

The AQUACOM Sensor Hub (ASH) allows a number of separate sensors to be connected to the system with all data being collected, displayed and logged in the AQUAFLEX PC Software.

The sensors that can be connected include:

- S 1 or 2 AQUAFLEX Sensors (Part # SI.95)
- S Air temperature or Analogue input (e.g. Well Water Level)
- S Two Pulse Inputs (e.g. Rain-Gauge, Flow Meter etc)
- S Two State (On/Off) Inputs (eg Pump Alarm, Pressure Alarm, Pump Running/Stopped etc)

The sensor data is logged in the AQUACOM Sensor Hub and can be manually downloaded direct to a PC or via Radio Telemetry.

Separate 'pages' or 'tabs' in the AQUAFLEX PC Software make the trending and viewing of data very clear and easy to understand.

The logging protocols comply with the standard required by many regional councils for compliance issues.

### **AQUACOM Sensor Hub Options**

The AQUACOM Sensor Hub is very flexible and can be configured to suit different applications – typical applications include:

- S **Full Irrigation Management Tool**  
Complete with AQUAFLEX Soil Moisture Sensors, Air Temperature Sensor, Rain-Gauge, Flow Meter and Pump Status
- S **Pump Shed Monitor**  
Flow Meter and Pump Status
- S **Frost Monitoring with AQUAFLEX Sensor**  
Air temperature and AQUAFLEX Soil Moisture Sensor

The above are examples of possible applications – the system is very flexible and many additional configurations are possible.



## **AQUAFLEX**

**A vital part of any irrigation system.**

### **AQUAFLEX Saves:**

- S Water
- S Energy
- S Fertiliser

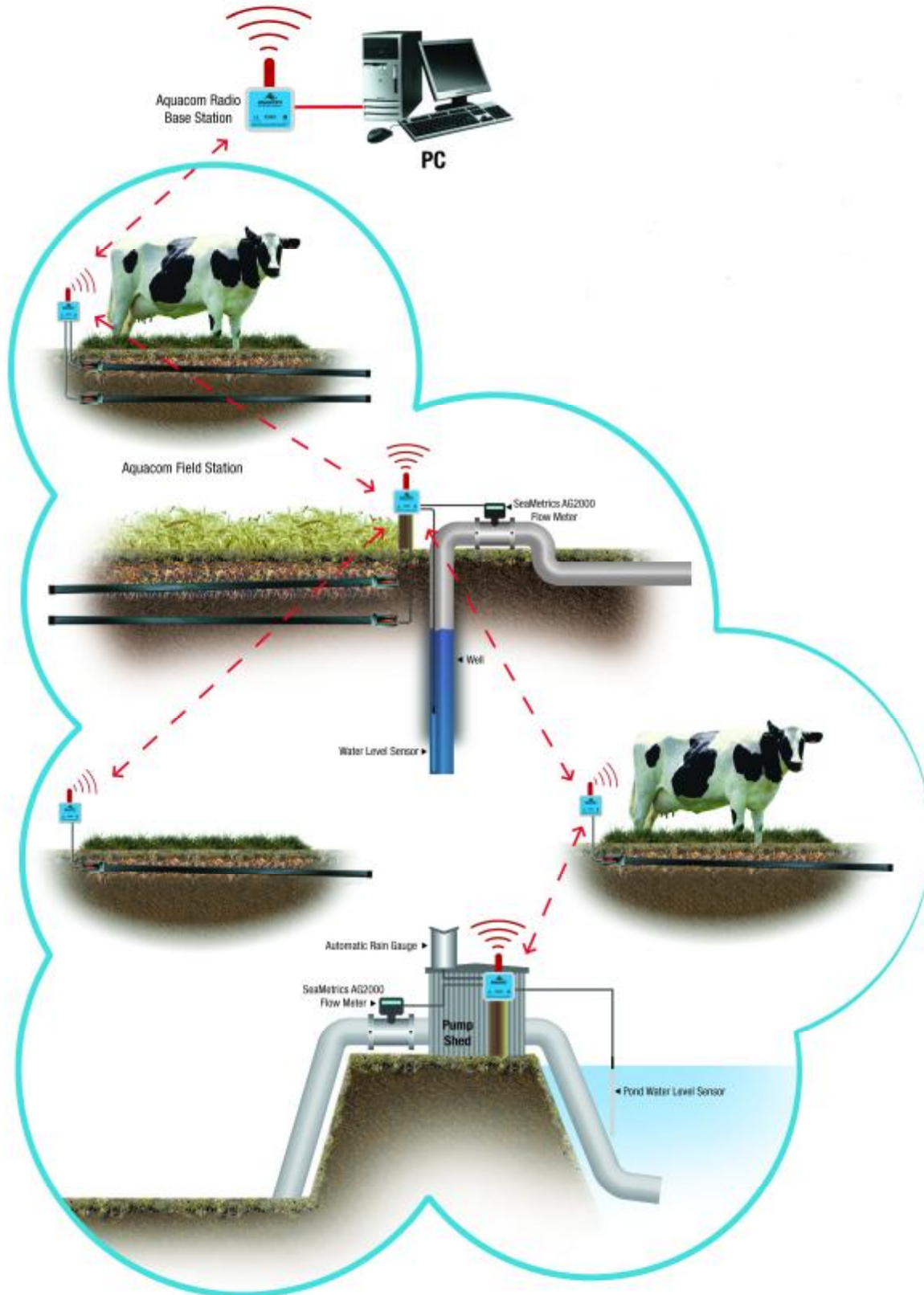
### **AQUAFLEX Improves**

- S Yield
- S Quality

### **AQUAFLEX applications:**

- S Grazing Pasture
- S Arable crops
- S Vineyards
- S Orchards
- S Golf courses
- S Tennis courts
- S Cricket grounds
- S Football stadiums
- S Biofilters
- S Compost
- S Landfill
- S Botanical gardens
- S Parks & Reserves
- S Hydrological monitoring
- S Meteorological monitoring

# Example AQUACOM Network



## Network configuration

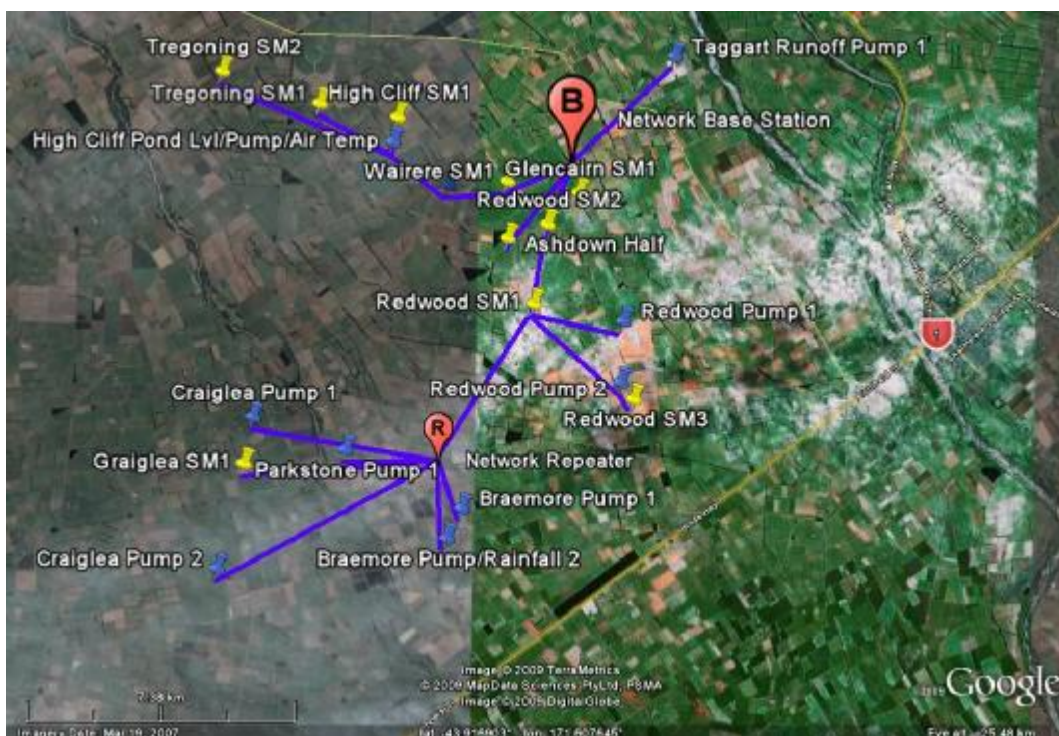
The radio modules have a maximum range (line of sight) of about 4 km.

Each field station has the capability to pass data from a more distant station onwards to the base. As a consequence, if a field station is a long way from the base, or behind an obstacle, it may still pass its data back via a succession of “hops” (maximum of 3) through nearer field stations.

The radio modules are intelligent and are able to discover the optimum route back to the base without need for the user to determine the best route. If a field station cannot get an adequate signal strength from the base station directly, it will look for nearby field stations which will advertise the quality of their route to the base. In this way the network is automatically self optimising.

The base station keeps a record of all field stations in the network, and the routes to them.

Each network can support up to 999 field stations. Each network also has a “network address” which prevents radio modules from inadvertently communicating with neighbouring networks.



The above Google Earth shot shows an AQUACOM Network combining Soil Moisture (SM), Pump Monitoring (Flow Meters, Pressures etc), stand alone repeater (no sensors) and a single Base Station. The Blue lines indicate the radio paths and show how neighbouring sites can assist in getting data to the Base Station.

Utilising the AQUACOM Logging and Telemetry system and an existing internet connection at the Base Station location, data is transferred from all field stations to the web service and compliance report provider free of charge.

## AQUAFLEX PC Software

The AQUAFLEX PC Software enables the information to be displayed in various ways, and includes features to assist in irrigation scheduling, compliance reporting, automatic transmission of reports to consultants, managers, local bodies etc.

The AQUAFLEX PC Software allows generation of tabular reports of Rainfall and Flow Meter data.

Easy output to packages such as Microsoft Excel allows custom user reports to be generated

## Telemetry Options

In addition to Manual Downloading a variety of Radio and Internet connectivity options are available.

Refer to separate document 'Radio and Internet Connectivity Schematics' for the options available.



**AQUACOM and AQUAFLEX  
Dairy Pasture Application with  
Radio Telemetry**

## Specifications

<b>Power Options</b>	<p>Base Station is usually installed by a PC and is Mains powered</p> <p>Field Units can be powered by:</p> <ul style="list-style-type: none"> <li>S Solar Panel with Re-chargeable batteries</li> <li>S External Power Supply (8 to 24v DC required)</li> <li>S 8 x C-size Alkaline cells (typically 12 months lifetime with 8-hourly downloads Shorter download intervals or some network configurations (e.g. with multiple hops) will reduce battery life).</li> </ul>
<b>Sensor Inputs</b>	<p>2 AQUAFLEX Sensors (Part # SI.95) - soil moisture &amp; temperature</p> <p>Either an Air temperature input (Precision Thermistor) or a 0 to 2.5 volt 10 bit analogue input (e.g. Well or Pond water level)</p> <p>2 Pulse – e.g. Rain-Gauge and Flow meter</p> <p>2 State Inputs (On/Off)</p>
<b>Logging Interval</b>	<p>Typically 1 hour, can be set between 10 minutes and 6 hours.</p> <p>Logged data is downloaded to the PC via the radio link typically every hour (unless using Alkaline Batteries where 8 hours is recommended).</p>
<b>Memory capacity</b>	<p>13 months of data if all inputs used and readings are taken hourly.</p>
<b>Operating Temperature</b>	<p>-10 to 40°C (14 to 104°F)</p>
<b>Current Consumption</b>	<p>0.35mA normal.</p> <p>200mA peak for 60 milliseconds while an AQUAFLEX sensor reading is being taken.</p> <p>500mA for 1 second while transmitting</p> <p>35mA when connected to a PC.</p>

**STREAT**  
INSTRUMENTS

Streat Instruments Limited  
4A Expo Place  
PO Box 24071  
Christchurch  
New Zealand

Ph: +64 3 384 8900  
Fax: +64 3 384 8901  
mail@streatsahead.com  
www.streatsahead.com



envirofactors

Envirofactors Limited  
3 Water Lane  
Bradford BD1 2JL  
United Kingdom

Ph: +44 1274 733 145  
Fax: +44 1274 732 410  
enviro@streatsahead.com  
www.envirofactors.com