



## AquaMon<sup>®</sup> 900 MHz Base Station



### 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:

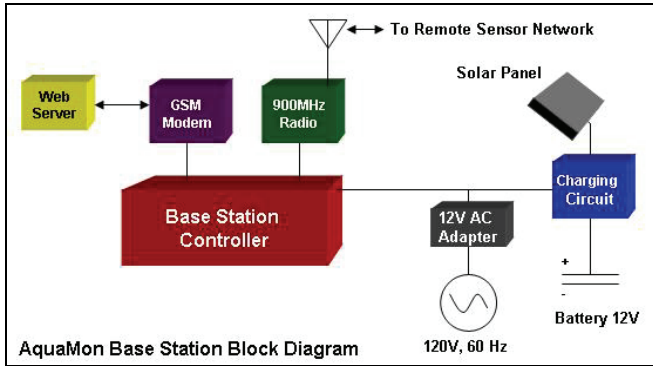
- 24/7 access from any Internet enabled smart phone, tablet, or laptop
- Grower controls access to his data
- Grower selects the format of the data display
- Grower controls remote functions, alarm conditions and event notifications
- Grower retains ownership of the data at all times
- Accepts multiple 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 Base Station

The AquaMon base station serves as the central collection point for sensor data. Data is collected from local and remote sensors and stored in the base station on-board memory. The data is then packaged for transmission and transferred to the secure web server.

The remote sensor nodes transport sensor data to the base station through a 900 MHz wireless network. The 900 MHz radio on each sensor node can communicate with a base station or repeater node up to 2 miles distant. If the site requires longer range between the sensor node and base station or terrain reduces the usable range, relay nodes can be added to the network to extend the network reach.

The base station collects sensor data from its own sensors and the remote sensor nodes, formats the data, and stores the data in its on board memory. At intervals set by the grower the base station transmits the collected data to the secure web server via a cellular based, GSM modem. Once loaded onto the web server, the sensor data can be monitored from any laptop, tablet, or smart phone with Internet access. The base station can also receive messages generated by the RSVP web software in response to alarm conditions or configuration changes. When such messages are received, the base station can use the 900 MHz wireless network to send the appropriate commands to the sensor node.



### Base Station Options:

Cermetek offers four models of the standard base station. The differences in models reflect variations in how the base stations are powered. For installations with available AC power, the base station can be selected to operate on AC Power with a 12 volt adapter plugged into a standard 120 Volt AC outlet. Optionally, a battery backup can be included to allow base station operation to continue during a power outage. In locations where AC Power is not readily available, the AquaMon base station can be selected with battery power as the primary power source. In this configuration a solar panel is available to maintain the battery charge.

The base station can also be configured to accept direct sensor inputs. In this configuration the base station can support both the remote sensors and locally connected sensors. The sensor interface boards used are the same as those used in the remote sensor nodes and standalone systems. Base stations with direct sensor inputs have the same options as do the standard base stations including AC power, AC power with battery backup, battery power, and battery power with a solar charging system.

## AquaMon Base Station Models

### Standard

- CHA39000AXXG: 900 MHz Base Station; AC Power, GSM Link to Web Server
- CHA39000ABXG: 900 MHz Base Station; AC Power, Battery Back-up, GSM Link to Web Server
- CHA39000XBXG: 900 MHz Base Station; Battery Power, GSM Link to Web Server
- CHA39000XBSG: 900 MHz Base Station; Battery Power, Solar Charger, GSM to Web Server

### Direct Sensor Connection

- CHA69001AXXG: 900 MHz Base Station; 1 Sensor Board, AC Power, GSM Link to Web Server
- CHA69001ABXG: 900 MHz Base Station; 1 Sensor Board, AC Power, Battery Back-up, GSM Link to Web Server
- CHA69001XBXG: 900 MHz Base Station; 1 Sensor Board, Battery Power, GSM Link to Web Server
- CHA69001XBSG: 900 MHz Base Station; 1 Sensor Board, Battery Power, Solar Charger, GSM Link to Web Server
- CHA69002AXXG: 900 MHz Base Station; 2 Sensor Boards, AC Power, GSM Link to Web Server
- CHA69002ABXG: 900 MHz Base Station; 2 Sensor Boards, AC Power, Battery Back-up, GSM Link to Web Server
- CHA69002XBXG: 900 MHz Base Station; 2 Sensor Boards, Battery Power, GSM Link to Web Server
- CHA69002XBSG: 900 MHz Base Station; 2 Sensor Boards, Battery Power, Solar Charger, GSM Link to Web Server

## AquaMon Base Station 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  
 Mesh Networking: Yes  
 Node Addresses: 65,000 distinct addresses  
 FCC ID: B46-CH4390

### GSM Modem:

Quad band  
 1.8/3.3V SIM  
 Transmit Power 2 Watts maximum

### Power

AC: 120V, 60Hz  
 Battery: 12 Volt, 7 Amp-hour, Lead Acid  
 Solar Panel: Maximum Output 12 Watts  
 Battery Life: 2500 transmissions without recharge

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