRAE network by using a RAELink2 modem. Integration into an AreaRAE network allows users to add CWA detection to their existing complement of AreaRAE and RAE Systems portable gas monitors.

The ChemRAE weighs less than 2 lbs. and can be powered by a rechargeable lithium-ion battery pack or AA batteries. The system has clear, simple user interface, which can be operated with just one hand. The display provides the operator with identification of the agent and agent class, a bar graph of agent concentration and relative time-based dose. The display also shows a battery life indicator, audible alarm level, date and time.

The ChemRAE stores agent alarm information for retrieval at a later time to provide a historical log of events. When integrated into an AreaRAE network, ChemRAE's data is automatically logged by the ProRAE Remote base station computer.

ChemRAE is equipped with two detection libraries for detection of a wide range of chemical weapons and toxic industrial chemicals of interest to first responders.



### Key Features

- Industry-leading IMS technology
- Wireless integration into AreaRAE networks
- Dosage Measurement
- Agent Identification
- Adjustable Sensitivity
- Light weight
- Simple one-hand operation
- Low life-cycle cost with no consumable components

### Applications

- First Responder CWA Monitor
- Personal Protection Monitor
- HazMat Management
- Fixed and Vehicle-Mounted CWA Monitoring

### Optional Accessories

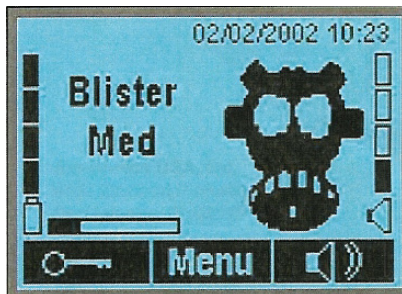
- External lithium battery charger
- Alkaline battery adapter

The ChemRAE is small enough to use as a personal detector, a monitor for surveying contaminated areas or a fixed installation detector. It provides continuous operation, and unlike other IMS systems it does not require expendable desiccant cartridges. The ChemRAE has no consumables and is designed for low life-cycle and operating costs.

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## Specifications\*

Chemical Detected	Low Alarm Limit (ppm)	Low Alarm Limit (mg/m3)
<b>Nerve Agents</b>		
GA (Tabun), GB (Sarin),	0.2	0.02
GD (Soman), GF (Cyclo-Sarin) / VX	0.1	0.01
<b>Blister Agents</b>		
HD (Sulphur Mustard)	0.312	2.00
L (Lewisite)	0.242	2.00
<b>Blood Agents</b>		
Ethylene Oxide	100	180
Acrylonitrile	100	217
Hydrogen Sulfide	10	14
Arsine	5	16
Ammonia	400	278
Phosphor Trichloride	25	140
Carbon Disulphide	500	1557
Allyl Alcohol	40	95
<b>Physical Dimensions</b>		
Weight with Battery	1.8 lbs. (0.8 kg)	
Height	9" (229 mm)	
Width	4" (102 mm)	
Depth	2" (51 mm)	
<b>Environmental</b>		
Operating Temperature	-22° F to +131° F (-30° C to +55° C)	
Storage Temperature	-40° F to +158° F (-40° C to +70° C)	
EMI	MIL-STD-461C	
EMP	MIL-STD-462	
Vibration	MIL-STD-810D	
Shock	MIL-STD-810D	
Data Interface	RS-232 adapter	
<b>Power</b>		
Line Power	120/240 VAC	
Rechargeable Battery	Li-Ion	
Recharge Time	Approximately 5 hours	
Chargers	Battery charges in the monitor or in an optional stand-alone charger	
Alkaline Battery	6 AA batteries using optional alkaline battery adaptor	

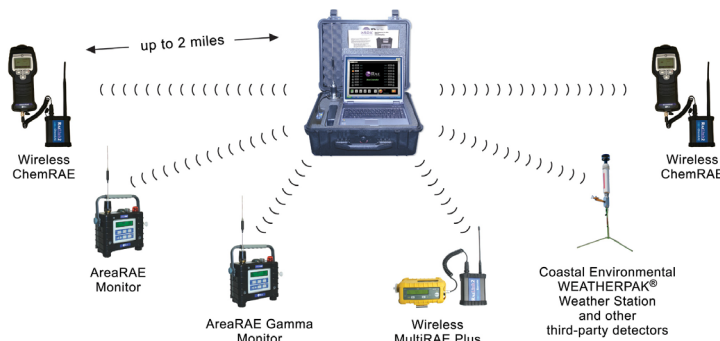


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## RAELink2 Specifications\*

<b>Operating Mode</b>	Point to multi-point
<b>Size</b>	4.4" L x 3.4" W x 2.0" H (112mm x 87mm x 50 mm) without antenna
<b>Weight</b>	0.9 lbs. (0.4 kg) with built-in battery pack
<b>Battery</b>	Rechargeable, 7.4V/1.8Ah, Lithium-ion battery pack with built-in charger (less than 10 hours charge time)
<b>Operating Hours</b>	24 hours continuous operation
<b>Frequency</b>	902 - 928 MHz (license-free ISM band)
<b>Spreading Method</b>	Frequency hopping
<b>Hopping Patterns</b>	15
<b>Hopping Channels</b>	50 to 112
<b>Range</b>	Up to 2 miles (varies with antenna)
<b>Peak RF Power</b>	1 watt (+30 dBm)
<b>Modulation</b>	Spread spectrum GSK, 120 or 170 kbps
<b>Occupied Bandwidth</b>	230 kHz
<b>Receiver</b>	
<b>Sensitivity</b>	-108 dBm at 10 <sup>-6</sup> raw bit error rate
<b>Selectivity</b>	40 dB at f <sub>c</sub> , 230 kHz 60 dB at f <sub>c</sub> , 460 kHz
<b>Data Transmission</b>	
<b>Error Detection</b>	32 bit CRC, resend on error
<b>Link Throughput</b>	115 kbps
<b>Interface</b>	RS-232, 19.2 kbps
<b>Intrinsic Safety</b>	RAELink2 and ChemRAE are not rated for intrinsically safe applications.

\*Specifications are subject to change



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