

POWER GRID MONITORING

CONTINUOUS MONITORING AND ALARMING FOR POWER DISTRIBUTION CENTER

Client

Major Energy Supplier

Problem Scope

Our customer requested a turnkey electronic analog telemetry system (ATS) for one of its control centers. The primary functions of this center are collection, display and monitoring alarms of 96 channels of analog data and 16 channels of calculated data. Both an independent telemetering system and an internal computer system were needed to provide analog data. All data acquisition had to be continuous and uninterrupted for the entire duration of operation.

Viewpoint's Solution

The data is displayed using electronic strip charts and numerical displays on 18 video monitors and 3 operator stations. The operator stations provide monitor, keyboard and mouse for interaction with the center. There is an additional monitor, keyboard, and mouse that provides interaction for the Acquisition/Archiving CPU, Retrieval CPU, and left and right video CPUs.

Each of the analog channels is sampled at 100 Hz. A 2-second block of data (200 points per channel) is processed to determine minimum, maximum and average. The digital channel is sampled after every 2-second block to determine receiver failure. If a receiver failure occurs, the data for each channel on the failed receiver will be discarded and the last valid data for that channel will be used.

Data is written to file and retained on-line for a period of one month. Data is also written to archival storage automatically. Archival media is kept for at least 5 years.

Technical Highlights

- Client/Server based Architecture with TCP/IP Messaging
- Continuous operation with periodic data archiving
- Alarming controllable from one of three operator stations
- Operator station functions limited by password protected rights
- 2 video walls of 9 monitors with individually configurable charts and graphs

Description

The center operates in one of two basic modes: passive or alarm monitoring. All functions of the passive mode are included in the alarm monitoring mode. The alarm monitoring mode is used when the primary SCADA system is not functioning. The passive mode is in operation continuously to provide information. The switch from passive to alarm monitoring mode is accomplished under operator control from any of the stations. The alarm monitoring is broken down into 10 logical groups, and each signal is associated with one of the 10 groups. The groups can be enabled independently of each other. If an alarm is generated and the associated alarm group is disabled, the alarm is automatically acknowledged.

