ETI

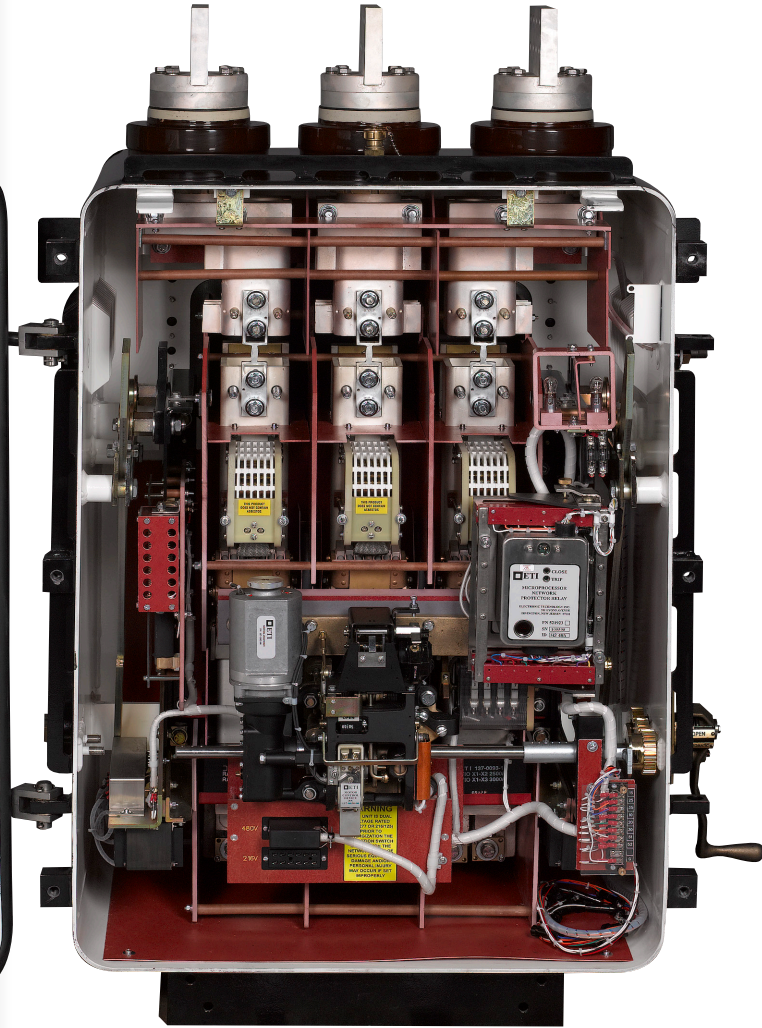## Electronic Technology Incorporated

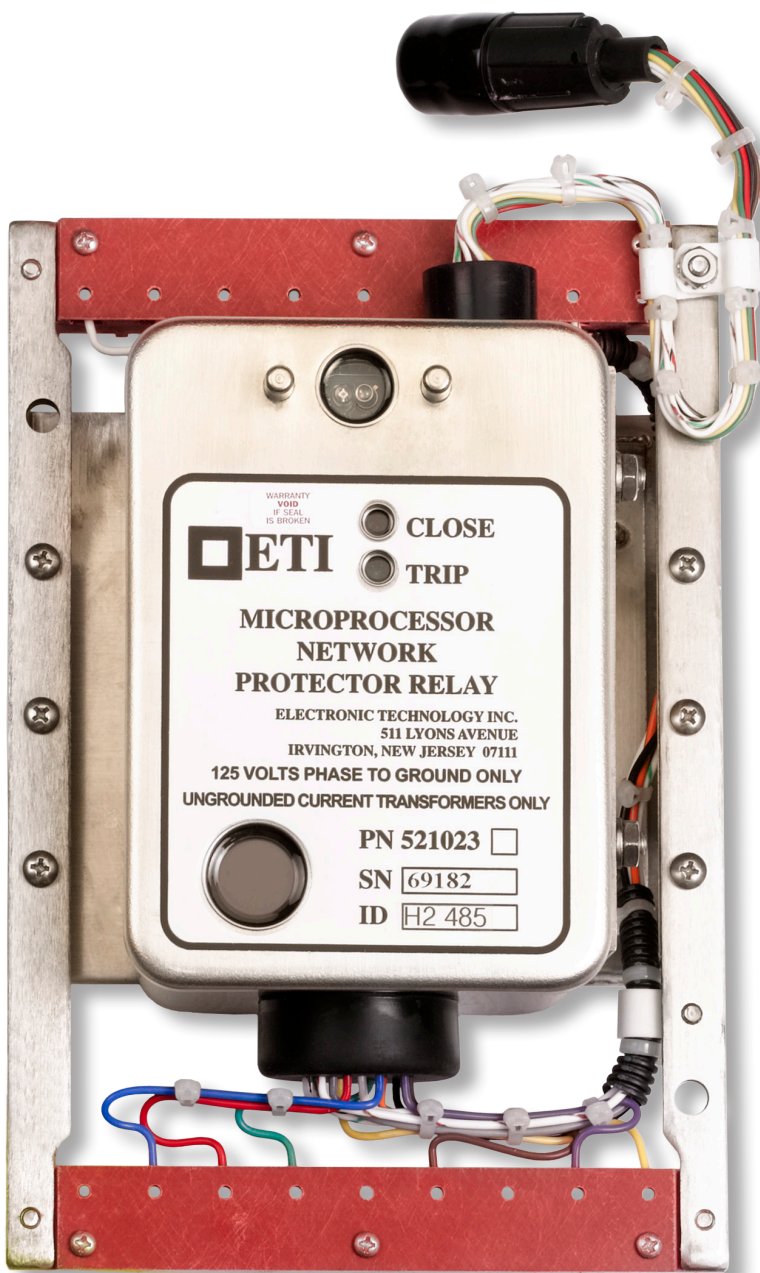# Secondary Network Communications

PRODUCT CATALOG
2017 EDITION

Richards MANUFACTURING CO.

WARRANTY
VOID
IF SEAL
IS BROKEN

⬜ETI

CLOSE

TRIP

MICROPROCESSOR
NETWORK
PROTECTOR RELAY

ELECTRONIC TECHNOLOGY INC.
511 LYONS AVENUE
IRVINGTON, NEW JERSEY 07111
125 VOLTS PHASE TO GROUND ONLY
UNGROUNDED CURRENT TRANSFORMERS ONLY

PN 521023 ⬜

SN 69182

ID H2 485

Richards Manufacturing & ETI
are the largest providers of network protectors in the World.

We can provide you with network protectors, fuses, relays, and cable limiters as well as a comprehensive monitoring system for secondary networks. Our monitoring system was specifically designed to meet the demands of customers like you and exceeds expectations both in terms of benefits and performance ...

- Easy to install
- Reliable
- Flexible
- Connects to any existing communicating system
- DNP3 (or any other common protocol) embedded into the relay. Easily incorporated into your existing SCADA system.
- Incorporates a variety of sensors to monitor:
  - Transformer pressure
  - Transformer oil temperature
  - Transformer oil level
  - Customer specific

Systems Integration

In addition to being a manufacturer, Electronic Technology Incorporated also provides design and installation services for automating entire underground network distribution services. ETI creates custom solutions that incorporate information from MNPR® relays, sensors, and other intelligent devices. ETI can also provide means for transmitting, reporting, storing and displaying that data.

ETI monitoring systems can be ordered with different options and features to best meet your particular needs. Consult the following pages for available offerings.

The basic monitoring system consists of the Communicating ETI Microprocessor Network Protector Relays (MNPR®) which will interface with your existing Wide Area Network (WAN). Virtually any WAN is compatible, from radio, to fiber optics, to phone line.

The ETI MNPR® communicates with your WAN via the Local Area Network (LAN) in each vault. Our basic system is an RS485 communicating relay that either plugs directly into a WAN device or into a RS485/232 converter. It also utilizes an RS485 serial link from the communicating relay. This allows multi-drop communications — up to 32 MNPR® relays can share one WAN device.

Simply use an Android™ device or a laptop to communicate with the MNPR® via a cable or Bluetooth optical head (cable, Android™ device and Bluetooth optical head are available from ETI). Android™ devices utilize Commander software which is available as a free download on Google Play. Laptops run the Field Pro software.
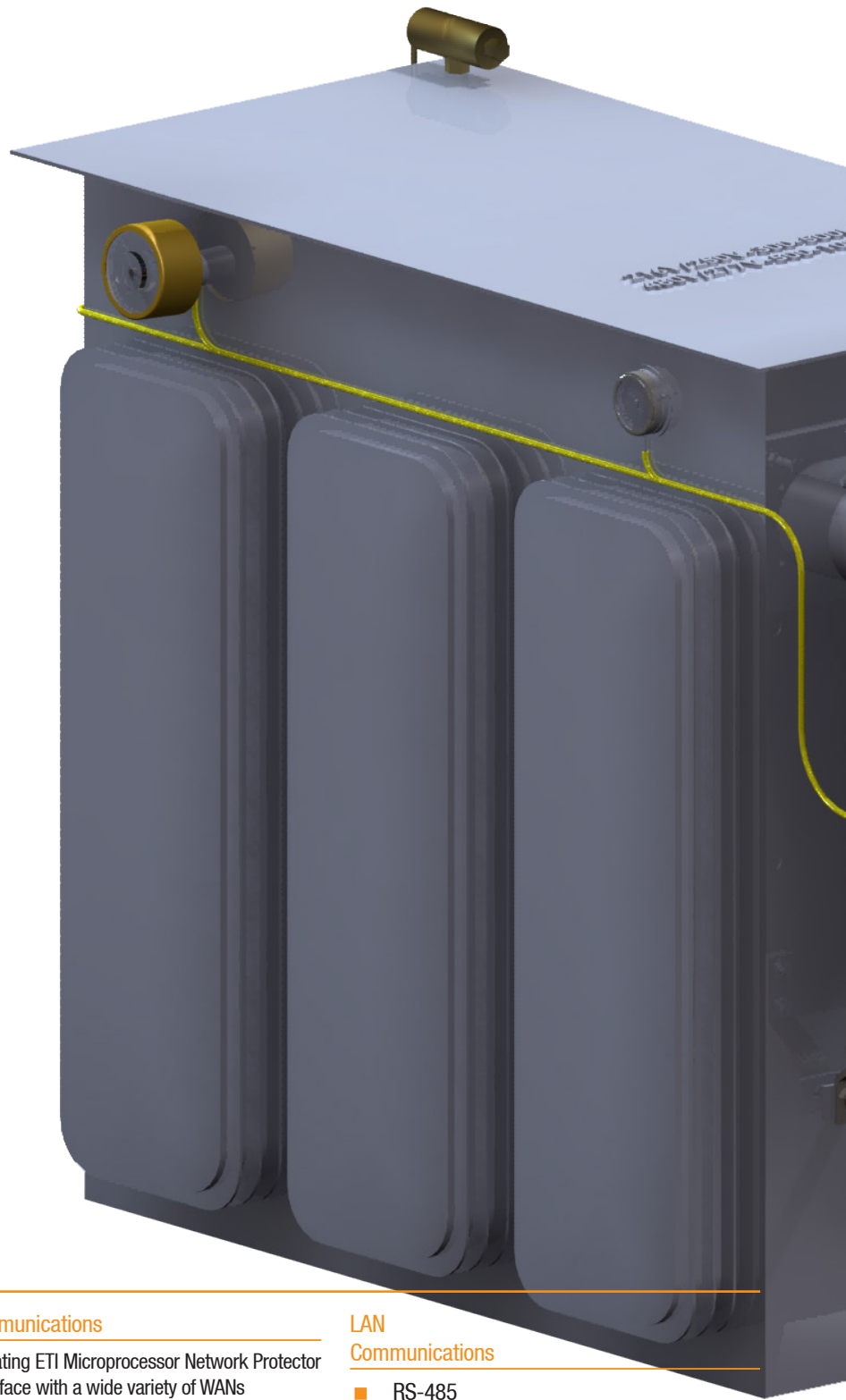
NETWORK PROTECTOR

Sensors/Indicators

- Vault Water Level
- Transformer Oil Level
- Transformer Temperature
- Transformer Pressure
- Protector Status
- Protector Housing Pressure
- Protector Handle Position
- Protector Water Sensor

Auxiliary I/O

- Analog Inputs
- Digital Inputs
- Digital Outputs
- Custom Configurations

WAN Communications

Communicating ETI Microprocessor Network Protector Relays interface with a wide variety of WANs

- Fiber Optics
- Radio
- Cellular
- Phone line

Protocols

- DNP3
- Modbus
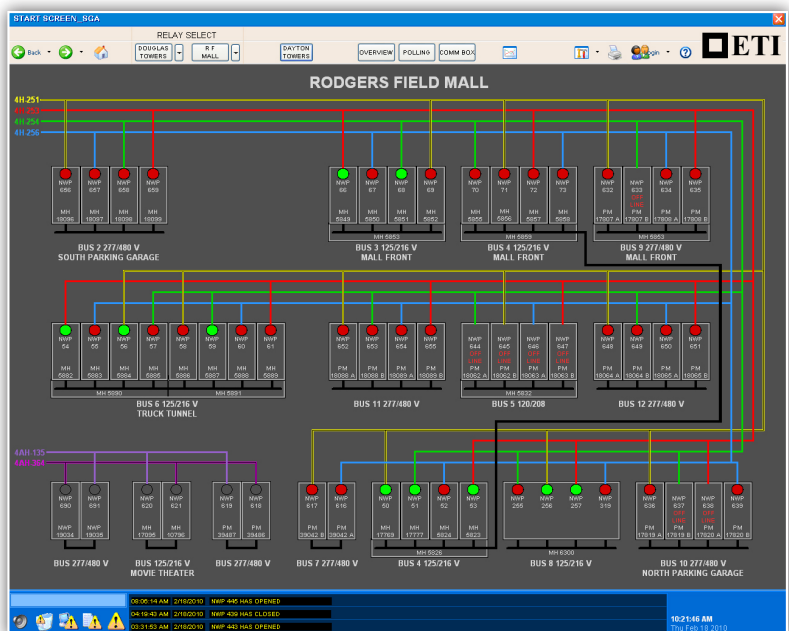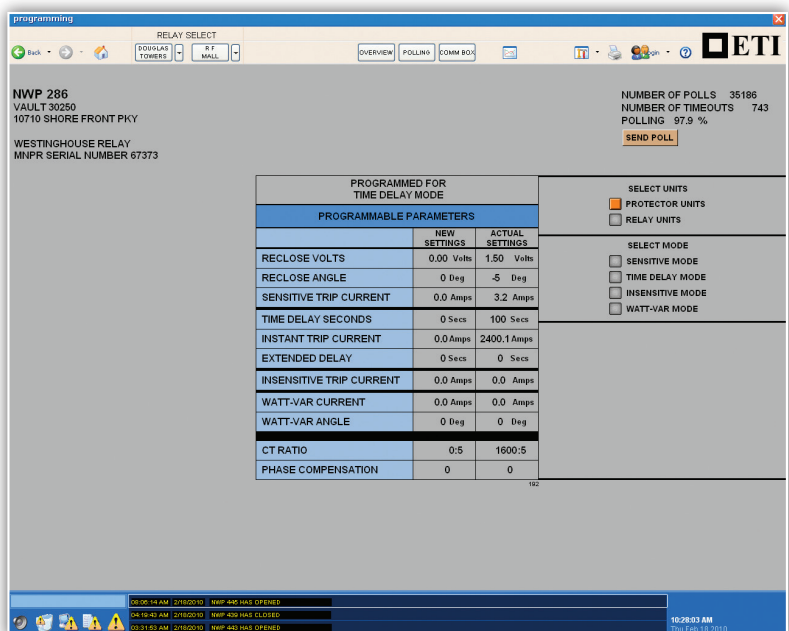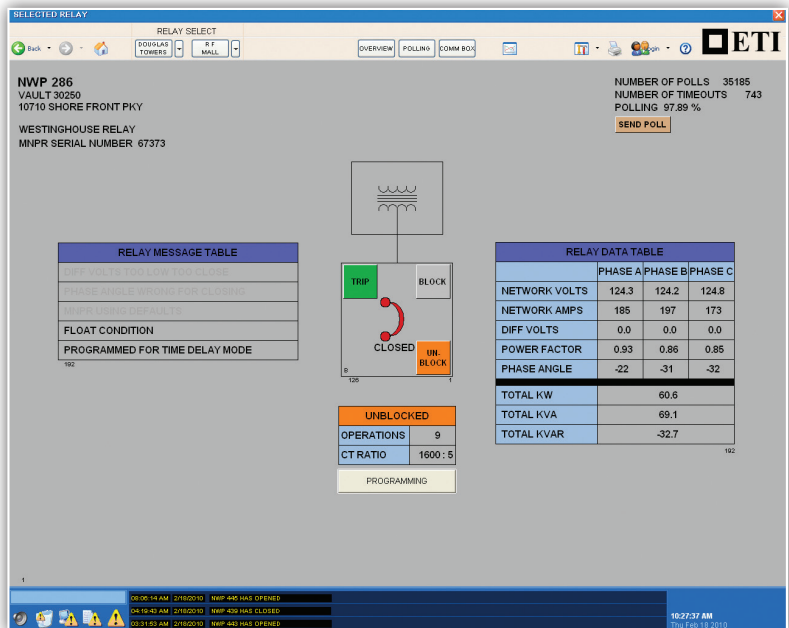- Customer specific (i.e. SES-92)

LAN Communications
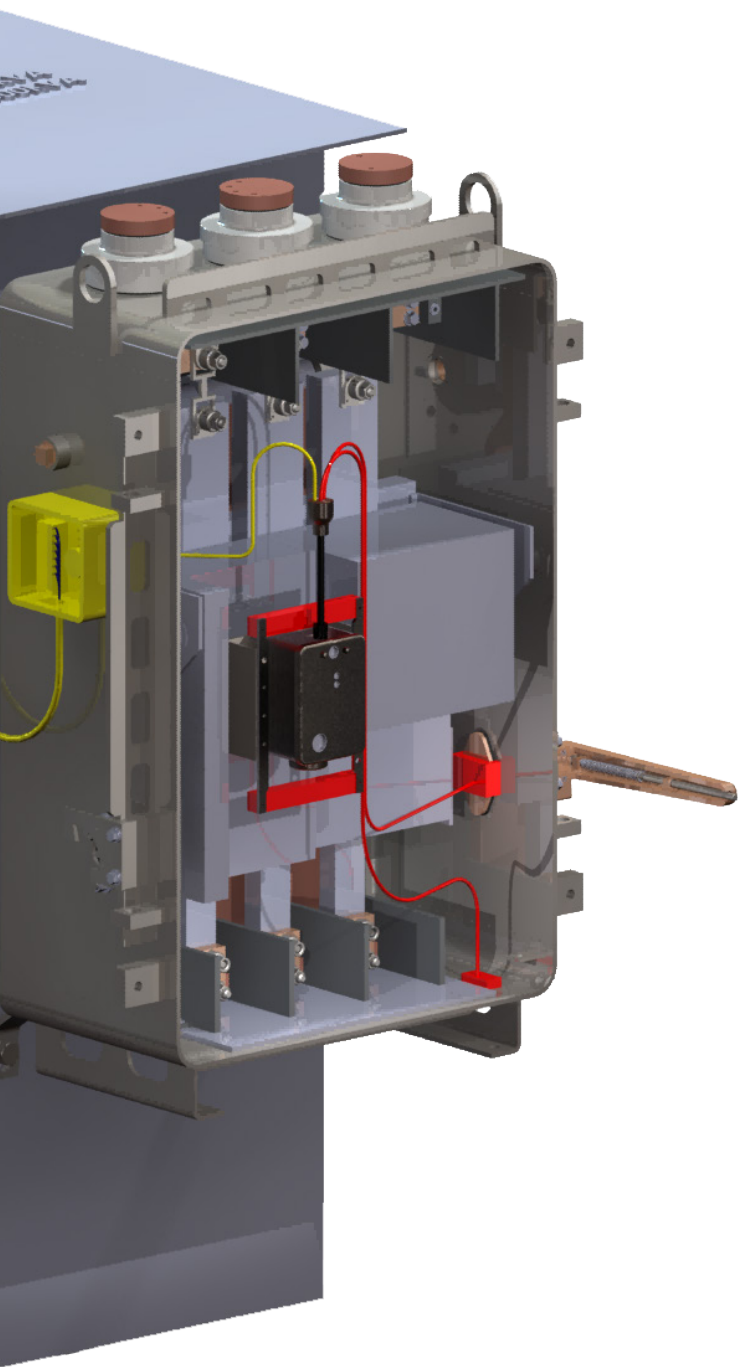
- RS-485
- RS-232

Local Communicatons
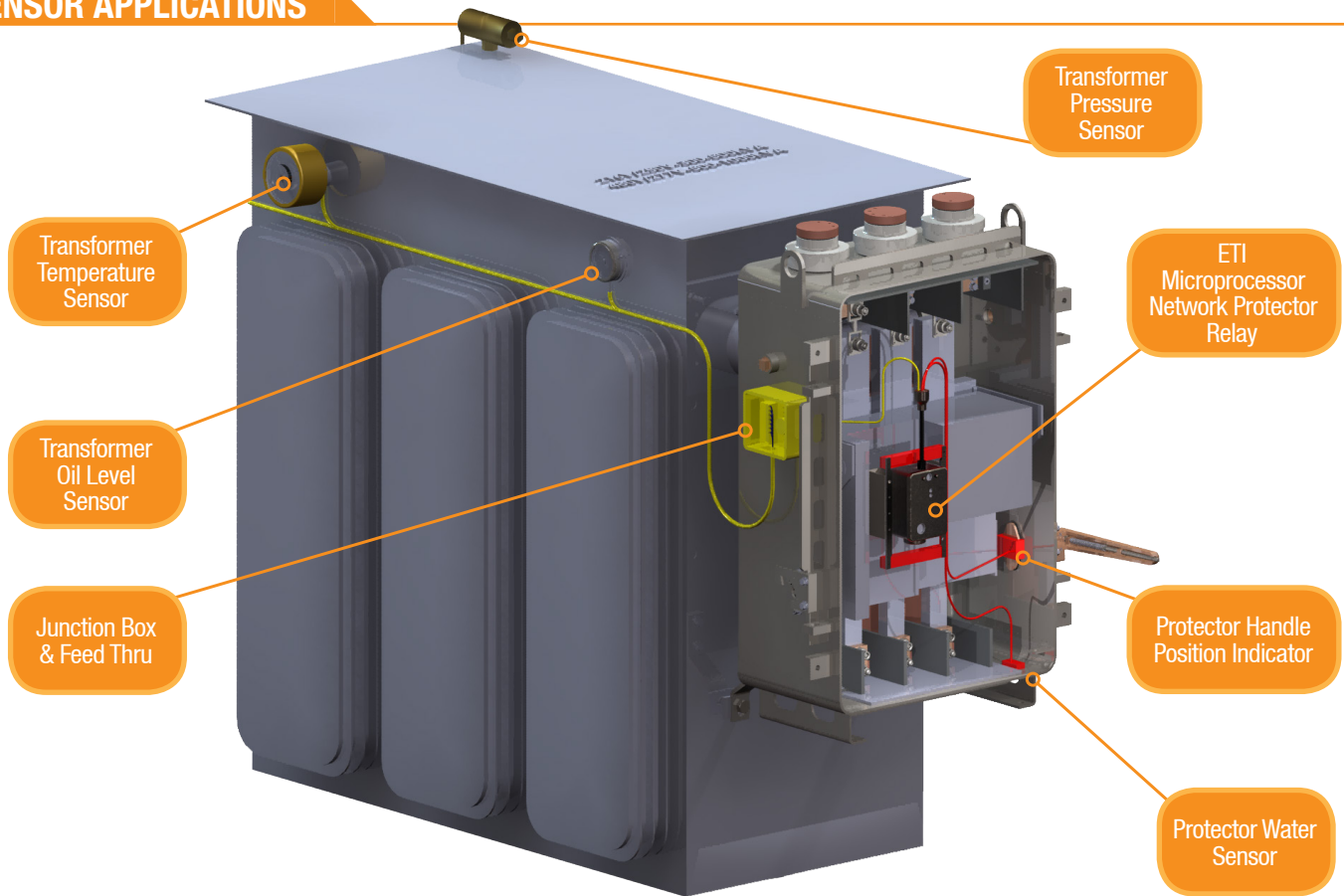
- PDA/Laptop via Bluetooth or cable

SCADA Server

- Automate Network Protectors
  - Remote Open and Close
- Monitor System Conditions
  - 3Φ Voltage & Current
  - NP Status (Open/Closed)
  - Transformer Pressure/Temperature/Oil level — identify potential failures before they happen
- The ETI system is easy to install and compatible with all SCADA Systems

Transformer Pressure Sensor

Transformer Temperature Sensor

ETI Microprocessor Network Protector Relay

Transformer Oil Level Sensor

Junction Box & Feed Thru

Protector Handle Position Indicator

Protector Water Sensor

TRANSFORMER SENSORS

Transformer Pressure Sensor

Monitor transformer pressure to detect leaks or pressure buildup from internal faults

- Range -2 to 20 psi
- Submersible to 30 ft.
- Remote indication 0 to +5Vdc
- ± 2% accuracy

Transformer Temperature Sensor

Monitor transformer temperature to detect overheating

- Available with a short or long stem
- Provides both visual and remote electronic indication
- Remote indication 0 to +5Vdc or ±5Vdc
- Range 0° to 200° C
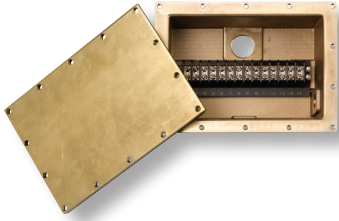- Can be installed while the transormer is in service
- Submersible to 30 ft.

Transformer Oil Level Sensor

Monitor transformer oil level to catch leaks before it's too late

- Available in many different styles … both top and side mount
- Electronically indicates angle
- Remote indication 0 to +5Vdc
- Submersible to 30 ft.

Junction Box

Provides a convenient submersible point for terminating all wires

- Features gasketed all-brass construction
- NP housing
- Standard housing
- 1" NPT fitting

Submersible Feed Thru

- Hermetically sealed
- Military grade

Vault Water Level Sensor

- Provides a signal when water reaches a critical level in the vault

Optical Water Sensor

- Optically detects the presence of liquid
- Mounts inside network protector, adjustable height
- No moving parts
- Multiple mounting kits available

Protector Handle Position Indicator

- Available for both 137 NP (GE Style) or 313 NP (WH Style) protectors
- Indicates when the handle is in the open position

Protector Housing Pressure Sensor

- Monitors network protector housing pressure
- Available as a pressure switch or an analog pressure transducer

Protector Temperature Sensor — Internal NP Temperature

- Monitors network protector ambient temperature

ETI MNPR®

- ETI MNPR® is the backbone of the system
- DNP3 Protocol in the MNPR®
  - □ No protocol translator needed
  - □ Open architecture … not proprietary
  - □ Other protocols available upon request
- Monitor currents and voltages
  - □ Provide vital data for system planning
  - □ Powerful tool for riding out contingencies

Communicating Relays Also Have:

- Up to 8 Analog Inputs — typically used to monitor bus temperatures, pressure, and water level
- Up to 4 Digital Inputs — typically used to monitor NP Status (O/C) and other contact type sensors
- Up to 3 Digital Outputs — typically used to control and external device, such as a sump pump
- ± 5 Volts DC — typically used to power sensors
- Isolated RS485 serial communication port

Note: Communicating relays are also available with RS232 instead of RS485. Not all I/O combinations available concurrently. Please contact the factory for more information.

LOCAL RELAY COMMUNICATIONS

Commander Software for Android™ Devices

Communicates to the MNPR®

- Program settings and monitor the MNPR®
- Troubleshoot network protector and relay operation
- Connect via Bluetooth head
- Available for free download on Google Play

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*Android is a trademark of Google Inc.*

ETI WAN Enclosure

Electronic Technology Incorporated provides a wide array of custom communications enclosures and electronics for bridging the gap between a wide area network and the electric distribution infrastructure, including network protectors, network transformers and the ETI MNPR®. The enclosure itself is a fully submersible brass box with penetrations for various cable diameters. Many different wide area networks have been used with these enclosures including fiber optics, cellular modems, and licensed and unlicensed radios. Various sensors can also make use of the enclosure as a junction box for bringing signals back to the ETI MNPR®.

- Continuously submersible to 30 ft.
- Packing glands or threaded hubs for penetrating the enclosure
- Made of 1/8'' thick brass
- Proven track record
- Continuous gasket inside box
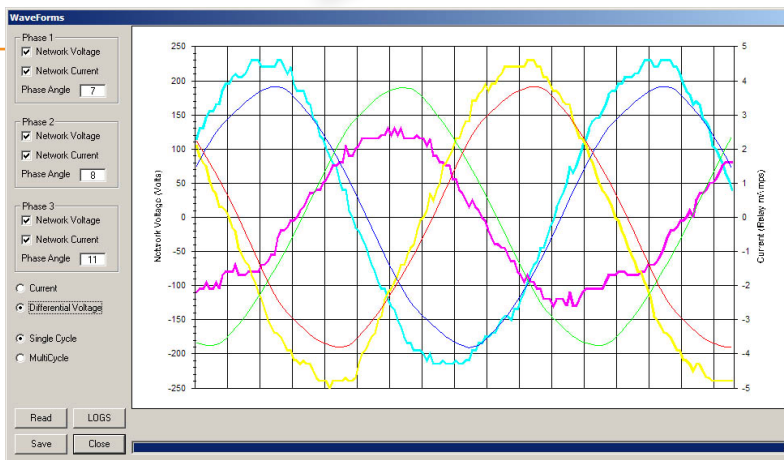- Multi-bolt cover design
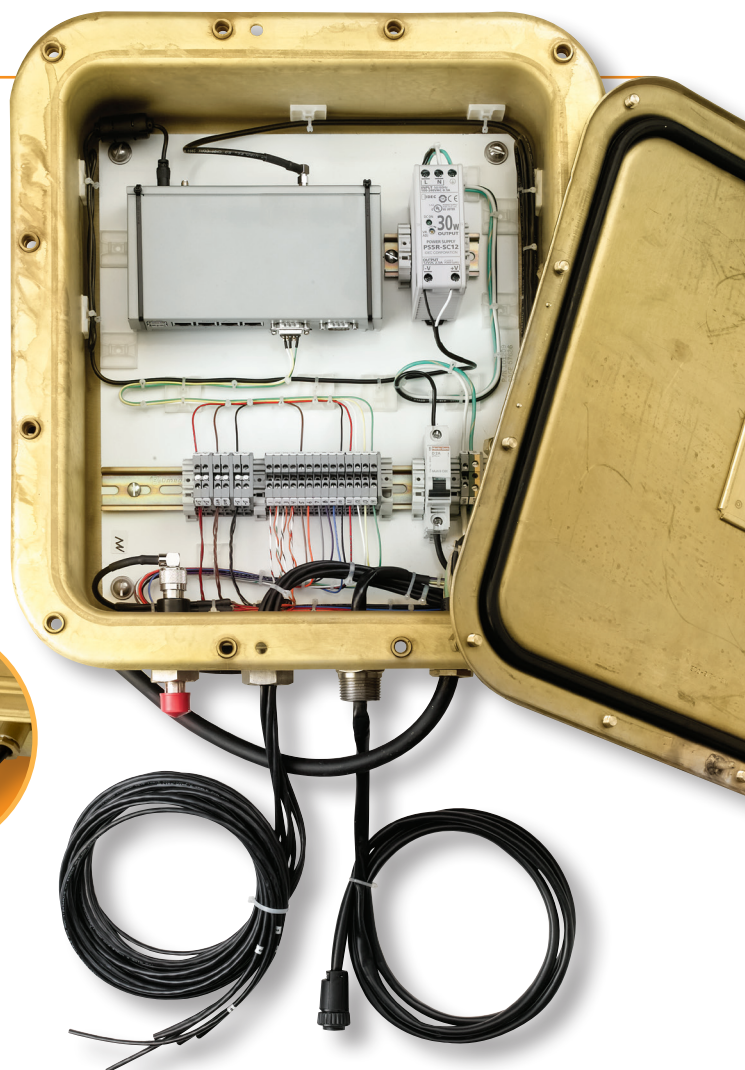
LOCAL RELAY COMMUNICATIONS

Laptop with FieldPRO Software

Communicates with the MNPR®
- Program relay settings
- Troubleshoot the network protector
- Connects via a cable from a computer to the MNPR®

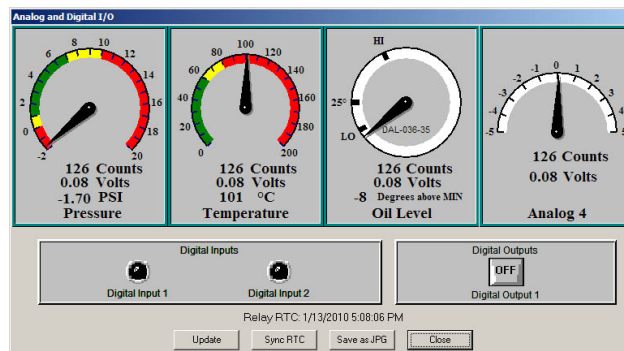The ETI Local Communication System is utilized only by personnel with access to the vault.
The operator has access to the relay without having to enter the vault.

*Housing
Feed-Thru
Connection &
Relay Connection*
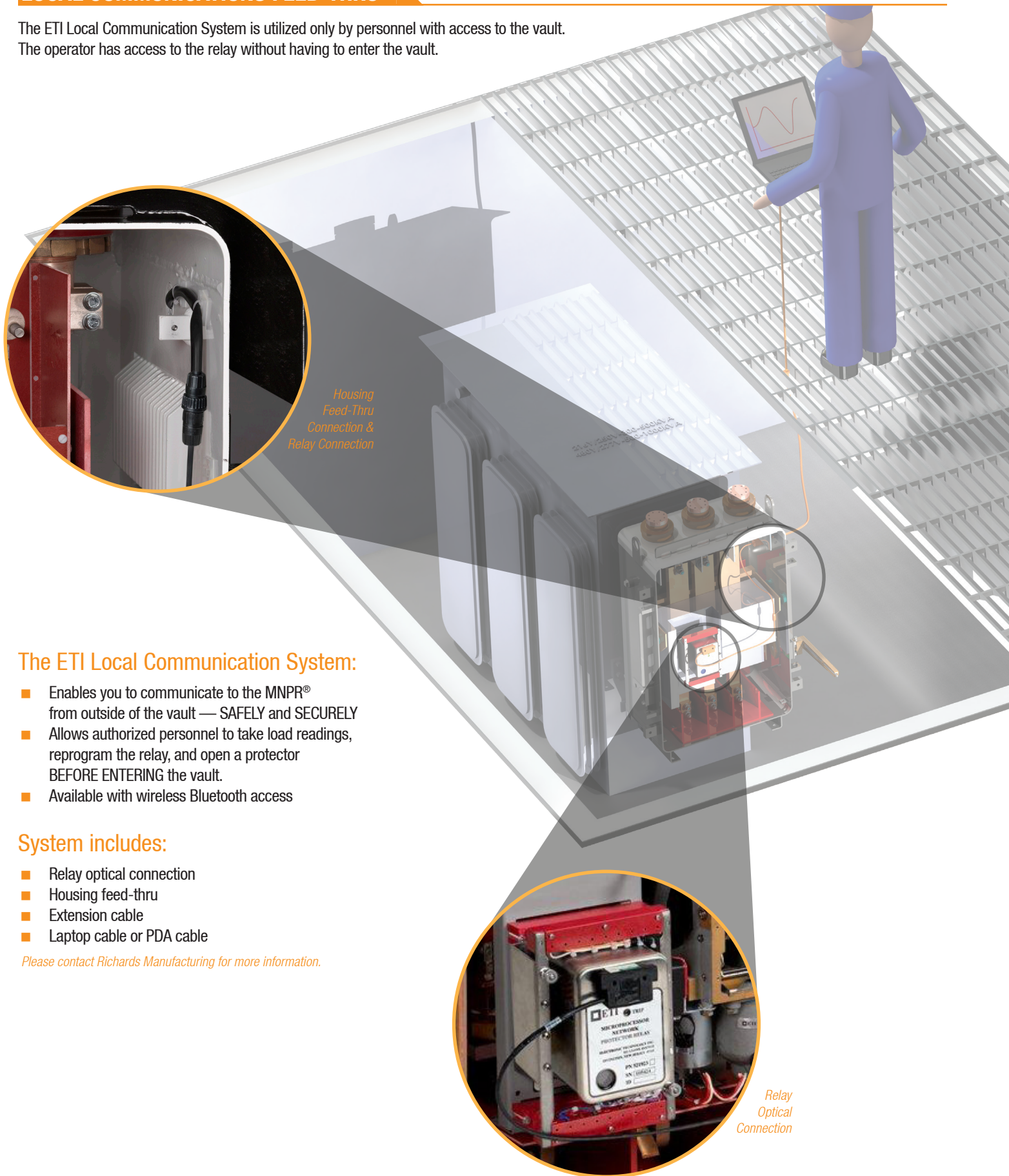
The ETI Local Communication System:

- Enables you to communicate to the MNPR®
  from outside of the vault — SAFELY and SECURELY
- Allows authorized personnel to take load readings,
  reprogram the relay, and open a protector
  BEFORE ENTERING the vault.
- Available with wireless Bluetooth access

System includes:

- Relay optical connection
- Housing feed-thru
- Extension cable
- Laptop cable or PDA cable

Please contact Richards Manufacturing for more information.

*Relay
Optical
Connection*

ETI0917

Connectors
PRODUCT CATALOG
2015 EDITION

Medium
Voltage
PRODUCT CATALOG
2015 EDITION

15kV   25kV   35kV

Renewable
Energy
Solutions
PRODUCT BROCHURE
2015 EDITION

Innovative Solutions

Network
Protector
Housing
PRODUCT CATALOG
2015 EDITION

137NP   313NP
800-3500 A   800-3500 A

ETI
Electronic Technology Incorporated

Secondary
Network
Communications
PRODUCT CATALOG
2017 EDITION

ETI
Electronic Technology Incorporated

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MANUFACTURING CO.

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