

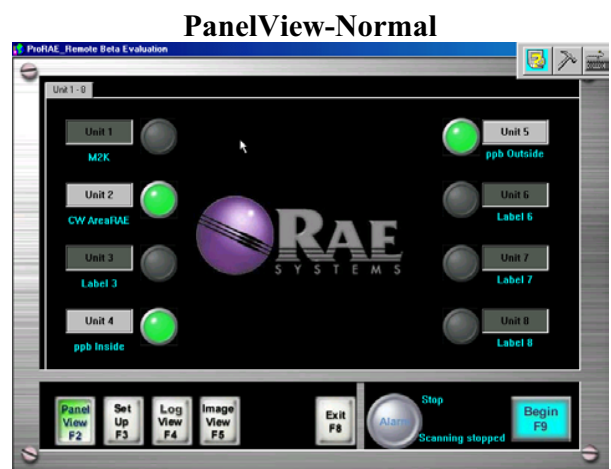
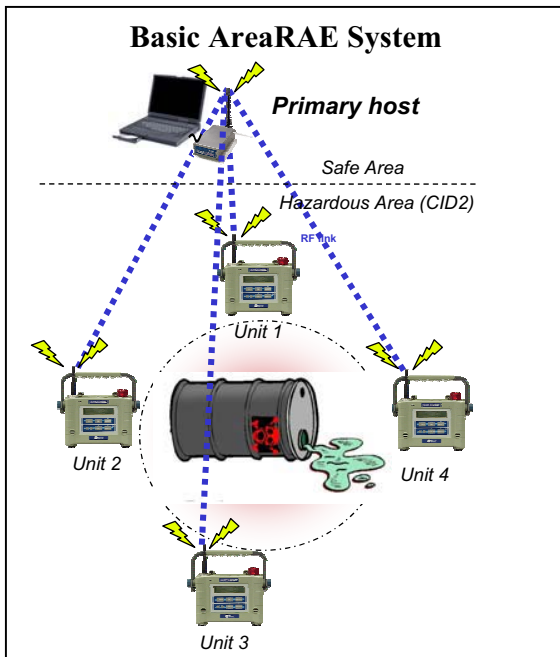
UNDERSTANDING AREARAE OPTIONS

AreaRAE is a system of wireless gas sensing products. These products are battery powered and portable, yet they have the ability to continuously provide data to a central host running ProRAE Remote software up to 2 miles away. In effect, AreaRAE systems provide a temporary fixed gas monitoring alternative for applications that require flexibility like HazMat Response, Chemical and Petroleum plant turn-arounds. AreaRAE systems also can be mounted permanently when necessary. The wireless nature of this system reduces installation costs as expensive communication wires don't need to be brought to the AreaRAE sensors. AreaRAE systems consist of a host running ProRAE Remote and variety of remote sensing options.

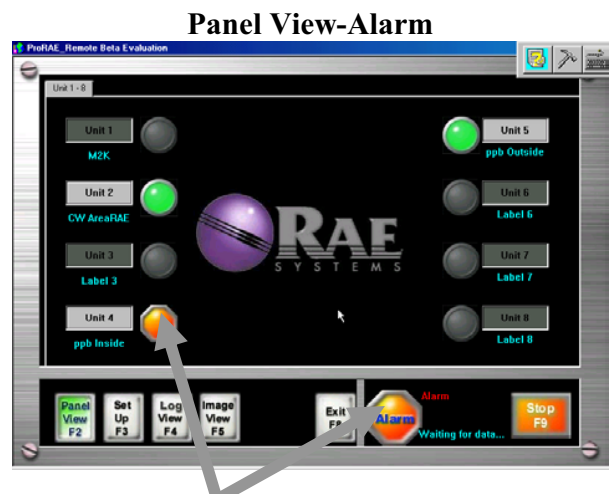
- Can communicate back to the remote sensor with text messages
- With GPS option, displays location of individual remote monitors on a geographic map

ProRAE Remote: Panel View

Panel View is the main window that emulates a traditional hardwired panel display providing display ID and normal (green) or alarm status (flashing red) of each monitor in the system in real time.



Alarms: panel view will provide audible alarms using a simulated voice along with visual alarms.



Red "Stop Sign" Alarm Indicator

ProRAE Remote

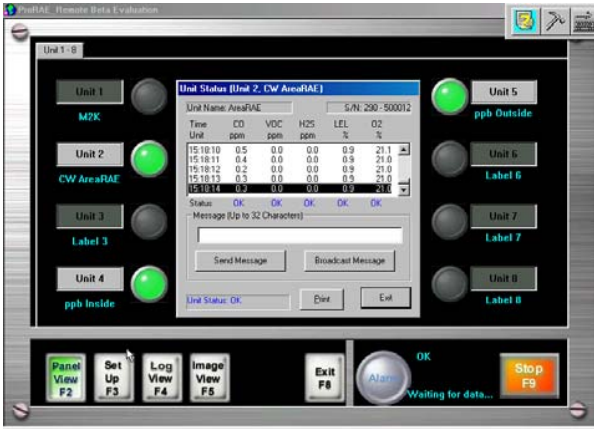
ProRAE Remote is the PC based software that provides a simple user Windows™ interface that integrates the outputs of remote sensors into user-friendly displays. It also facilitates real-time, two-way wireless communication between AreaRAE and base controller including:

- Continuously displays sensor data
- Shows alarm status when necessary
- Can send alarm to cell phones and pagers



Status window: pop-up window on panel or image view showing current reading, history of each sensor reading and alarm status of a specific monitor.

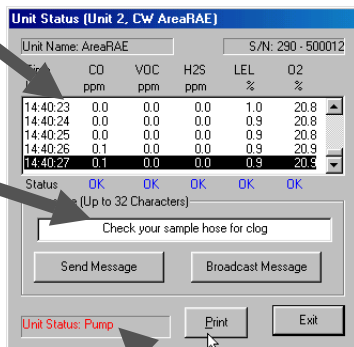
Panel View-Status Window



Status Window-Detail

Displays data from remote sensors: every sensor reading is updated at the master polling interval

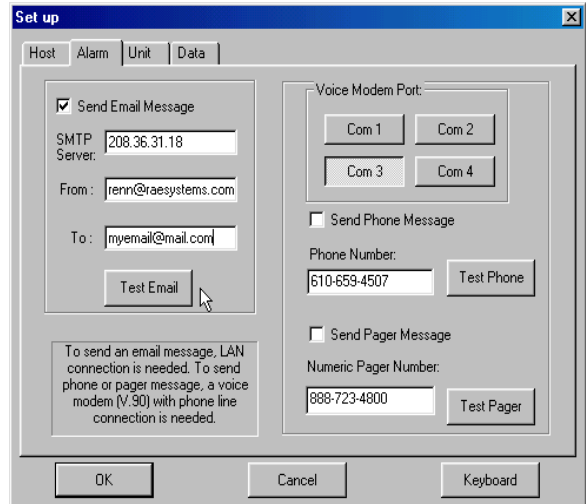
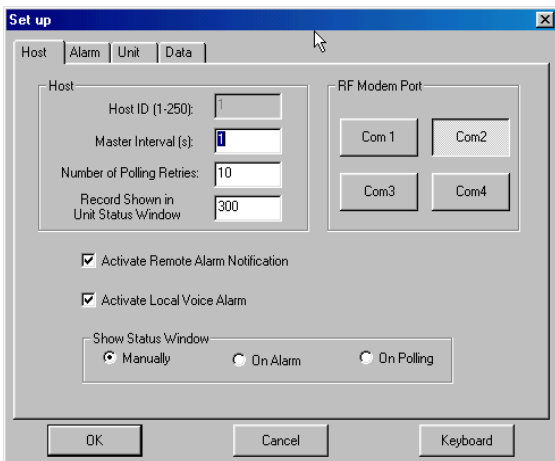
Text Message: Can send command to remote monitor to activate audible and visual alarm along with text messages to the display on the remote sensor(s)



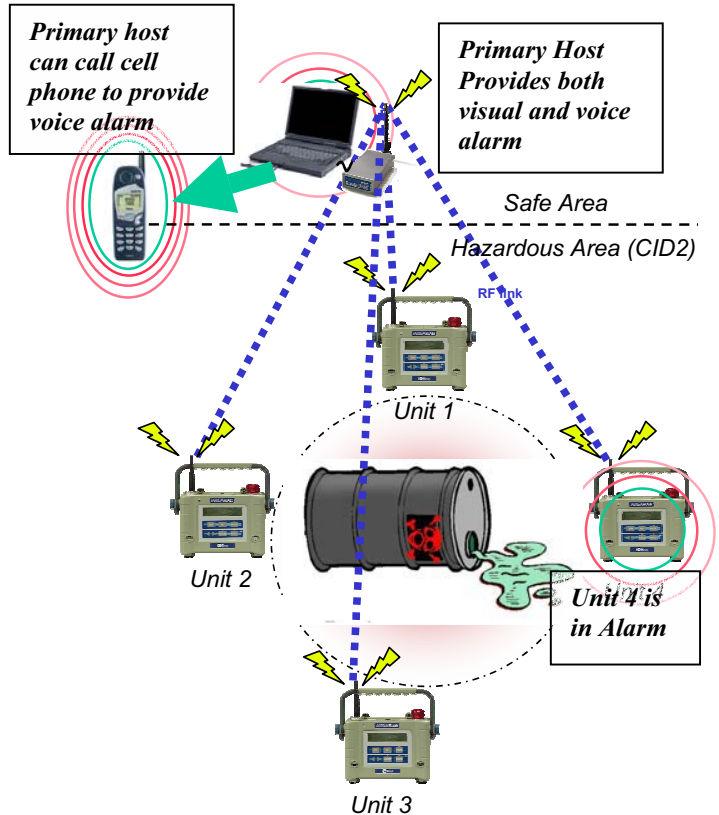
Alarm Box: red text display shows pump is clogged

ProRAE Remote: Set Up

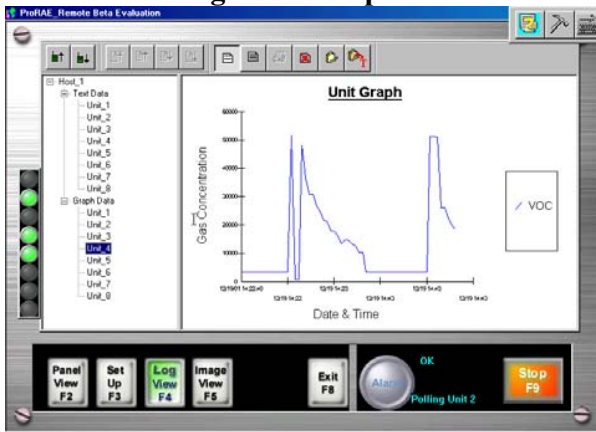
Host Tab: Sets up COM port, master polling interval, number of polling retries before loss of signal alarm. Also turns on local voice alarm and remote alarm annunciation.



Alarm Tab: In addition to visual and voice prompted alarms at the main host controller, ProRAE Remote can send alarm notification out via e-mail, page or even a phone call to your cell phone (with voice alarm option package). When hooked up to a phone line, the host computer can call any phone and provide a simulated voice message of the alarm status. This allows the AreaRAE system to be set up and left running without the requirement for an operator at the host controller at all times. This feature is particularly useful long term in security applications.



Log View-Graphics



ProRAE Remote: Log View

Log view can show the history of each remote unit on the AreaRAE system as either text or graphic data.

Log View-Text

Record Index	Date and Time	CO ppm	VOC ppm	H2S ppm	LEL
79429	07-24-01 14:47:40	0.0	0.1	0.1	0
79430	07-24-01 14:47:41	0.0	0.1	0.1	0
79431	07-24-01 14:54:40	0.0	0.0	0.0	0
79432	07-24-01 14:54:49	0.0	0.0	0.1	0
79433	07-24-01 14:54:50	0.0	0.0	0.1	0
79434	07-24-01 14:54:51	0.0	0.0	0.2	0
79435	07-24-01 14:54:52	0.0	0.0	0.2	0
79436	07-24-01 14:54:53	0.0	0.0	0.2	0
79437	07-24-01 14:54:54	0.0	0.0	0.2	0
79438	07-24-01 14:54:55	0.0	0.0	0.2	0
79439	07-24-01 14:54:56	0.0	0.0	0.1	0
79440	07-24-01 14:54:57	0.0	0.0	0.0	0
79441	07-25-01 14:54:52	0.0	74.2	0.2	0
79442	07-25-01 14:54:05	0.0	49.2	0.2	0

ProRAE Remote: Image View

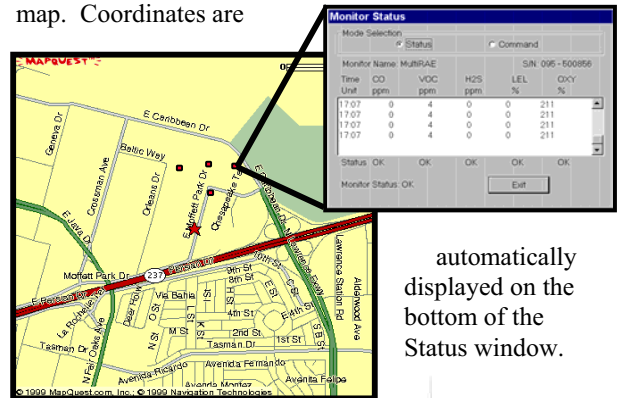
Image view allows users to place the remote unit on an imported map (bmp, jpg, gif). This is perfect for indoor applications when GPS will not work. Status windows can be shown on this view just like panel view.

Image View



ProRAE Remote: GPS View

The GPS option on ProRAE Remote allows users to see GPS equipped AreaRAE units placed automatically on a map. Coordinates are



automatically displayed on the bottom of the Status window.

(Global Positioning Satellite) Receiver can be optionally added to AreaRAE to automatically provide position information ProRAE Remote with the GPS option.

- Approved for Class I, Div 2 hazardous areas
- 14 hour run time with Li-Ion battery pack
- Latitude and longitude information on ProRAE Remote-GPS
- **For outdoor use only**, as satellite signals cannot penetrate most buildings
- "Satellite" symbol on the AreaRAE display shows the GPS signal quality product



GPS Antenna

ProRAE Remote-Operating Systems Supported

ProRAE Remote supports the following operating systems:

- Windows™ 98
- Windows™ 2000
- Windows™ NT
- Windows™ XP

Turn-Key System

- Includes Notebook PC loaded with ProRAE Remote Software
- Totally configured, just turn it on & go
- Controls up to 16 remote units
- RAELink Modem: includes antenna, cable and RS-232 cable
- PN: 029-5110-000



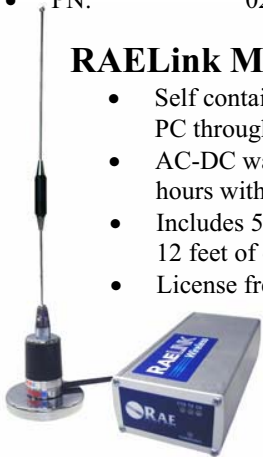
Basic Host Package

- Customer Supplies PC
- ProRAE Remote Software loaded from CD and system configured by customer
- Controls up to 16 remote units
- RAELink Modem
- PN: 029-5001-000



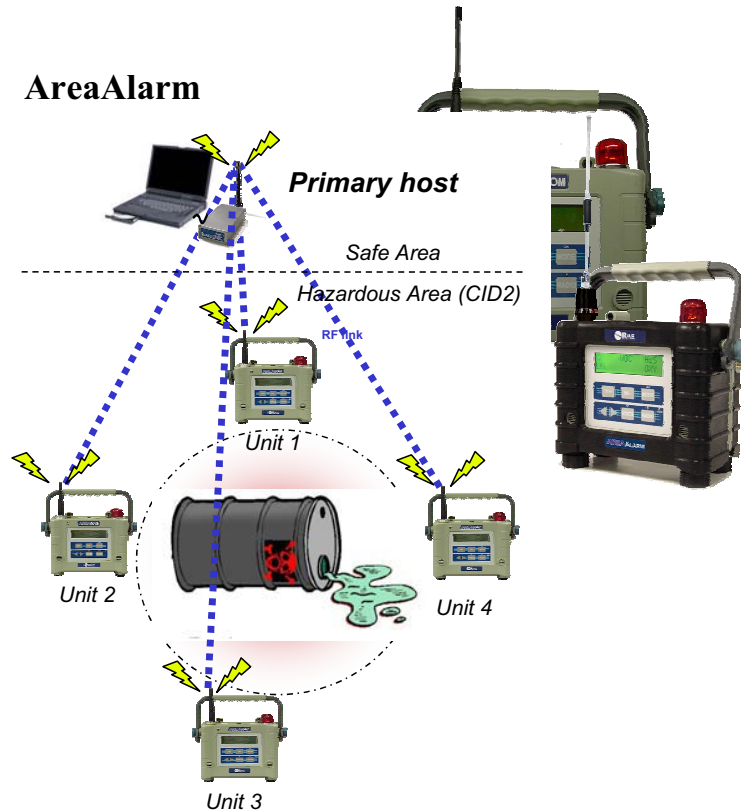
RAELink Modem

- Self contained RF modem connects to a PC through an RS-232 port
- AC-DC wall mount adapter or up to 18 hours with internal Li-Ion battery
- Includes 5dB magnetic mount antenna & 12 feet of cable
- License free RF Frequency: ISM (Instrument Scientific Medical) Band: 902-928 MHz (US, Mexico, Canada)
- Range: based upon antenna, with 5 dB



antenna shown approximately 2 miles

AreaAlarm



Example of a Basic System

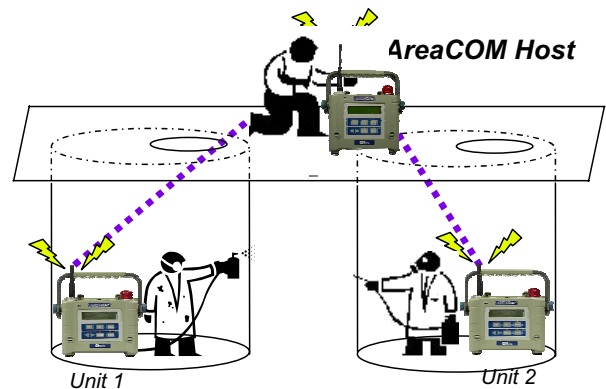
In this application, 4 AreaRAEs are used to define the perimeter (North, South, East & West) on a Hazardous Materials (HazMat) response.

Components

- Customer supplied PC
- 029-50001-000: ProRAE Remote Basic Host Software Package
- 039-3121-1000: (4) AreaRAEs but can be expanded up to 16 remote units

AreaCOM

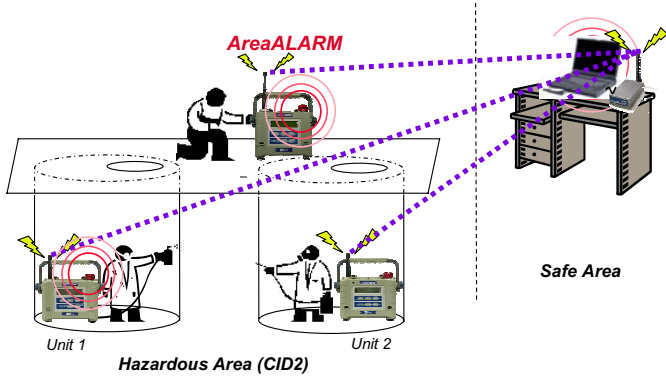
- AreaCOM is a rugged and simple all-in-one portable controller for the AreaRAE system replacing the PC-based controller and RAELink modem.
- It allows an attendant in a CID2 hazardous environment to monitor up to 8 remote units
- It will display the status of the remote AreaRAE units and activate the alarm when any one of the remote units is in alarm condition.
- 30 hr run time w/Li-Ion Battery
- User programmable polling period, maximum number of units and data display mode but can't save data
- CID2 AreaCOM allows Attendant in Hazardous Area to monitor multiple confined spaces
- **Components**
 - 029-5020-000: AreaCOM Host
 - 039-3121-1000: (2) AreaRAEs but can be expanded up to 8 remote units



- AreaALARM is a remote wireless **alarm only** unit that allows an operator in a CID2 Hazardous Area (like CSE attendants) to passively see the status of up to 7 deployed AreaRAE units without the ability to control these units
- AreaALARM will activate audible and visual alarms when any one of the AreaRAE units is alarming
- 30 hr run time w/Li-Ion Battery
- AreaRAE Primary Host is located in Supervisor's office in a Safe Area
- AreaALARM allows Attendant in Hazardous Area to monitor but not control settings for multiple confined spaces

- **Components**

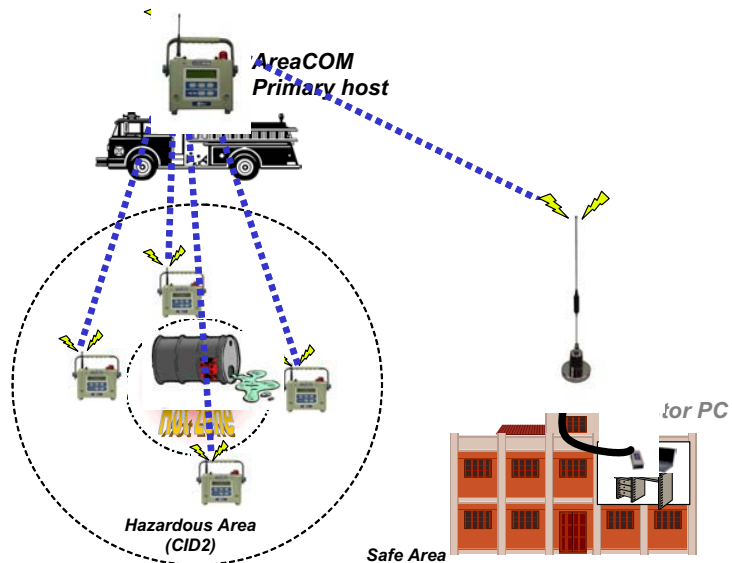
- 029-5110-000: ProRAE Remote Host Turn-Key System
- 039-5020-100: AreaALARM
- 039-3121-100: (2) AreaRAEs but can be expanded up to 8 remote units for AreaALARM



MiniRAE 2000s or ppbRAEs)

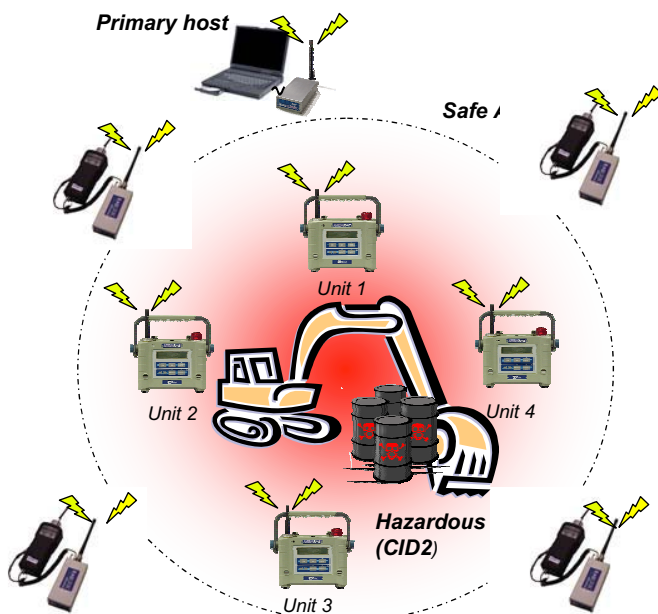
AreaRAE System with ProRAE Monitor

- Allows a second PC to passively monitor but not control the AreaRAE System
- Monitor PC will show the same user interface as ProRAE Remote
- In the example below the AreaCOM is used as the primary host at scene and the supervisor can remotely monitor the incident from office
- Polling, messaging and remote control functions are not supported in the "Monitor"
- Remote alarm notification and datalogging are supported in the "Monitor."



AreaRAE System with ppbRAE or MiniRAE 2000

- CID2 safe AreaRAEs operate in remediation site "Hot Zone"
- "Fenceline" perimeter monitoring handled by the ultra-sensitive ppbRAE
- ppbRAE and MiniRAE 2000 can run continuously (24/7) using "duty-cycling" standard in firmware 1.20 (ref. TN-165)
- **Components**
 - 029-5110-000: ProRAE Remote Host Turn-Key System
 - (4) 029-5002-100 RAELink Communications Kit for the 4 ppbRAEs on the outer perimeter
 - 039-3121-100: (4) AreaRAEs but can be expanded up to 16 remote units (including

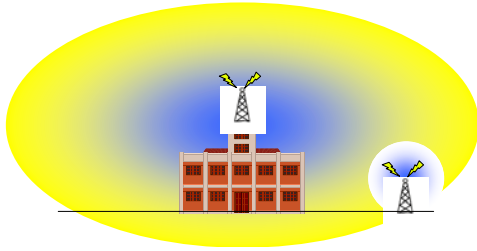


- **Components**

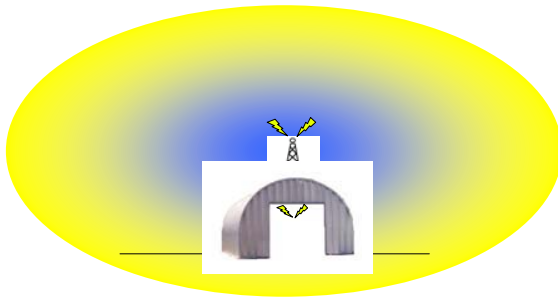
- 029-5020-000: AreaCOM Primary Host (Turn-Key or Basic Host package could be used)
- 029-5002-000: Basic ProRAE Remote Monitor Display kit includes software and modem
- Customer supplied PC for Monitor
- 029-7105-000: Remoted outdoor (Yaki) antenna 10dB high gain directional antenna with 50 feet (15 meters) of cable from modem in office to antenna on roof
- 039-3121-1000: (4) AreaRAEs but can be expanded up to 8 for AreaCOM or 16 remote units (including MiniRAE 2000s or ppbRAEs) if ProRAE Turn-Key or Basic Host Package were used

AreaRAE Antenna Options

- Get the Antenna High



- Even the same antenna up high has much more coverage
- The higher the antenna the better the signal reach
- The cable from the host to the antenna may not exceed 50 feet (15 meters)
- Some materials can block the signal from the antenna shielding its output
- Metal buildings like a Quonset hut and even chain link fences can totally block the antenna's signal
- Often it is necessary to put the antenna outside or above of the shielding structure



5dB Antenna

- The 5dB antenna comes with the Basic Host Package and the Remote Monitor Package.
- It features a magnetic mount and 12 feet (3.6 meters) of coaxial cable
- magnetic mounts are an ideal way to temporarily install an antenna on a vehicle, fence post, or any ferrous structure. Corrosion resistant materials and a strong magnet make sure that it will last for years.
- Range: less than < 2 miles (3.2 km)



Whip Antenna

- The 8 inch Whip antenna is for portable applications and attaches directly to the RAELink modem
- The Whip compromises power for small size
- Range: 0.5-1 mile (0.8-1.6 km)

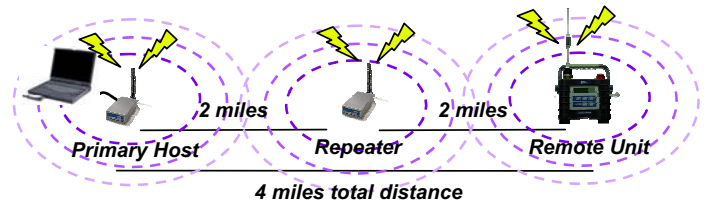


Outdoor Remote Antenna

- The Remoted outdoor antenna is a 5dB antenna with a pipe mounting bracket for permanent mounting to a structure.
- It can be remotely mounted up to 50 feet (15 meters) from the modem
- PN: 029-7104-000 with 25 feet (7.6 meters) of cable
- PN: 029-7105-000 with 50 feet (15 meters) of cable

Repeaters

- When other antenna options have been tried and failed, repeaters allow the signal to be boosted along the way so that a strong signal is available for the host computer
- Repeater is CID2 intrinsically safe when operated on battery, it can be run continuously off of AC power when located in a safe location
- **Components**
- 029-5110-000: ProRAE Remote Host Turn-Key System
- 029-5003-000: AreaRepeater
- 039-3121-1000: AreaRAE (up to 16 remote units)



Sharing AreaRAEs

- When two AreaRAE networks have the same network ID only one primary host may operate within the wireless transmitter's range (typically 2 miles) or serious data corruption may take place (Ref. TN-164 "Sharing AreaRAEs")
- Proper planning at the time of purchase can provide AreaRAE users with the ability to operate systems separately yet combine them in times of need.

