# REF 550

**Distribution Feeder & Subtransmission Line Protection and Control**

Distribution

# REF 550

**The most advanced solution for Distribution Feeder and Subtransmission Line protection in the industry today.**

## High Impedance Fault (HIF) Detection

**The ABB REF 550 is equipped with the latest High Impedance Fault (HIF) Detection technology including detection algorithms allowing the relay to identify downed conductors on soil, asphalt, sand, and other surfaces.**

## Benefits:

**Saves lives and increases the overall safety of your electrical system.**

**Reduce the risk of bodily harm to employees during maintenance activities on electrical equipment**

**Improved system reliability through better outage management control**

**Increased customer satisfaction due to quicker response times during an outage**

**Flexible setting capabilities to detect and operate under various conditions.**

# HIGHLIGHTS

## The REF 550 is the latest solution to fit your Distribution Feeder and Subtransmission Line protection, monitoring and automation needs.

### Fastest Processing Platform in the Industry…

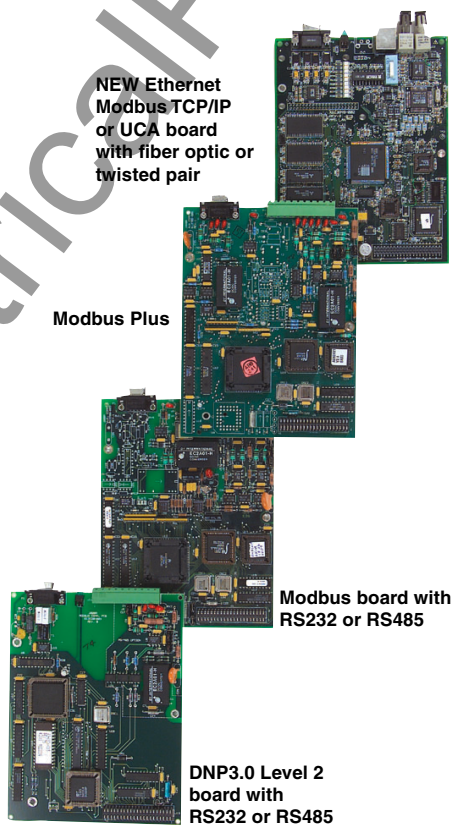
**Provides the fastest processing speed in the industry allowing for quicker response times and expandable functionality to meet future needs.**

### Point-N-Click Programming Logic…

**Allows users to easily and quickly generate custom Boolean Logic equations to fit their specific protection applications without any of the typing errors.**

### Enhanced Features Standard…

**DNP Level 2+ Certified, IRIG-B Time Synchronization, Digital Fault Recorder (DFR), Load Profile and Programmable Curves**




## ABB EZ-USE Communication Suite:

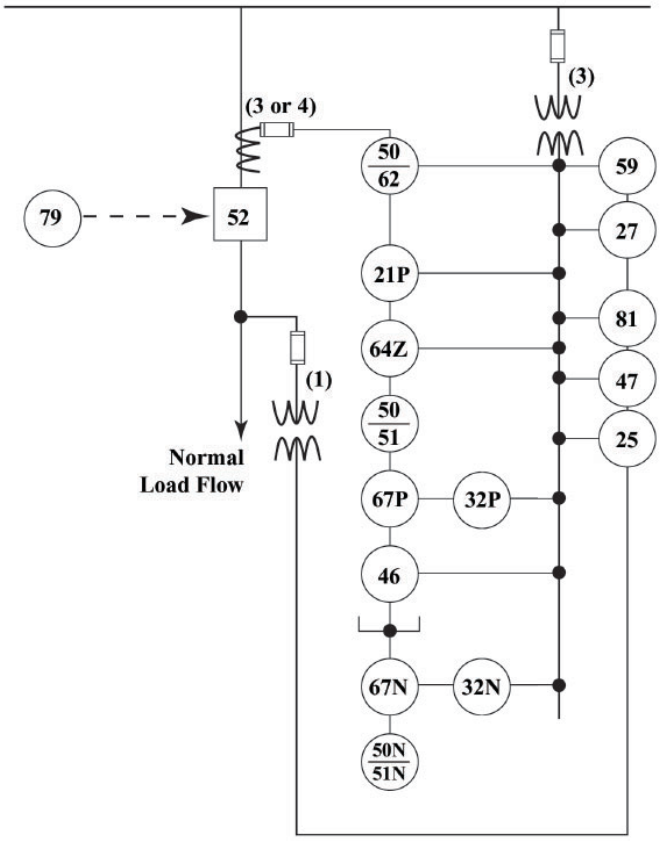
**Improve your automation and communication capabilities with the widest range of advanced communication processors in the industry. ABB now offers the latest solutions in communication technology delivering the highest efficiency, reliability and best performance for utility and industrial applications.**

### DNP 3.0 Level 2+

- DNP Level 2+ certification
- Report by exception capabilities
- Individual point mapping
- Analog dead-banding

### Modbus Ethernet

- Multiple protocols offered in one processor
- Allows for 8 Ethernet sessions on one port
- Simple Time Network Protocol (SNTP) time synchronization
- Access fault records, operations records and oscillographics via a web browser




## Protection, Automation, Metering and Control

**Advanced Protection:**

- high impedance fault (HIF) detection
- phase overcurrent
- ground overcurrent
- under/over voltage
- under/over frequency
- synchronism check
- phase step distance
- breaker failure
- load shed/restoration
- sensitive earth fault (SEF) detection

**Metering:**

- currents and voltages
- power and energy
- power factor
- frequency
- load profile
- substation battery monitor

**Control:**

- expandable I/O
- breaker trip/close
- automatic reclosing
- enhanced programmable logic

**Automation:**

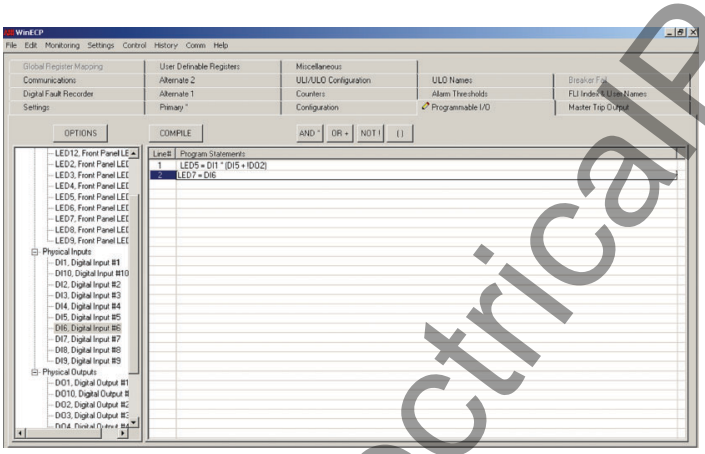
- Modbus TCP/IP 10/100MB Cu, 10FL
- DNP 3.0 Level 2+
- Ethernet UCA 10/100MB Cu, 10FL

## WinECP Communication Software

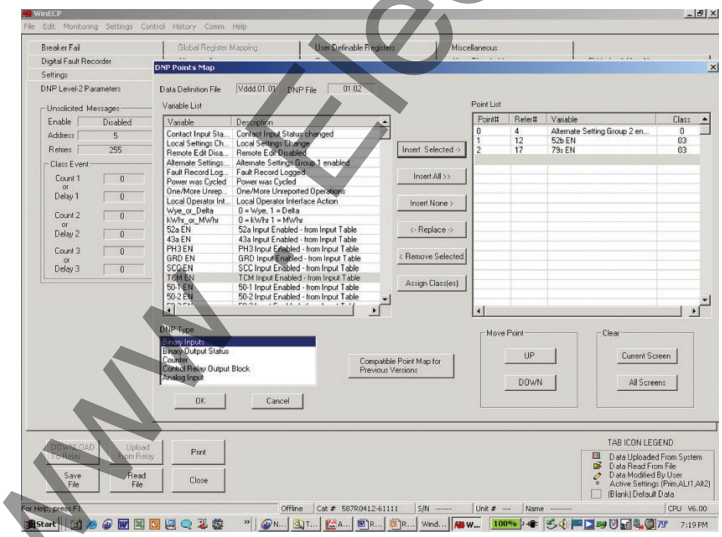
**This easy-to-use communication software tool provides both local and remote mutidrop or point-to-point communication with the REF 550 allowing the user to configure settings, program logic, and retrieve records from the device.**

**Features Available:**

- Programmable Curves
- Detailed Fault Records
- Expandable Digital Fault Recorder
- Sequence of Events Recorder
- Load/Demand Values
- Load Profile for System Planning
- Operations Summary
- Operations Record
- Breaker Failure Logic
- Slow Breaker Logic
- Breaker Health
- Cold Load Pickup
- Zone Sequence Coordination
- Blown VT Fuse
- Reclose Initiate
- Fault Location
- Trip Circuit Monitoring



Point and Click Programming Logic



DNP Point Mapping

# SPECIFICATIONS

### Current Input Circuits
- 5A input rating, 16 A continuous and 450 A for 1 second
- 1A input rating, 3 A continuous and 100 A for 1 second
- Input burden at 0.245 VA at 5 A (0.4 - 12A range)
- Input burden at 0.014 VA at 1 A (0.08 - 2.4A range)
- Frequency 50 or 60 Hz

### Voltage Input Circuit
Voltage ratings based on the VT connection setting.

### Burden
- 0.04VA for V(A-N) at 120 Vac

### Voltage
- **Wye** Connection: 160V continuous and 480V for 10 seconds
- **Delta** Connection: 260V continuous and 480V for 10 seconds

### Contact Input Circuits
- 2.10 VA at 220 Vdc and 250 Vdc
- 0.52 VA at 125 Vdc and 110 Vdc
- 0.08 VA at 48 Vdc
- 0.02 VA at 24 Vdc
- Voltage range 24 to 280 Vdc for 48/110/125/220/250 Vdc
- Voltage range 12 to 140 Vdc for 24 Vdc model

### Control Power Requirements
- 24 Vdc models, range = 18 to 40 Vdc
- 48/125 Vdc models, range = 38 to 150 Vdc
- 220/250 Vdc models, range = 176 to 280 Vdc

### Output Contact Ratings
***125 Vdc***
- 30 A tripping
- 6 A continuous
- 0.25 A break inductive

***220 Vdc***
- 30 A tripping
- 6 A continuous
- 0.1 A break inductive

### Operating Temperature
- –40° to + 85° C

### Humidity
- Per ANSI 37.90, up to 95% without condensation

### Transient Immunity
- Surge withstand capability
  - SWC and fast transient tests per ANSI C37.90.1 and IEC 255-22-1 class III for all connections except comm or AUX ports
  - Isolated comm ports and AUX ports per ANSI C37.90 using oscillatory SWC Test Wave only and per IEC 255-22-1 class III and 255-22-4 class III
  - Impulse voltage withstand test per IEC 255-5
  - EMI test per trial use standard ANSI C37.90.2

### Dielectric
- 3150 Vdc for 1 second, all circuits to ground except comm ports per IEC 255-5
- 2333 Vdc for 1 second, for isolated communication ports

### Weight
- Unboxed 5.36 kg (11.80lbs)
- Boxed 5.67 kg (12.51 lbs)

# THE NEW INDUSTRY STANDARD

**ABB is focused and committed to delivering the innovative solutions you need at the highest standard of quality and reliability in the industry. We show this commitment by proudly offering:**

- **Industry best 12-year warranty**
- **Mean time failure rate of over 150 years**
- **Multiple Environmental Overstress Testing (MEOST) from –65 ° C to +140 ° C**

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