



## AquaMon<sup>®</sup> 900 MHz Repeater Nodes



### AquaMon Introduction:

AquaMon is a tool for modern farming. It automatically collects data from local and remote sensors and uploads the sensor data to the web server. Once the data is resident on the web server, RSVP (Remote Sensor Viewing Platform) displays it in the format chosen by the grower. The system also works in reverse; the grower's web server inputs controlling field operations.

AquaMon offers the grower the flexibility to monitor parameters important to his crop and remotely control operations critical to his farm. Available sensors allow monitoring soil conditions, climate, and equipment status. The AquaMon RSVP web server issues alarms when sensors reach a preset limit or can avert harm by activating preset controls within the sensor network.

### AquaMon Advantages:

- 24/7 access from any Internet enabled smart phone, tablet, or laptop
- Grower controls access to his data
- Grower selects the format of the data display
- Grower controls remote functions, alarm conditions and event notifications
- Grower retains ownership of the data at all times
- Accepts multiple sensor types including 2.5 volt analog, SDI-12, and 4-20 milliamp current loop

- Improve yields with precision irrigation, reduce power costs with smart pump control, and prevent crop damage with automated alarms.

### AquaMon Repeater Nodes

The basic characteristics of radios limit their range. Under ideal conditions the relationship between effective signal power and distance is not linear; the effective signal power diminishes as the square of distance. This ideal range is further compromised by radio signals being reflected off the ground or being blocked by hilly terrain or the thick canopy of an orchard.

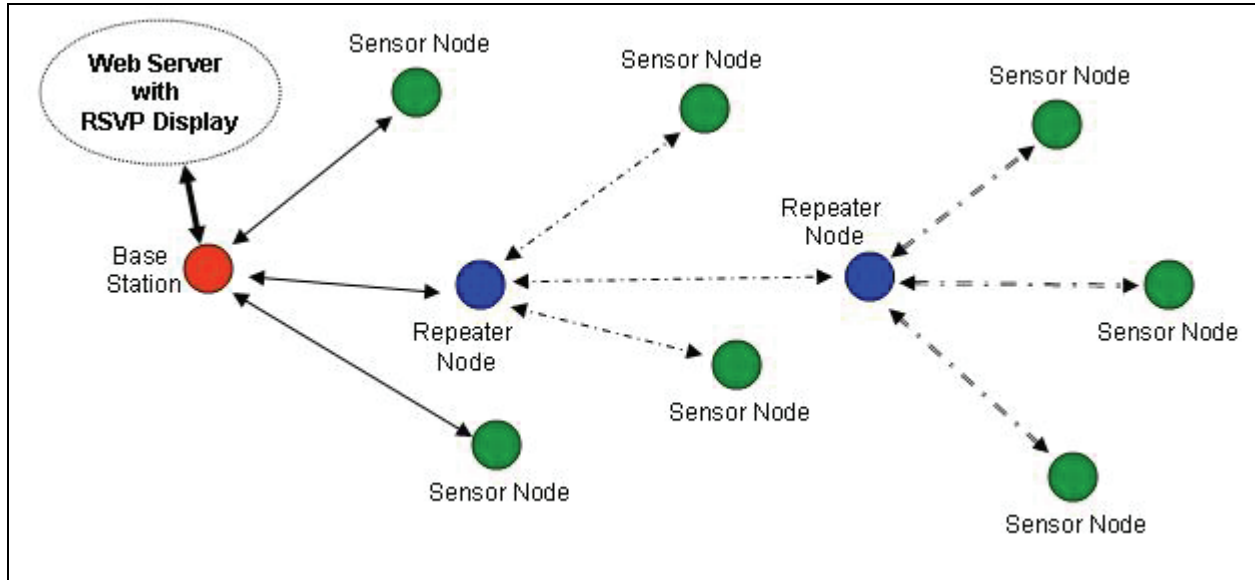
Repeater nodes link remote sensor nodes positioned beyond normal radio range with the AquaMon base station. The link is made over a 900 MHz wireless network. The repeater node accepts commands intended for the remote sensor node from the base station. Those commands are then relayed forward to the remote sensor node. Likewise; data from the remote sensor node destined for the base station is taken in by the repeater node and relayed to the base station.

The grower has great flexibility in creating a network which employs both repeater nodes and sensor nodes. Each repeater node can support multiple sensor nodes. Multiple repeater nodes can also be linked to extend the network even further beyond the range of one additional radio link. The network does not limit the number of nodes or the number of repeaters that can be employed.

Cermetek Microelectronics, Inc. • 374 Turquoise Street, Milpitas, CA 95035

Web: <http://www.cermetek.com> • Phone: 408-942-2200 • Fax: 408-942-1346 • Email: [sales@cermetek.com](mailto:sales@cermetek.com)

## AquaMon Network Repeater Nodes



The chart above illustrates a typical wireless network which includes repeater nodes to extend network range. The base station communicates directly with the sensor nodes and repeater node within radio range. Nodes placed further from the base station connect through one or more repeater nodes. Each repeater creates a sub network of nodes within the larger node.

### Repeater Node Models

CHA79000AXX	900 MHz Repeater Node; AC Power
CHA79000ABX	900 MHz Repeater Node; AC Power, Battery Backup
CHA79000XBX	900 MHz Repeater Node; Battery Power
CHA79000XBS	900 MHz Repeater Node; Battery Power, Solar Charger

### Repeater Node Specifications:

Enclosure:	Description: Sealed NEMA enclosure
	Dimensions: 11" x 7.75" x 5.5"
900 MHz Radio:	Frequencies: 902 to 928 MHz
	Maximum Output power: 300mW
	Range (line of sight): 2 Miles
	FCC ID: B46-CH4390
Power	AC: 120V, 60Hz
	Battery: 12 Volt, 7 Amp-hour, Lead Acid
	Solar Panel: Maximum Output 12 Watts

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