

# "POWER" DATA LOGGER



The rapid development of the economy and industry in China has led to the fact that many industrial production plants have already become automated. The infrastructure for industry requires a consistent and efficient energy supply system. The state run institution - Weihai Electric Power Bureau - has automated the evaluation of all power meter data with a modem based (remote diagnosis) Data Logging System - with support from B&R.

The B&R sales and support headquarters in China, located in Shanghai, has received a contract to use standard B&R components to create a system to read and evaluate power meter data. The meter data must be read and the status of the meters must be able to be called up - either locally or via modem.

## Logging Station Requirements

The power meters (up to 60 per station) are all connected to the main station via an RS485 network (customer specific protocol). The meter readings must be logged once per hour and stored. The stored values must be kept for 1 month. This means the PCC must be able to log and keep up to 450 kbytes of data! This is one reason why B&R received the contract. Naturally, the data must be backed up with a battery so it is secure, even if a power failure occurs.

Also as is often a requirement in Chinese power applications, the supply voltage is 220 VAC and the backup supply is 220 VDC. Both of these were able to be directly connected to the logging station.

These power meters must be able to be checked to ensure they are functioning correctly. The operator can carry out either local or remote diagnosis.

## Diagnosis - Local or via Modem

Local operation takes place using a PANELWARE™ operator panel which reads the power meters or determines their status. All the logging stations can be called up and accessed via modem from the central workstation. On the workstation, the data is evaluated and passed on to a central system for further analysis and reporting.

## B&R 2005 as Logging Station

A B&R 2005 system was used due to the memory requirements for all the logged data. B&R's communication flexibility allowed the

application to be simply put together including the customer specific protocol to the power meters. The interfaces needed are:

- RS485 network (customer specific protocol using B&R Frame Driver) to Power Meters
- RS232 connection (B&R Mininet) to local operator panel
- RS232 connection to workstation via Modem (B&R Frame Driver and B&R NET2000)

## The Workstation

The workstation is a Pentium® PC running MS Windows NT. Background logging program to the controller is written in MS Visual Basic. This program calls each logging station once per day and downloads the data from the logging station to the workstation. The communication to the logging stations is carried out using the B&R NET2000 DDE Server for Windows NT.

## Advantages of B&R:

- High nonvolatile memory capacity
- Customer specific protocols
- User friendly modem handling
- Simple connections using a Windows NT Workstation (NET2000 DDE Server).
- Expandable system using standard components