

# River, Reservoir & Weather Station Monitoring Telemetry System

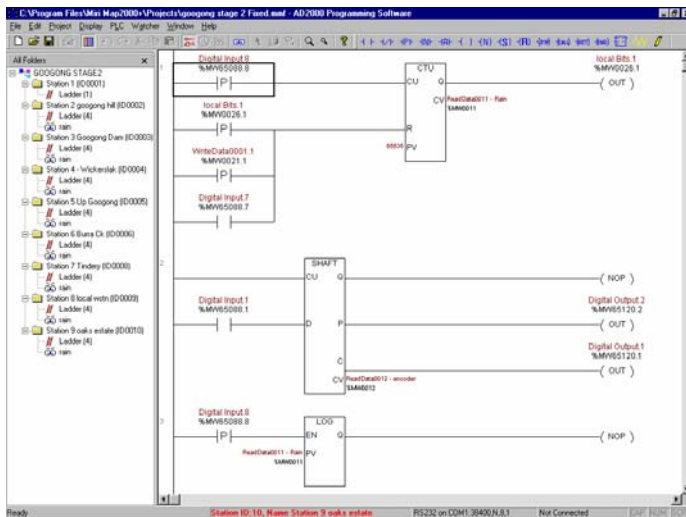
## OVAL

The Googong water catchment supplies water to the Australian capital city of Canberra. A radio based telemetry system was designed and installed by Ecowise Environmental based on the AD2000 telemetry units. The remote monitoring system comprises five stream level sites, one dam/reservoir site, one radio repeater site and two weather stations. The system provides real time and data logged data back to central monitoring system HMI display package (in this case Citect but the AD2000 has and will readily interface directly to other popular packages such as iFix, Wonderware, Simplicity etc.). The remote sites utilise a range of equipment for measuring water level and rainfall such as Mindata 2100 dry pressure transducers and Unidata optical shaft encoders. Rainfall is measured with a tipping bucket rain gauge. Googong weather station measures temperature, humidity, barometric pressure, solar radiation, rainfall, wind speed and evaporation. The local weather station measures wind speed, direction, temperature, humidity, solar radiation and rainfall. Instrumentation for the weather stations include Vaisala HMP45 temperature and humidity probes, Middleton pyranometers, and PDS wind speed and direction sensors. All sites are configured to log data at the local AD2000 RTU as a back up for the real time data received by the central Citect HMI master.



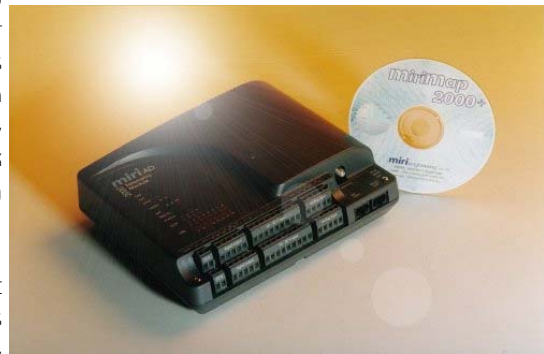
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This system demonstrates the combined capability of the AD2000s for real time data to be sent via the in-built wireless radio modem as well as being logged into EEPROM memory at the local site. This



ensures minimal data loss and improves on data security and ensures data backup. At each site the local battery backup voltage is monitored via a local analog to digital converter input (the AD2000 has 8 analog inputs available for such monitoring). This is an ideal arrangement for solar powered sites. The digital status of connected equipment such as pumps can be monitored remotely. Examples of such monitored points would be pump running, fault, remote selection and ready. There are 16 digital inputs on the AD2000 unit and models that allow input voltages of 10 to 50V DC or AC are available as are higher voltage inputs to monitor up to 110V AC or DC.. The control of pumps from start

initiation, whether from the plant control system or locally via manual operator action, can be controlled by the logic internal to the AD2000. This Ladder Diagram functionality is enabled via the OvalMap2000+ software package which provides an easy to use graphical interface that runs on any Microsoft Windows platform from Windows 95 and later. You may know Ladder Diagram by its other name Relay Ladder Logic or RLL, common in the PLC market. A full range of maths functions (including floating point), timers, counters, data shift, data move, normal Boolean logic as well as the addition of special function blocks allows medium task control logic to be achieved. Powerful cut and pasting features allow logic to be copied across the system



All the status and control points are then fed into a plant operator interface HMI package The radio system utilises the internal digital data radio that is integral to the AD2000 facilitating radio diagnostics and secure data transfer at baud rates up to 4.8k. The diagram on the next page illustrates the system layout. For further detail & information contact Oval.



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