



GE Power Management
215 Anderson Ave., Markham, ON, Canada L6E 1B3
Tel.: (905) 294-6222, Fax: (905) 294-2098
Email: info.pm@indsys.ge.com
Website: www.GEindustrial.com/pm

Contact: info.pm@indsys.ge.com

For Immediate Release:

Petrobras in Brazil goes live with unique protection scheme developed by GE Power Management and RTR

Oil company harnesses the power of the Universal Relay's peer-to-peer communications for high-speed fault detection

Markham, ON, August 4, 2000 -- GE Power Management, announces that the Petrobras Refinery RLAM in the state of Bahia in Brazil is the first to utilize a unique protection scheme that delivers the advanced functionality of the Universal Relay to conventional relay technology to deliver high-speed peer-to-peer communications. The protection scheme was developed by GE Power Management in partnership with system integrator RTR, based in Santos, Brazil, and includes the installation of four F60 Feeder Management Relays at the oilfield, as well as a C30 UR Controller as a communications interface, with three SR750 Feeder Management Relays located at the refinery.

“The Bahia project presented some unique challenges,” explains Bruno Doerwald, Regional Manager, GE Power Management. “Petrobras wanted to use a more conventional time co-ordinated protection scheme at the site, but without all the advantages of high-speed peer-to-peer communications over fiber optics to ensure fast detection and removal of faults, the system stability could not be assured. The customer simply would not risk the continuity of the refinery power supply to supply the oil pumping fields. It was imperative to find a secure way to ensure that no electrical fault at the oil pump distribution system would harm production at the refinery.”

Petrobras' mandate was to achieve detection and notification of a fault within 60 milliseconds, a stipulation that, according to Doerwald, “could not be achieved over conventional copper wiring because of the distance (4Km) and speed requirements. In fact, the best time achieved with a conventional PLC based communication was an unacceptable 550mS.”

The SR750s, a known, existing and trusted relay at the refinery, was unable to perform the fast peer-to-peer communications. The solution was to use a C30 Universal Relay at the refinery to act as a communications interface. Through this scheme, it was possible to use single-mode fiber over the 4 km. Distance to communicate with the F60s at the oilfield. Using this new scheme, fault detection and notification was completed in less than 38 ms.

In addition, the new “hybrid” protection scheme was implemented at 65% of the projected cost. The return on the relay and communications portion of the investment realized within two months because the power to the oil field could now be supplied from the excess generation capability of the refinery. “This simply could not have been achieved without UR technology,” says Doerwald. “The Bahia site is an excellent example of how a company can cost-effectively leverage the benefits of UR and reduce their overall costs while retaining their investment in existing technology.”

GE Power Management’s UR products are digital-based solutions that support the open standard MMS/UCA2 protocol in addition to ModBus[®] RTU, Modbus[®]/TCP, DNP 3.0, and DNP 3.0 on Ethernet. All UR products combine peer-to-peer high-speed communication capabilities with modularity, flexibility, and field-programmable FlexLogic[™] control for simplified substation automation.

UR products include the F60 Feeder Management Relay, the F35 Multiple Feeder Management Relay, the C30 Controller, the L90 Line Differential Relay, the C60 Breaker Management Relay, the T60 Transformer Management Relay, the L60 Phase Comparison Relay, and the D60 Line Distance Relay.

GE Power Management, based in Markham, Ontario, specializes in the manufacture and sales of protection, metering, and control equipment, and of systems for large generating plants, substations, LANs, and industrial operations around the world. For more information, visit the website at <http://www.GEindustrial.com/pm>