



# **GARD 8000**

## **Current Differential Relay HCB Replacement**



### **Features:**

The GARD 8000 pilot relay upgrade assembly provides the following features:

- Mounting adapter permits installation in existing HCB relay panel cutouts
- The FT-1 test switches, and wiring harness, is designed to be installed in existing pilot wire monitoring relay panel cutouts
- The GARD 8000 can be configured with an independent distance relay function
- The GARD 8000 Current Differential relay is available with many channel communications options
  - T1/E1, electrical or fiber
  - RS 449, 56-768 kbps
  - X.21, 64-768 kbps
  - V.35, 64-768 kbps
  - G.703, co-directional, 64 kbps
  - C37.94 fiber
  - Fiber, multi-mode or single-mode
- The GARD 8000 provides asymmetrical channel delay compensation of up to 8.0 ms
- High speed operation: 10 ms minimum, 18ms typical
- 10 Year warranty
- Sequence of Events files
- Comtrade compliant Oscillography records





## System Description

The RFL GARD 8000 Protective Relay and Control System provides a simple solution for upgrading existing pilot wire relaying systems. Utilizing the current differential relay module, and configured in a standard three rack unit chassis, the mounting adapter permits the GARD 8000 to be installed in existing electromechanical relay cutouts.

The RFL GARD 8000 offers a major upgrade over existing protection, communications, and fault analysis, with the additional ability of future expandability to three terminal, or step distance protection.

The RFL GARD 8000 can be furnished with a wiring harness to external current and potential test switches. The test switches are provided with a mounting adapter to permit installation in existing pilot wire monitoring relay panel cutouts.

The wiring harness and adapter panels are designed to fit your system application, and, existing relay panel layout, providing a minimum of field installation time.

## Current Differential Protection

A current differential protection module can be integrated in the GARD 8000 System. Using one 64 kbps channel, the current differential relay can use the same communication link as the teleprotection system module, or it can have its separate channel interface.

Duplicating the highly successful RFL 9300 measuring principle with its high speed operation, the GARD 8000 current differential protection provides added flexibility and enhanced functionality:

- Extended fault recording and oscillography with larger dynamic range and more digital signals
- Fault records directly in COMTRADE allows evaluation by use of any standard reader
- While still extremely simple to set, extended setting ranges are made available for increased system fault current coordination
- Transient block logic for added security at external fault clearing with ct errors
- Adjusts for different ct ratios by setting
- Is completely unaffected by channel delay errors up to +/- 4 ms, as may be caused by asymmetric transmit and receive channels
- Two- or three-terminal versions
- Hot/stand-by redundant channel operation
- Optional single pole trip logic
- Dual breaker version

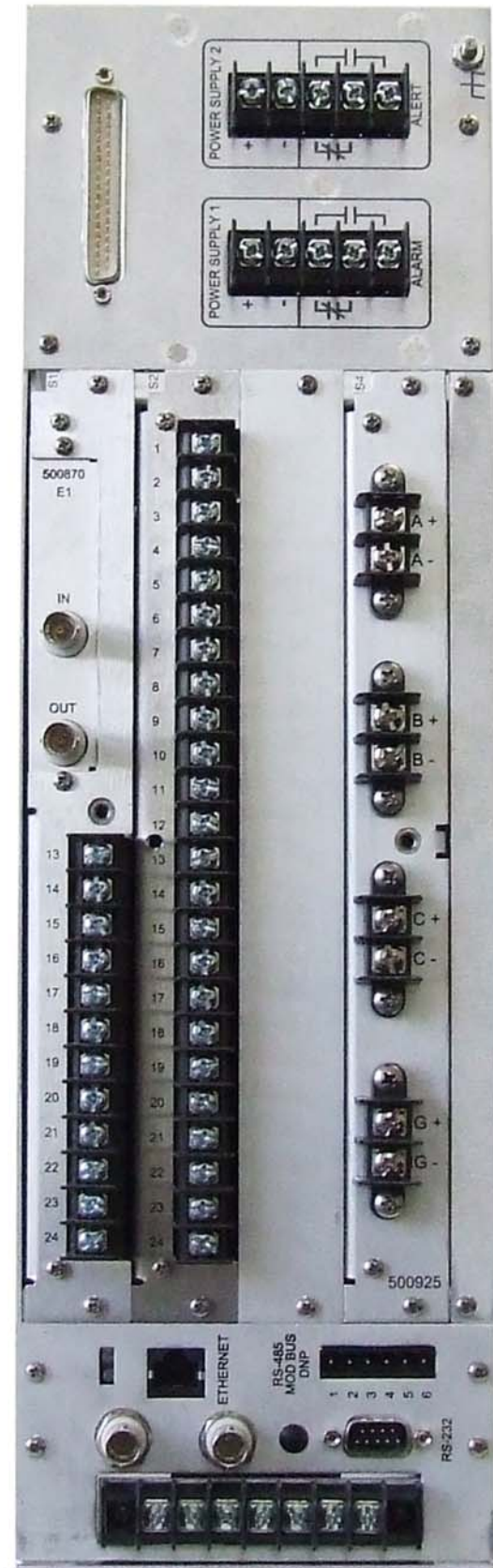


Figure 1. GARD 8000 Rear View

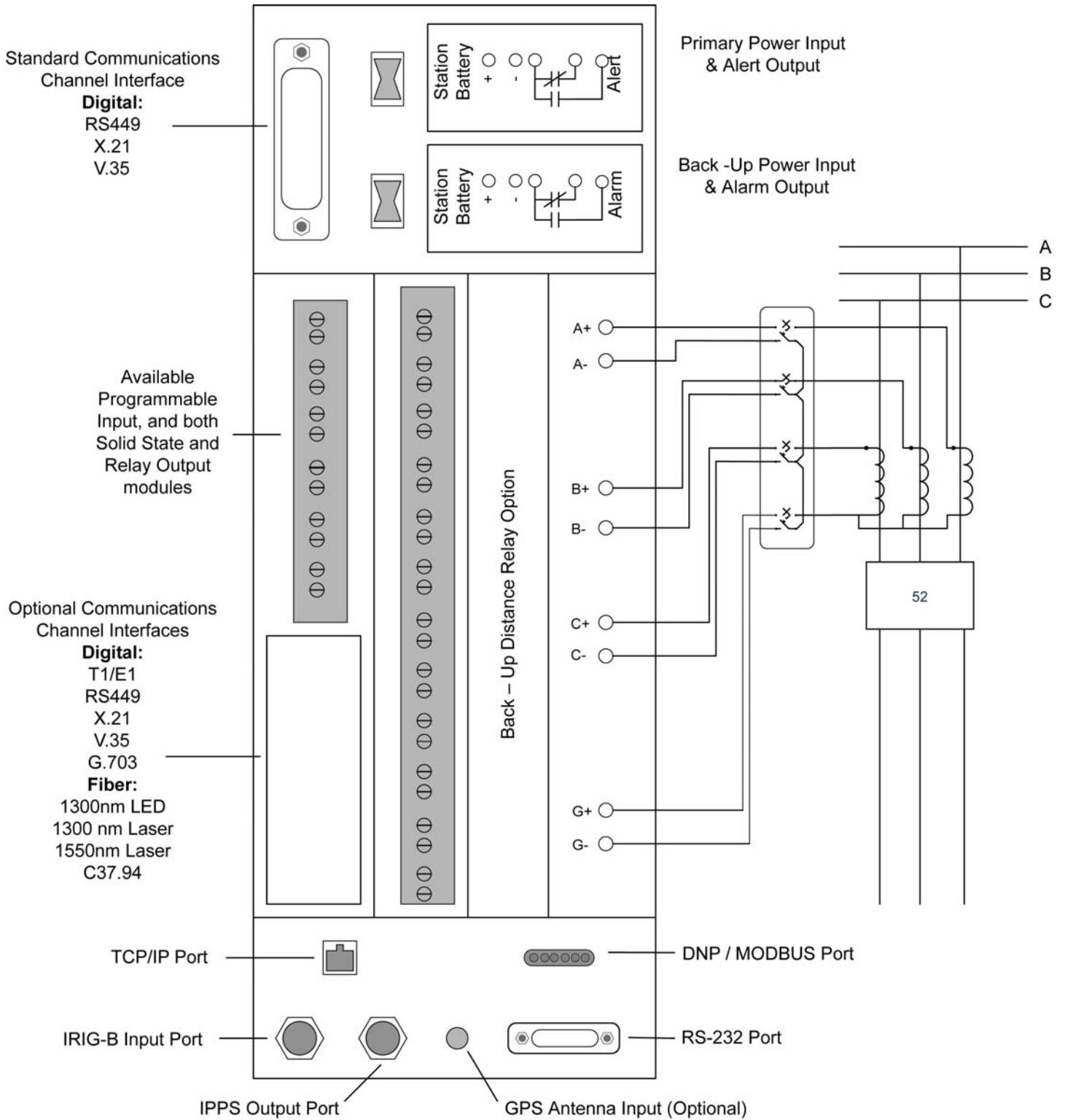


Figure 2. System Block Diagram



**RFL Electronics Inc.**

353 Powerville Road  
Boonton Twp., NJ 07005-9151

Tel: 973.334.3100

Fax: 973.334.3863

[www.rflect.com](http://www.rflect.com)

[sales@rflect.com](mailto:sales@rflect.com)

