

# *Expanding the Benefits of the RadioRANGER<sup>™</sup> to Pad-Mounted Enclosures*

Larry Feight and Stephanie Schweitzer

## **INTRODUCTION**

SEL designed the RadioRANGER Wireless Fault Indication System to solve the problem of troubleshooting faults in subsurface vaults and the underground cables between them. The RadioRANGER also improves safety and reliability in pad-mounted switchgear and sectionalizing cabinet applications. Field testing shows that the typical radio frequency range of the Wireless Interface is several hundred feet in pad-mounted enclosures.



**Figure 1 The RadioRANGER Wireless Interface communicates fault indicator status to the Remote Fault Reader**

## **RADIORANGER BENEFITS**

- Display fault-path information on a Remote Fault Reader without opening difficult-to-access enclosures.
- Minimize fault-finding time and troubleshooting crew size.

- Benefit from the proven reliability and quality of the SEL fault indicator configuration best suited to your application:
  - Underground AutoRANGER™
  - Current Reset
  - Test Point Reset
  - Timed Reset
- Keep crews safe and out of hazardous or restricted areas.

## **APPLICATIONS**

The RadioRANGER communicates fault indicator status (both tripped and untripped) to the Remote Fault Reader from the Wireless Interface installed in an enclosure. The system identifies the enclosure or span of cable on which a fault occurred, eliminating the need to open a series of cabinets in order to determine the location of a fault (see Figure 2).

### **Secure and Difficult-to-Access Areas**

Using the RadioRANGER in high-security areas with pad-mounted switchgear or sectionalizing equipment enables the crew to determine the fault location from outside of a security fence or restricted area. By eliminating the need to open locked gates or call dispatch, the crew can restore power more quickly and safely.

### **Enclosures Not Suitable for Traditional Fault Indicators**

In cases where modifying pad-mounted enclosures to accommodate traditional fault indicator remote displays is not possible, the RadioRANGER provides external fault indication without the need to modify the cabinet. Without remote indication, line crews need to open multiple live-front switchgear bays to look for fault indicator displays. Adding the vault, way, and phase distinctions provided by the RadioRANGER to a mapping system further simplifies the fault-finding process.

### **Areas With Multiple Types of Enclosures and Vaults**

Because the RadioRANGER is applicable in many kinds of enclosures and vaults, it is an ideal solution for systems that include a mix of vaults, pad-mounted transformers and switches, and control rooms. These systems include shopping malls, hotel complexes, college campuses, and industrial areas. While pad-mounted transformers are not the primary application for the RadioRANGER, the product's ability to communicate signals out of enclosures allows users to apply the solution across the system to maximize the benefits of wireless fault indication.

## **SEL SOLUTIONS**

SEL fault indicators equipped with magnetic RadioRANGER Interface Probes communicate their status to the Wireless Interface. Troubleshooters can quickly retrieve subsurface faulted circuit indicator status from the truck via the wireless communications link between the Wireless Interface and Remote Fault Reader. The RadioRANGER's multiple IDs allow the line crew to

easily identify the enclosure, phase, and way on which a fault occurred. A two-way communications link prevents ambiguity by transmitting both tripped and reset fault indicator information to the Remote Fault Reader. A simple magnetic mounting kit secures the Wireless Interface without modifying the enclosure.

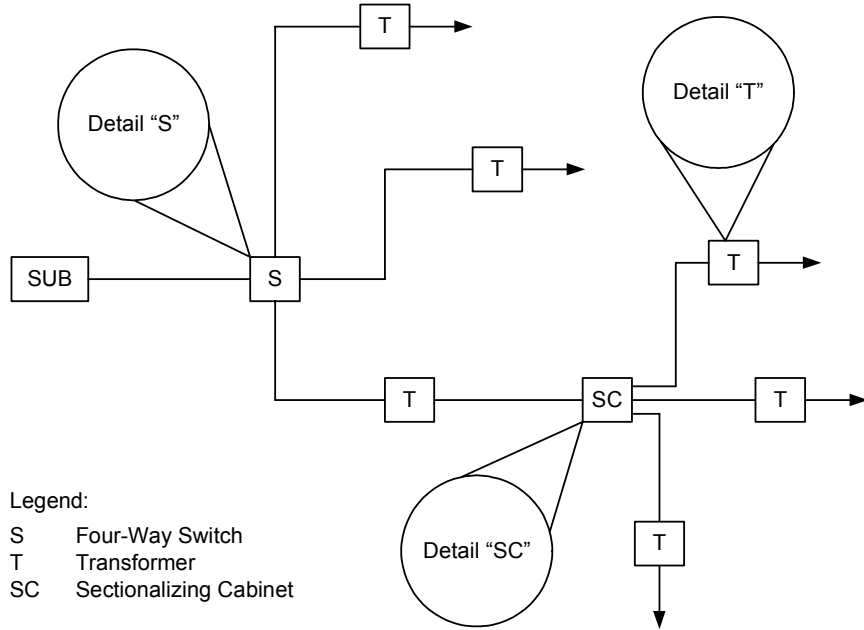


Figure 2 Use the RadioRANGER system solution to quickly locate faults at pad-mounted switches, transformers, and sectionalizing cabinets

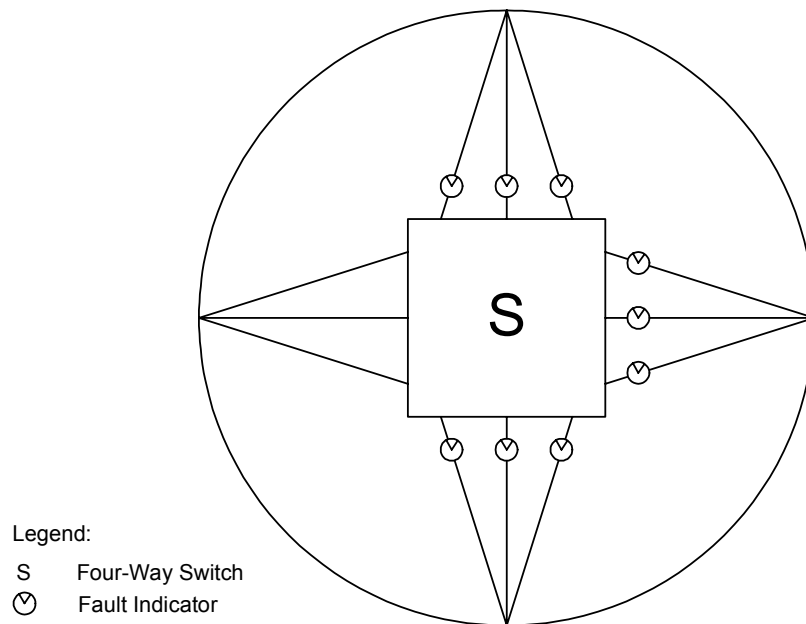
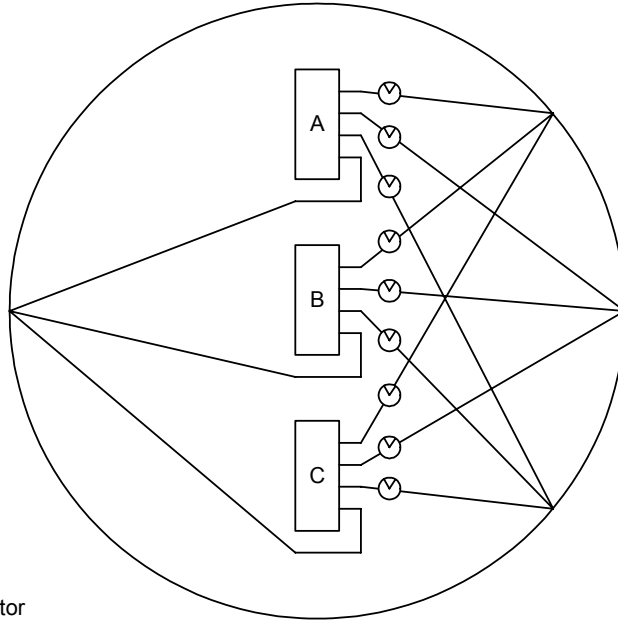
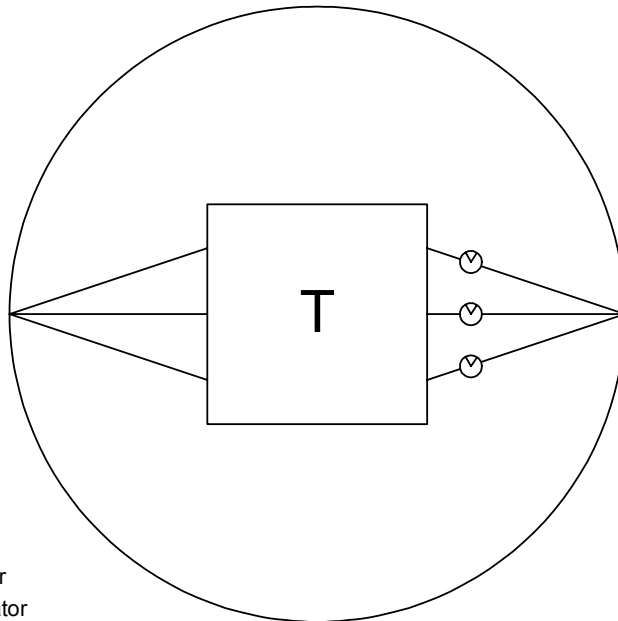


Figure 3 This three-phase, four-way switch is a zoomed-in view of Detail "S" from Figure 2



**Figure 4** This three-phase, four-way sectionalizing cabinet is a zoomed-in view of Detail “SC” from Figure 2



**Figure 5** This three-phase, feed-through, pad-mounted transformer is a zoomed-in view of Detail “T” from Figure 2

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**E. O. SCHWEITZER MANUFACTURING**  
**A DIVISION OF SEL**

450 Enterprise Way • Lake Zurich, IL 60047  
 Tel: 847.362.8304 • Fax: 847.362.8396 • www.eosmfg.com • sales@eosmfg.com

