SOIL MOISTURE AND TEMPERATURE MONITORING

for *Dream 2* Controllers

Goldtec's Soil Moisture and Soil Temperature Monitoring systems provide the Grower with accurate soil moisture and soil temperature information to assist them to optimize the profitability and quality of an irrigated crop, pasture, vineyard etc.

The Dream control system utilizes Aquaflex Soil Moisture & Temperature sensors.

The Aquaflex Sensor

The Aquaflex sensor uses a patented electronic technology to measure the dielectric constant of the soil. Since the soil dielectric is a moisture-dependent property, these measurements can be converted to accurate measurements of volumetric soil moisture (the amount of water in a given volume soil).

Measurement precision depends upon soil salinity conditions, but for normal agricultural soils measurements should be precise within two percent volumetric moisture, with a measurement repeatability of about 0.25 percent volumetric moisture

The 3m long sensor means that AQUAFLEX soil measurement provides spatial averaging over this length of cable and measures a 6 liter volume of soil around the sensor. This is extremely important given the variability of soil (even in well prepared plots) and non-uniformity of water application etc.
Many factors affect the uniformity of soil moisture, including the uniformity of irrigation and rainfall, crop root distribution, micro climate and soil properties.
Averaging soil moisture measurement across a broader area provides a better indication of general trends in local soil moisture.

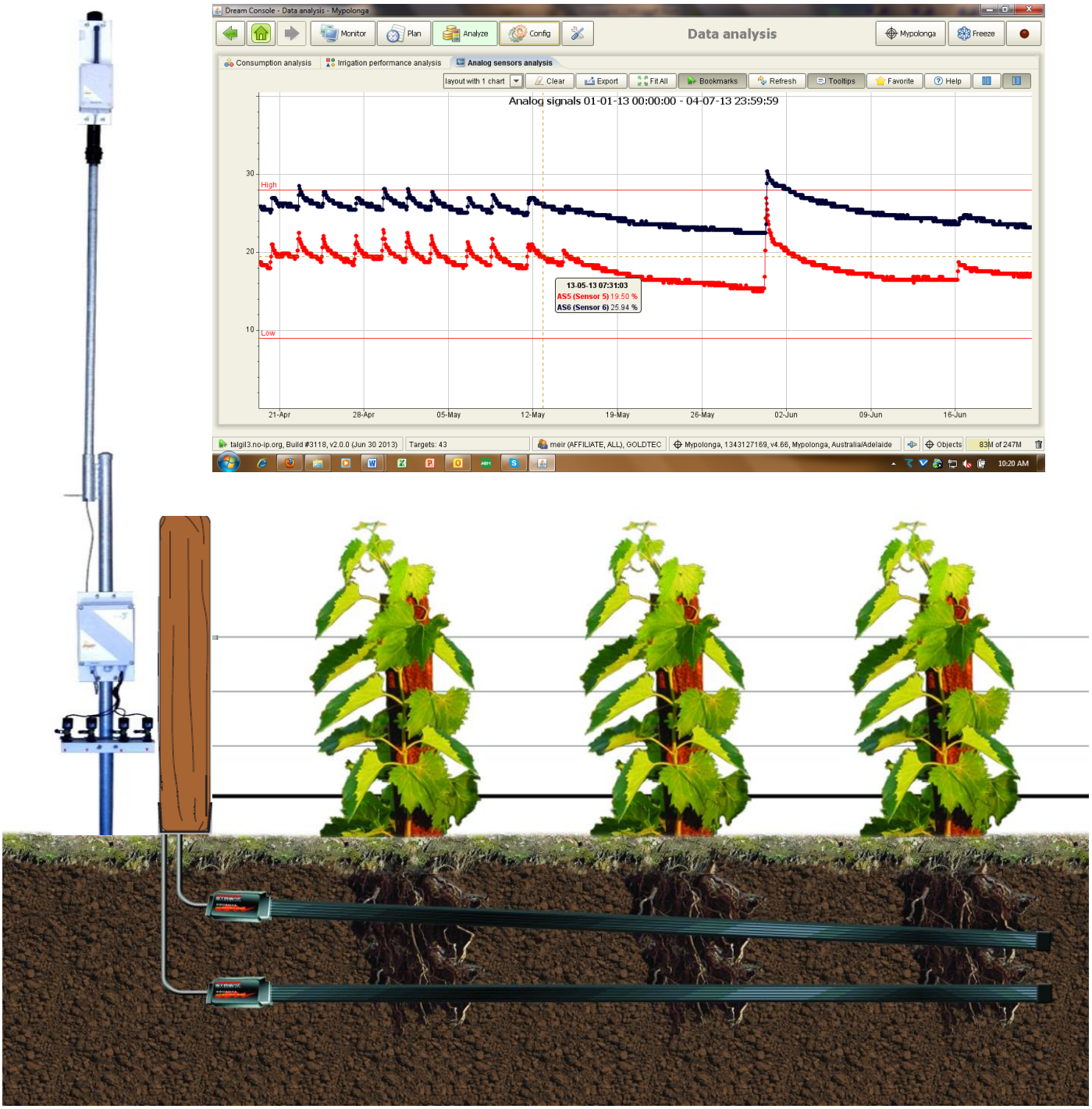
The Dream controller and Aquaflex Sensor

Aquaflex sensors are connected directly to the remote RTU (remote terminal unit) on the Dream system via 2-wire communication cable or via the RF radio communication. This method allows the RTU's to not only receive the analogue information from the sensors but also continue to provide 12v DC latching outputs to valve solenoids and relays for pump starts etc.

One or two Aquaflex sensors can be connected to each RTU allowing for two spatial readings in the profile, one for an average in the root zone and one at a deeper location to identify drainage through the root zone.

Soil moisture and temperature data is logged on the sensor and communicated back to the Dream controller via the 2-wire or radio system. The data collected by the Dream can be viewed on the PC as data or as graphed information as shown on the diagram below. This information can then be used by the operator to determine irrigation requirements.

Alternatively, from the information received from the sensors in the field, the Dream controller can be conditioned to automatically switch irrigation on /off or start and stop pre-set programs.



Goldtec Control Systems Pty Ltd
135 Murdoch Hill Rd, Woodside, SA
Ph: 08 83899477 / **Fax**: 08 83899466
Email: info@goldtecsystems.com.au / **Web**: www.goldtecsystems.com.au