

CAT-1™ Transmission Line Monitoring Systems

IntelliCAT™ for Windows® Real Time Rating Software

IntelliCAT for Windows (ICW) Real Time Rating software enables customers to rapidly deploy an operational thermal rating system for multiple transmission lines, including complex tap and conductor configurations, with minimal demand on EMS/SCADA programming resources.

ICW works in conjunction with the EMS/SCADA system by exchanging data via either periodic file transfer or ICCP network integration. ICW receives from the EMS/SCADA database data that has been transmitted via RTU protocol from the CATMaster™ Base Station, along with line load information from existing telemetry sources. ICW then calculates real time line capacity, temperature, sag, and alarm indications, and transfers them back to the EMS/SCADA database (as easily as any other system analog or status value, such as Amps, KV, or system alarms) for access and display on existing operator consoles .

Functional Description

ICW is a software application program designed to run under Windows 2000 or later. ICW is run on a PC that has access to the EMS/SCADA system database. This permits ICW to collect data from the EMS/SCADA database, and deliver results data to the database for operator display and historical logging. ICW is fully user-configurable via a set of initialization, calibration, and configuration text files which can be modified using any text editor.

Readily available database interface methods include flat-file transfer and ICCP network communications. The interface may also be customized for a specific installation.

Flat File Transfer

For the flat-file transfer method, the EMS/SCADA system (or another PC-based application) is required to write an ASCII text file to a specified directory on the PC on a periodic basis, typically every two minutes. The file contains all of the data points received from the CATMaster, plus the load data for the line or lines being monitored. The specific file layout may be customized, but typically consists of one record per data point.

ICCP Integration

For the ICCP network method, ICW is equipped with a licensed copy of Sisco's AX-S4 ICCP OPC Server software, permitting ICW to access the EMS/SCADA database on the ICCP network. Security is protected since ICW can only access data points that have been mapped into

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an ICCP bilateral table on the EMS. These are limited to the data points received from the CATMaster, plus the load data for the line or lines being monitored.

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Calibration and Configuration

Typically during the course of system installation, enough data is collected by the CAT-1 remote units to enable The Valley Group to perform an initial line calibration analysis. The results of this analysis are a set of calibration coefficients that are entered into an ICW configuration file. Once the line is in service and the interface to ICW is complete, real time rating values are immediately available for operational use.

Component List:

Customer-supplied PC running Windows 2000 or later; Pentium III or better, minimum 128 MB RAM, minimum 5 MB available disk storage

ICCP requires 15 MB available disk storage, parallel printer port for hardware lock, CDROM drive

Network interface to EMS/SCADA system

ICW software installation disk

Specifications:

Capacity Up to 16 transmission lines of any configuration
Up to six (6) CAT-1 remote units per line

Communication Options ASCII flat-file transfer
ICCP network interface

Diagnostics Process log file
Error log file
On-screen status display
CAT-1 battery monitoring
System communications reliability monitoring

Output:

| <u>Analog Data Points</u> | <u>Status Data Points</u> |
|--|---|
| Line Ampacity Rating | NRS-based Rating Used |
| Line Conductor Temperature (repeat for each monitored line) | Minimum Rating Used |
| | Default Rating Used |
| | Maximum Rating Used |
| Cell Ampacity Rating | Data Quality Warning |
| Cell NRS-based Rating | Line Load Quality Warning (repeat for each monitored line) |
| Cell Conductor Temperature | |
| Cell Sag | |
| Cell Ice Thickness | CAT Comm Alarm |
| Cell Ice Weight (repeat for each line section) | CAT Comm Warning |
| | CAT Battery Warning |
| | CAT PAC Battery Warning |
| | CAT Temp1 Validity Error |
| | CAT Temp2 Validity Error (repeat for each CAT-1) |
| | |
| | Cell Ice Present |
| | Cell Internal Error |
| | Cell Validity Error (repeat for each line section) |