

An aluminum processing plant found a way to protect their processing plant with a plant-wide alarm system built around a distributed control unit (DCU) network, logic controller, and a Verbatim Gateway Autodialer.

The processing plant consists of two aluminum rolling mills and a remelt mill. Distributed control units located at each of the three mills are programmed to monitor a list of operating parameters. The DCU's, a programmable logic controller, a Verbatim Gateway Autodialer, and a guard station computer form a local area network (LAN). The Verbatim Gateway autodialer, in turn, is connected to the plant PBX system via a two-wire phone line.

The Verbatim Gateway continuously polls the DCU's for alarm indications at the remote sites. When an alarm occurs, the Verbatim calls the phone number of the plant paging system through the PBX system and repeats a zone emergency message from one to twenty times. The alarm message states where the emergency is located and the nature of the trouble. Designated personnel then acknowledge the alarm and take appropriate remedial action.

In the event that a message is being broadcast over the paging system, the Verbatim Gateway is programmed to provide a relay activation pulse to switch the executive override relay to the PBX trunk used for the alarm paging message. This interrupts the message that is being sent out over the paging system for the alarm message.

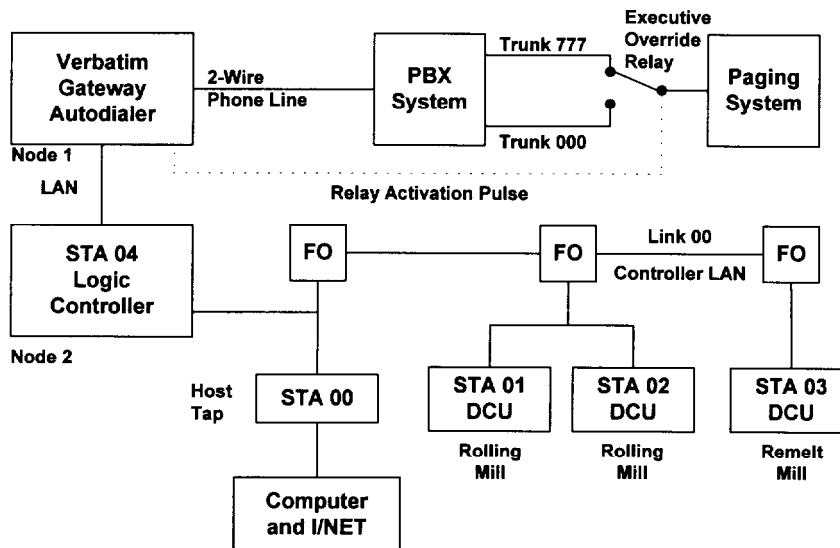
Verbatim Gateway autodialers normally call emergency numbers via the public telephone network. In this case, however, the system is programmed to call only one number — the number for the internal plant paging system.

In addition to storing and printing out plant operating data, the guard station computer is programmed to store and display the date and time of any alarm, the type of alarm, which zone it occurred in, and date and time the alarm returned to normal.

The Verbatim Gateway is also equipped for local data logging. In this case, the System is connected to a parallel printer to provide a hardcopy record of all events. At user-programmable intervals, the system will print the status of all channels on the local printer including run time, totalizer, and analog input values. Reports also include details of alarm activity such as station identification, date and time of report, alarm status, phone numbers called, and conditions of acknowledgement.

VERBATIM GATEWAY

The RACO Verbatim Gateway is an Automatic Dialing and Remote Monitoring System combining an autodialer with an alarm and control system having full microprocessor-based operation and convenient user programmability.



Metal Processing Plant Alarm System Network Diagram

Verbatim Gateway units provide bidirectional communications with programmable logic controller networks via serial cable connection. The Verbatim Gateway does this without requiring the use of controller outputs or modification of programs. The Verbatim Gateway, in turn, is connected to the public telephone network via standard plug-in phone jacks. Upon receipt of appropriate contact or logic level inputs from the programmable logic controller network indicating an alarm, the Verbatim Gateway calls a list of phone numbers and provides clear voice-message reports of the alarm condition.

Operating personnel can also call in at any time from any standard TouchTone® telephone to check the status of any channel, modify alarm criteria and monitoring points, and alter process variables and setpoints.

Continuous real-time communication between the Verbatim Gateway and the programmable logic controller network is performed via a serial link using the protocols supported by specific controller models. Any controller I/O points and data registers can be manually altered. In addition, the system provides automatic monitoring of as many as 96 points — points reflecting any combination of discrete, analog, timer, counter, or other controller data objects.

The Verbatim Gateway uses only a single cable connection to deliver its extensive functionality, avoiding the cost of complex wiring, additional controller outputs, and relays. Monitoring points can be added at costs that are about 40% less than those associated with traditional controller-to-output configurations.

Alarm and status messages are digitally pre-recorded in the user's own voice and stored in the Verbatim Gateway's non-volatile memory. The messages are then selectively played back exactly as recorded when an alarm occurs or a status condition is requested.

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REMOTE ALARMS AND CONTROLS