



Options for recording and reporting remote monitoring system status and alarm activity

- Data Acquisition System
- Centralized Data Logging System
- Local Data Logging System

Data Acquisition System

The RACO Data Acquisition System consists of a dedicated Central Station Computer and one or more RACO Verbatim Remote Terminal Units (RTU). The Central Station Computer runs the RACO Data Acquisition Software and the Verbatim RTUs are equipped with the RACO asynchronous communication module. Both computer and monitoring systems communicate over conventional dial-up telephone lines. The computer is provided with a printer for activity logging and report generation.

In operation, the computer calls each Verbatim RTU at programmable polling intervals to get status reports on all functions being monitored. If an alarm occurs at any Verbatim RTU in the system, that Verbatim RTU will make an alarm call to the central computer and send an alarm status report.

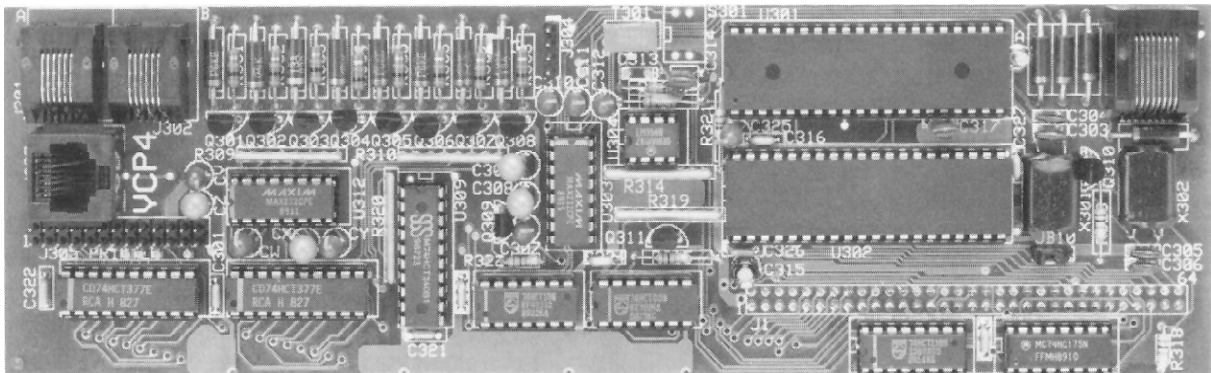
The Central Station can respond to an alarm call from a Verbatim RTU in any of three ways. If an operator is present, he or she can, with a single keystroke, cause

the Central Station to acknowledge the alarm. If an operator is not present, the Central Station can be set either to automatically acknowledge every alarm call or to log it without acknowledgement. If for any reason the Central Station does not acknowledge the alarm call, the Verbatim RTU will go on to make voice calls to personnel. If an alarm is acknowledged by a call to personnel, the Verbatim RTU will place a call to the Central Station for the purpose of logging the acknowledgement.

Alarm and status information archived by the system can be used to create summary report printouts with simple keystroke commands at the computer.

Summaries include Alarm Exception Report, Polling Report, and Event Report. The Alarm Exception Report shows all Verbatim RTUs which have acknowledged or unacknowledged alarms, type of alarm, and when it occurred. The Polling Report includes all Verbatim RTU channel data at the time of polling. The Event Report shows all activity for all Verbatim RTUs in the system. Summary Reports can be produced for user-selectable intervals.

In addition, the RACO Data Acquisition System, with its easy-to-use, menu-driven interface and informative screen displays, provides a convenient way for the Central Station operator to inspect, set, or change the programming of the Verbatim RTUs.



Verbatim[®]



Central Data Logging System

The Centralized Data Logging System consists of one or more Verbatim RTUs, each configured with an asynchronous communication module and a single, centrally-located, auto-answer modem connected to a serial printer.

In operation, each dialer calls the Central Data Logger at programmable intervals to give a routine status report. If an alarm condition occurs at any Verbatim RTU, that Verbatim RTU will call the Central Data Logger to report the nature of the alarm and then make calls to personnel, giving the alarm report by digitized voice messages.

Alarm calls cause a printout of the status of all non-normal conditions for each channel, as well as the calling station ID number and time and date of call. The station ID is a number up to 24 digits in length and time is expressed in military time as hours, minutes, and seconds.

Regular-interval routine calls result in a printout of a complete status report of each channel's present input status. If a Run-Time Meter or Pulse Totalizer is activated for any channel(s), it will be reported.

Local Data Logging System

The Local Data Logging System consists of a single Verbatim RTU configured with an asynchronous communication module connected to a serial printer.

In addition to the normal functions of any Verbatim dialer, the Local Data Logging System will, at user-programmable intervals, print a completed report of the status of all channels on the local printer, including any run-time or totalizer values, and if the Analog Signal Input option is installed, the current values.

The Local Data Logger will print all activity, including alarm calls, acknowledgement calls, autocalls, and programming changes as it occurs. Each activity is date/time stamped. During alarm calls, the Local Data Logger will print the status of all non-normal channels. Printouts of dialing activity will show the telephone number called and whether alarms were acknowledged by personnel at that number.

On operator command, the Local Data Logger will print a complete listing of all programming.

General Specifications

All data recording and reporting methods use the Verbatim Asynchronous Communications Module

plug-in card. In addition, all methods retain their ability to communicate with personnel and deliver reports using digitized voice communications.

For the Data Acquisition System and the Centralized Data Logger, the Asynchronous Communications Module incorporates an integrated modem using the Bell 212A format (1200 baud) with automatic fallback to Bell 103 (300 baud). Calls from Verbatim RTUs to the Central Computer or to the Central Data Logger failing to establish communications and deliver a complete status message will be retried. Retried calls which successfully connect will log the number of retries on the printer. After a programmable number of unsuccessful retries, the RTU will enter the communications failure alarm state. Subsequent calls to personnel will state that a communications failure exists. A successful connection will clear the communications failure alarm.

For the Local Data Logging System, the Asynchronous Communications Module incorporates RS-232C serial interface components. Communication with the local serial printer is at 9600 baud via a RACO-supplied printer cable.

For all methods, printed reports include:

- Station identification
- Date and time of report
- Calling status; i.e., alarm, polling, self-poll, etc.
- Contact channel alarm status
- Totalizer channel input totals
- Run-time channel input totals
- Analog channel status (if analog option installed)
- Control output channel status (if remote supervisory control option installed)

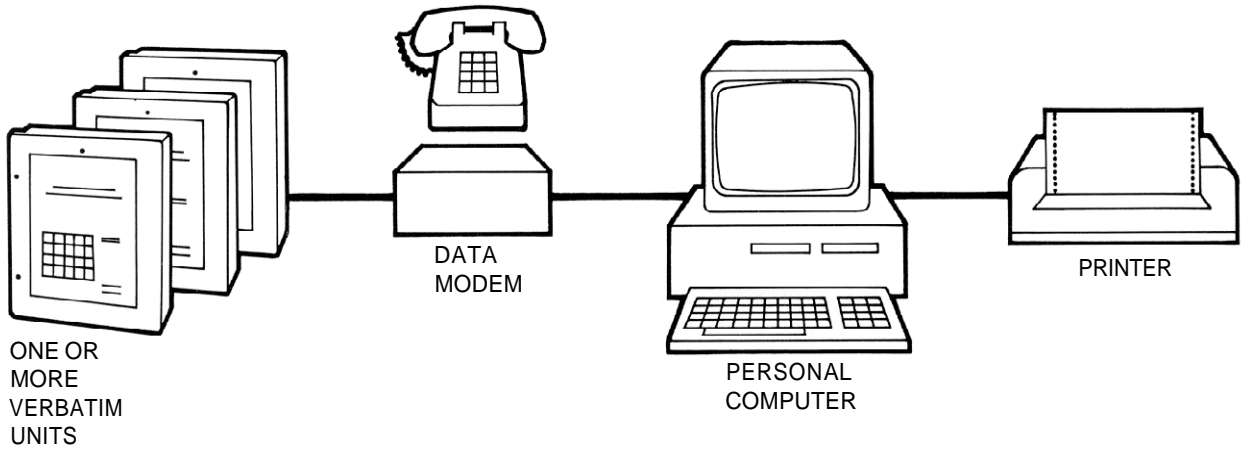
Data Acquisition System

Communication between the Verbatim RTU and the Central Station Computer utilizes a RACO proprietary block mode transmission method with Cyclic Redundancy Checking (CRC-16) and Automatic Repeat Request (ARQ) protocol for error-free transmission.

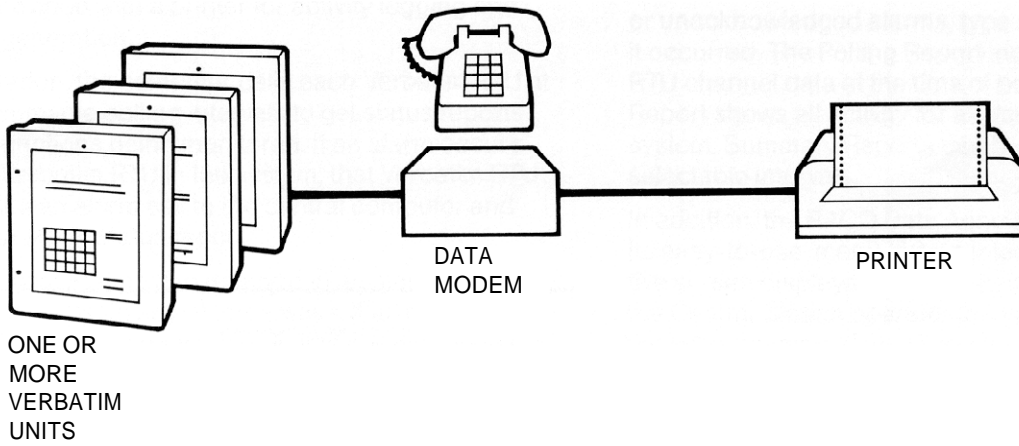
Central Data Logging System

Communication between the Verbatim RTU and Centralized Data Logger utilizes ASCII data plus printer control information to produce a tabular report of the station status.

DATA ACQUISITION SYSTEM



CENTRALIZED DATA LOGGING SYSTEM



LOCAL DATA LOGGING SYSTEM

