

Fault Indicators and Sensors



Reduce outage times, improve reliability,
and enhance distribution protection

- Overhead and underground fault indicators accelerate restoration through reliable fault indication.
- Wireless fault and load transmitters provide remote fault locating and enable informed switching decisions.
- Protection-speed wireless fault transmitters enable better tripping and reclosing decisions.
- Voltage monitoring detects outages and supports source transfer schemes in underground distribution systems.



Solutions for Common Problems

Challenges and Applications	LINAM® Solution
Avoid pumping and entering underground vaults to find a fault.	Deploy the RadioRANGER® Wireless Fault Indication System with the LINAM UGFI Underground Fault Indicator and the LINAM MC Multiconductor Cable Fault Indicator.
Avoid opening potentially live pad-mounted enclosures to find a fault.	Install the UGFI and MC with your choice of remote display options.
Avoid thumping to find faults in paper-insulated lead cable (PILC) and other underground multiconductor cables.	Install the MC on multiconductor cables.
Calculate variable load values on overhead lines.	The LINAM AR360 and AR Overhead AutoRANGER® Fault Indicators calculate automatic trip value adjustments based on the load current.
Integrate wireless fault indicators with SCADA or an outage management system (OMS).	The LINAM FLT and LINAM FLR Fault and Load Transmitter and Receiver System integrates with existing IP networks using the SCADA-friendly DNP3 protocol.
Identify the location of temporary faults.	The AR360 and AR visually indicate temporary faults. The LINAM FLT and FLR system indicates and counts momentary faults.
Block reclosing for underground faults, and coordinate high-density recloser trip blocking.	The SEL Wireless Protection System communicates fault status to other devices at protection speed.
Send the fault indicator status to SCADA.	Use LINAM wireless fault indicating solutions for overhead applications and the UGFI with auxiliary contact for underground applications.

Key LINAM Features

Simplify Inventory

- The multifunctional LINAM UGFI allows you to standardize on a single fault indicator platform for underground applications.
- Fault indicators with AutoRANGER functionality calculate automatic trip threshold adjustments based on the load current, removing the need to stock multiple devices with fixed trip values.
- Universal cable clamps fit a wide range of cable sizes.

Reduce Maintenance

- Line-powered, battery-free fault indicators require no maintenance.
- LINAM battery-powered fault indicators offer the longest cumulative LED flashing hours in the industry.
- Like all SEL products, LINAM fault indicators are designed for reliability and longevity—and backed by our ten-year warranty.

Install Quickly and Easily

- Install overhead fault indicators and most underground fault indicators with a single hot stick.
- Strong, simple cable clamps ensure fast, reliable installation.

Reduce Fault-Locating Time

- Remote display options remove the need to open potentially live enclosures.
- The RadioRANGER system allows personnel to read the status of fault indicators in underground vaults at surface level.
- Bright displays clearly indicate the fault status.

Featured Products

Traditional Fault Indication

Minimize outage duration by deploying ultra-reliable, multifunctional fault indicators to identify faulted line segments.

Overhead Applications

Improve fault indication reliability with fault indicators that automatically select trip thresholds based on the sampled load current. With visual indicators for both permanent faults and momentary faults, these devices help line crews locate faults and remove the sources of momentary faults before they become permanent.

Underground Applications

Use LINAM fault indicators in pad-mounted installations, including transformers, switchgear, sectionalizing cabinets, and junction boxes, to identify faults in the underground cable between enclosures.

Apply rugged, submersible LINAM underground fault indicators with confidence in subsurface vaults and maintenance holes. The MC is specifically designed for multiconductor applications. The UGFI uses industry-leading technology to prevent false indication and includes remote display options that make the fault status visible at a convenient location for line crews.



LINAM AR360 and LINAM AR Overhead AutoRANGER Fault Indicators



LINAM UGFI Underground Fault Indicator

LINAM MC Multiconductor Cable Fault Indicator

Wireless Fault Indication and Wireless Protection Communications

These advanced fault detection solutions optimize distribution reliability by communicating the fault status and related information, such as load data, to other devices in your system.

LINAM FLT and LINAM FLR Fault and Load Transmitter and Receiver System

Locate faults faster and make informed switching decisions with a wireless fault indication system that transmits fault and load data.

Line-powered transmitters require no maintenance and indicate both momentary and permanent faults. The receiver can be installed in existing cabinets or ordered with a fully integrated enclosure that includes a UPS and backup battery as well as space to install an SEL-3505-3 Real-Time Automation Controller (RTAC) to enable local automation schemes.



LINAM FLT and LINAM FLR Fault and Load Transmitter and Receiver System

SEL Wireless Protection System

The SEL Wireless Protection System transmits the fault status via protection-speed wireless communications to help relays make better tripping and reclosing decisions based on the location of a fault.

Deploy this cost-effective, easy-to-install solution at key points in your distribution system to:

- Block reclosing for underground faults.
- Coordinate recloser trip blocking in high-density applications.
- Enable fast bus tripping.
- Communicate the fault status to SCADA and advanced distribution management systems.



SEL Wireless Protection System

Voltage Detection

The LINAM TPVS Test Point Voltage Sensor provides a reliable, economical voltage-monitoring solution for automatic source transfer schemes. It also serves as an OEM component in source-transfer switchgear. Key features include self-calibration, self-monitoring, and selectable testing and operating modes.

The LINAM VIN Voltage Indicator provides a fast, cost-effective way to add voltage detection to underground distribution systems. Install it in pad-mounted transformers, switchgear, and other enclosures with basic insulating plugs or capacitive test points.



LINAM TPVS Test Point Voltage Sensor and LINAM VIN Voltage Indicator

Fault Indicator and Sensor Products

Traditional Fault Indication

Overhead Applications

- LINAM AR and AR360 Overhead AutoRANGER Fault Indicators
- LINAM ER Overhead Electrostatic Reset Fault Indicator

Underground Applications

- LINAM UGFI Underground Fault Indicator
- LINAM MC Multiconductor Cable Fault Indicator
- LINAM TPR Underground Test Point Reset Fault Indicator

Wireless Fault Indication

- SEL Wireless Protection System—SEL-FT50 Fault Transmitter, SEL-RP50 Fault Repeater, and SEL-FR12 Fault Receiver
- LINAM FLT and LINAM FLR Fault and Load Transmitter and Receiver System
- RadioRANGER Underground Wireless Fault Indication System

Voltage Detection

- LINAM TPVS Test Point Voltage Sensor
- LINAM VIN Voltage Indicator

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PF00221 • 20260417

