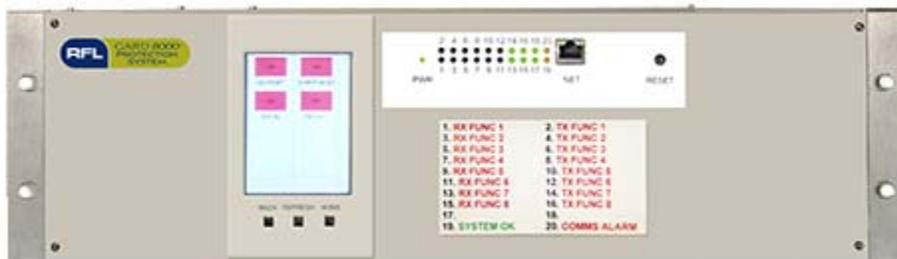


# GARD 8000 PROTECTIVE RELAY & COMMUNICATIONS SYSTEM

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## Product Description

The GARD 8000 Global Architecture Relaying Device is a revolutionary product platform that provides the user with a fully programmable system that can be used for all teleprotection and line protection needs.

The system uses fully programmable logic and settings that can be uploaded or downloaded using the built-in TCP/IP (electrical or optical) or RS-232 interface. Communicating with the system is done with a PC using a Web Browser. The GARD 8000 has a built-in web server that contains all of the user settings, no special or proprietary software is required to access the product. A most unique feature is that the user manual and customer system and application drawings are stored in the GARD 8000 in Adobe pdf format and are easily accessible from the GARD 8000 web browser.

The GARD 8000 is available in a 3U chassis (5.25") which can support up to two additional teleprotection or protective relay function modules, or a 6U chassis (10.50") which can support up to eight teleprotection or protective relay function modules. Redundant controller and power supplies are available as options for applications where ultra reliable systems are required.

## Protection System

Proper performance of the Protection System requires a functioning communication link and teleprotection device. While protective relays are commonly duplicated for increased redundancy, this is not always the case for the communications channel. Limited availability of external communication links, or the cost of adding a second channel compromises power system protection redundancy.

System protection redundancy can be improved by the GARD 8000 System. Not only can additional channels easily be made available but the built-in hardware redundancy will provide a higher degree of dependability

than two separate protection systems. In addition, external relay-to-teleprotection wiring is eliminated, minimizing the risk of faulty connections or interference affecting the protection system.

### **Hardware Redundancy**

The telecommunications industry has very stringent requirements for redundancy. The principle of “no single point of failure” is adopted. With the increased demands on the power system, hardware redundancy in the protection device provides an added level of insurance. The GARD 8000 can be equipped with redundant power supplies, redundant main processors, redundant input/outputs, redundant functional modules and redundant communication interfaces providing an unequaled safe-guard against equipment failures.

### **Economical Use of Your Communication Link**

With the exponential growth of data communications, the use of a dedicated fiber for a single channel, low-speed data, might no longer be justified. The GARD 8000 system uses the communication channel efficiently and can provide up to 768 kbps on one link (twelve 64 kbps channels).

The GARD 8000 System offers interfaces for dedicated fiber and direct connection to T1/E1 or SONET/SDH multiplexers.

For applications where no digital channels are available, the audio tone interfaces can be used for 2-wire or 4-wire FSK communications. In addition, GARD 8000 can be equipped with an integral Power Line Carrier, selectable for ON/OFF or FSK operation.