

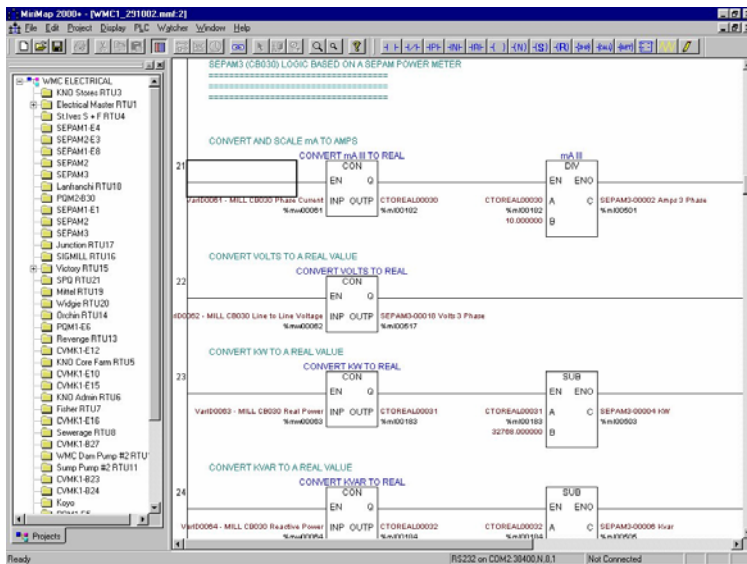


Power Distribution Monitoring Telemetry System

The St Ives Gold Mine electrical power distribution system feeds various 66, 33, 11 and 3.3kV electrical power distribution feeders and sub-stations to several gold mines and production facilities in the Kambalda area of the goldfields region of Western Australia. A radio based telemetry system was designed and installed using the AD2000 telemetry units to monitor the power system parameters such as 3 phase current, kW, kVar, Hz, kVA, kWhr, kVarH and power factor as measured on a variety of power quality meters (PQM, CVMK and SEPAM). The remote monitoring system comprises several remote monitoring sites across a 30 square kilometre area and one store and forward radio repeater site. 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, Cimplicity etc.). In addition to providing real time information across the radio system, the data is logged locally to each AD2000 as a backup. The data from the metering equipment was transferred to the AD2000 via the in-built serial port using the Modbus RTU protocol (one of many popular industrial protocols that the AD2000s support).

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 also an ideal arrangement for solar powered sites where total power system security is required. The digital status of connected equipment such as tap

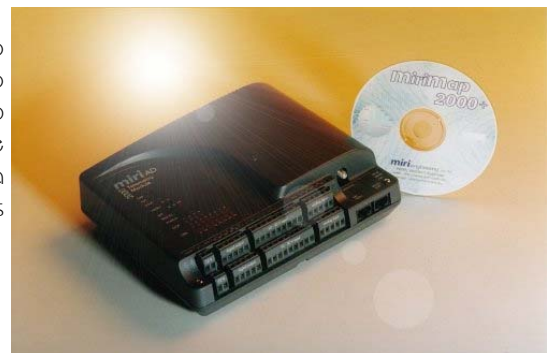
changers can be monitored remotely and the inputs can also be used to accumulate kWhr pulses for metering or demand purposes. There are 16 digital inputs on the AD2000 unit and models that allow input voltages of 10 to 50V DC or AC are available as are higher voltage inputs to monitor up to 110V AC or DC. The control of plant (e.g. opening or closing of circuit breakers), 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 PC (e.g. Windows 95, 98, ME, NT, 2000 and XP). 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

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. A variety of radio solution options are available to accommodate systems requiring high speed data transfer rates. The diagram on the next page illustrates the system layout.

For further detail & information contact Oval.



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