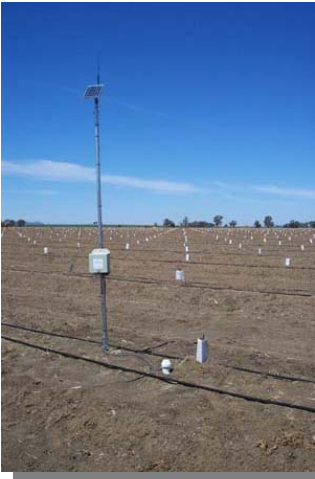


Customer Newsletter - October 2002



Greetings from EIT. These past few months have been extremely busy for us with the continued adoption of the EIT data recording and telemetry platform for environmental monitoring by many new and existing customers. Much of our work continues to focus on the integration of soil moisture monitoring technologies for irrigation scheduling and water management.

Our telemetry is being deployed in numerous irrigation projects within Australia in conjunction with the Sentek EnviroSMART and EasyAG soil moisture probes.

Data collected provides irrigation managers with information on continuous plant water use, ground water movement and weather conditions.

Customer projects

Some recent examples of EIT telemetry installations are provided courtesy of Neale Whittard of Cropsol based at Griffith, New South Wales, Australia.

Cropsol are deploying the EIT 900 MHz telemetry units for soil moisture monitoring. Data range using this licence free frequency is up to 10 kms line of sight.

Remote soil moisture and weather information is radio linked to an EIT base station data recorder and soil data automatically uploaded to Sentek software for viewing and analysis.

Soil probes used in this project are Sentek EnviroSMART probes with RS 495 data protocol. Soil moisture is measured at five levels within the soil profile.



Product updates

SMS Alarm messaging

We can now offer SMS alarm messaging from the EIT Data recorder supplied with a GSM Wavecom WMD2 series. We have provided 10 separate, general alarm functions, which can be assigned to channels on the EIT data recorder. When a high or low alarm status is reached, a forty-character text message can be automatically sent to you cell phone. The text message sent is user defined and can be customized for each alarm.

For example, you may wish to receive an SMS alerting that soil moisture is low at certain sites.

The alarm messaging service has been designed to integrate with the EIT radio telemetry platform to remote site monitoring.

SMS alarms can be raised for any analogue sensor attached to the EIT data network.

Examples include alarming for :-

- Soil moisture, temperature (air, soil, water), humidity, wind speed, water level, water EC, water pH etc

Examples of user defined SMS text messages as they appear on your cell phone are :-

- Soil moisture low at Sites 1, 7, 15
- Soil moisture at 10-cm depth high at Site 1
- Soil moisture at 50 cm depth greater then set point at Site 2 - stop irrigating
- Temperature high in greenhouse No. 2
- Humidity low in cherry block - activate sprinklers
- Groundwater high at sites 2, 5 and 9.
- Water salinity high at site 4.
- Low water pH at discharge point A





Photo supplied by Neale Whittard of Cropsol, Griffith, New South Wales, Australia.

EIT Intelligent Probe Controller (IPC) connected to Sentek EnviroS-MART soil moisture probe. Spread spectrum radio (900 MHz) is fitted inside the IPC unit and provides data transmission for up to 10 kms line of sight to an EIT Base station data recorder.

Power for the system is supplied via 4 watt solar panel charging 4 AH sealed battery

Contact alarm switches

The EIT data-recording platform now supports two alarm contact switches using modified IPC radio receiver units. These alarms can be assigned to single or multiple sensors on the EIT data recording network. The switches can be used to turn on or off other devices such as pumps, interposing relays, landline phone messaging services, alarm lights and warning bells.

For example -

Frost alarm - turn on irrigation sprinklers at low temperature for frost protection. In this case the data recorder alarm switch be used as an interposing relay to activate another irrigation control device.

High soil moisture - turn off irrigation on high soil moisture

Spread spectrum radio modems

We have recently released a very low power radio modem to provide RS 232 data communications between devices using this protocol for distances up to 10 kms licence free.

The modem is providing data communications between Base / Office computers and EIT data recorder, Sentek RT6 logger units and Aquaflex soil moisture-monitoring systems.

Telemetry 2.4 GHz

We shall shortly commence research and development on low power, 2.4 GHz licence free radio modules. These radios will provide options for deploying our telemetry products worldwide in areas where our 433 MHz and 900 MHz modules are not suitable.

Analogue Intelligent Probe Controller (IPC - 4 A)

We are pleased to release a four channel analogue version of our IPC device. This unit will collect data from sensors with voltage or current output and encode data for transmission across the EIT telemetry network. This unit complements, and integrates into existing EIT telemetry units, which support RS 485 and SDI_12 data protocols. Inputs supported are 0 -1 , 0 - 2.5 , 0 - 5 VDC. Current inputs supported is 4 - 20 mAmp.

As with all other EIT telemetry devices the analogue version of the IPC unit support data transmissions over the 433 MHz short distance (up to 1.0 km), 900 MHz mid distance (up to 10 kms) and long range radio units. The IPC 4A will also act as a repeater station collected data from outlying monitoring points and relaying data to a central base computer.

Examples of deployment of the IPC 4 A

Monitoring conditions via EIT telemetry network such as temperature, humidity, wind speed, wind direction, water level, and analogue soil moisture sensors such as the Streat Aquaflex strap. The analogue IPC unit will support up to four Aquaflex probes. The EIT data recorder provides a facility to input sensor coefficients (linear and non-linear) to convert analogue (voltage) output to engineering units such as volumetric soil moisture.



Universal telemetry programming software

We have released a new software programming which will allow programming of both SDI-12 and RS 485 EIT telemetry units. Previously we had to supply a separate software package for each protocol. Following customer request we have increased the addressable node addresses to 250 to suit larger projects.

Irrigation scheduling software.

Trevor Finch (Research Services New England, (www.rsne.com.au) has released a version of his irrigation scheduling software, which supports data collected across the EIT data telemetry network. Trevor writes and supports software for the Neutron Probe soil moisture system, which is used extensively worldwide.

This new software for EIT data provides predictive analysis of irrigation water requirements based on current crop water demand. Multiple graphics options include separate stacked line graphs for viewing historical soil moisture profile data, single trend lines of averaged soil profile data, predicted irrigation requirements by volume and date of next irrigation.

Additional information provided in both table and graphic format includes values for soil moisture field capacity, irrigation refill points and current soil moisture status shown in millimeters of soil water, volumetric soil moisture and percentage soil moisture. The software is also able to overlay weather data with soil moisture data. For further details contact Trevor Finch at support@rsne.com.au.

Exhibitions and Conferences attended in recent months

5th International Acid Sulfate Soils Conference at Tweed Heads, New South Wales, Australia
Irrigation 2002 - Beijing China

Upcoming activities

Irrigation Management Field Day - Hunter Valley NSW. October 2002

International Symposium On Soil Moisture Monitoring - - Washington DC November 2002.

On going Projects

EIT has a number of on-going projects in addition to product development. These project include both soil moisture monitoring systems as well as general environment monitoring systems such as weather and water quality monitoring stations.



Early this year we designed and installed a water quality monitoring station for Rouse County Council, to continuously monitor water quality discharges from soil affected by acid sulfate soils. Water level is measured using a quadrature shaft encoder and water quality parameters measured using TPS WP 81 water quality monitoring instrument. Information from the shaft encoder and water instruments is fed into an EIT data recorder and then uploaded to a central PC via GSM cell phone link.

Kind regards

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