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# AMETEK

POWER INSTRUMENTS

## FOCUS

Fiber Optic Communications for Utility Systems

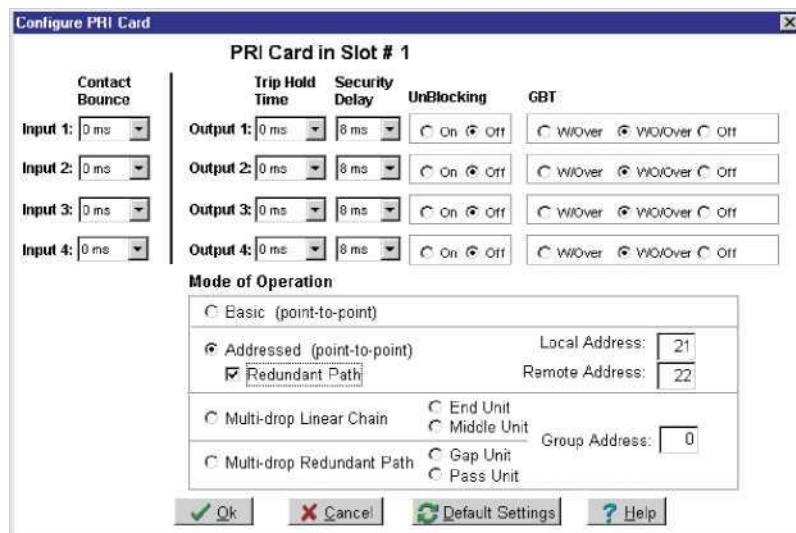
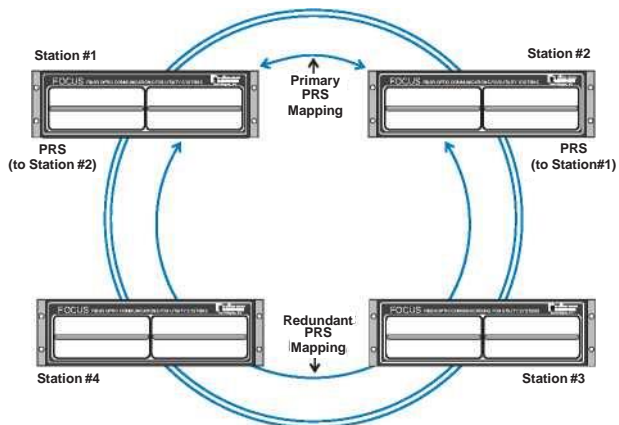
### PRI/PRS Channel Module - Redundant Path

The basic Protective Relay Interface provides four independent, programmable, bi-directional, point-to-point transfer trip circuits with either mechanical contact outputs (PRI) or solid-state outputs (PRS). These optically isolated trip circuits are encoded, allowing each one to operate independently without affecting the dependability, security or response time of the remaining circuits. Guard logic with alarm output contacts provide channel security and indication.

The PRI/PRS Redundant Path feature gives a point-to-point PRI/PRS pair a redundant path, providing there is a second T1/E1 path available. Maintenance module Version 3 (MV3) or greater is required to use the redundant path feature. The benefits of the redundant path feature are:

- Very fast healing times when the primary T1/E1 path is broken. Recovery time is typically less than 1 millisecond.
- Redundant path protection is available for PRI/PRS modules when applied within looped systems, whether or not the Alternate Path Mode (APM) solution is applied.
- The logic for switching is done inside the PRI/PRS module at the DS0 level.
- Both the primary and redundant paths are continuously monitored. Switching occurs only when there is a loss of signal on the primary path and the redundant path is error free.

The PRI/PRS modules are also configured with assigned unit addresses allowing for a point-to-point addressed PRI/PRS pair. The correct use of addressing prevents incorrect connections due to mapping errors.



## Application

PRI/PRS channel modules are commonly used in a variety of direct trip and directional comparison protection schemes. In addition, PRI/PRS modules may be used to transfer critical metering pulse (KYZ) information.

The transfer trip circuits are applicable for use in the following schemes:

- Direct transfer trip
- Permissive overreaching transfer trip
- Permissive underreaching transfer trip
- Directional comparison blocking
- Directional comparison unblocking
- Secure contact status transfer

Settings are provided for contact debounce, security level, trip output hold, unblock and guard before trip. Further description of these setting choices may be found in the FOCUS System Manual. An optional feature of this module provides for multi-terminal tripping. This feature is described in a separate publication.

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