



## Insulation and Electromagnetic Tests

- Dielectric strength IEC 60255-5
- Insulation resistance IEC 60255-5
- Impulse voltage IEC 60255-5
- 1 MHz damped wave immunity test IEC 60255-22-1
- Immunity to industrial frequencies IEC 60255-22-7
- Leakage current IEC 60255-27
- Electrostatic discharge immunity test IEC 61000-4-2
- Immunity to radiofrequency radiated fields IEC 61000-4-3
- Fast transient burst immunity IEC61000-4-4
- Surge pulses immunity test IEC 61000-4-5
- Immunity to radiofrequency induced signals IEC 61000-4-6
- Harmonics IEC 61000-4-7
- Immunity to 50Hz magnetic fields IEC 61000-4-8
- Immunity to pulsing magnetic fields IEC61000-4-9
- Immunity to damped oscillatory magnetic fields IEC 61000-4-10
- Immunity to interruptions and dips in DC power supply IEC 61000-4-11
- Ripple immunity in DC power supply IEC 61000-4-17
- Damped oscillatory waves immunity IEC61000-4-18
- Immunity to interruptions, dips and variations in DC power supply IEC 61000-4-29
- Radioelectrical emissions EN 61000-6-4
- Earth continuity IEC 61131-2

## Climatic

- Cold low temperature test IEC 60068-2-1
- Dry heat test IEC 60068-2-2
- Thermal shock IEC 60068-2-14
- Humid heat, cyclical test IEC 60068-2-30
- Humid heat continuous test IEC 60068-2-78
- External protection level IEC60529

## Mechanical

- Vibrations test IEC 60255-21-1
- Shock and bump test IEC 60255-21-2
- Seismic tests IEC 60255-21-3

## Main Features

- Single protection and control platform.
- IEC 61850 native platform.
- Extensive dynamic range in current inputs, enabling connection to 1A and 5A current transformers.
- Application software specifically designed for simple and user-friendly access to the equipment.
- Graphic and textual programming for logic based on IEC61131-3.
- Different hardware configuration variants allowing you to define suitable equipment for the application.
- Complementary functions for responding to primary element failures (breaker failure and winding supervision).
- Chronological logging of events, failure reports and oscillographs facilitates the complete analysis of events.
- Measurement log for current (demand), voltage and powers, allowing you to obtain load curves.
- 6 setting groups, making it possible to instantaneously re-program the equipment when the grid's conditions are re-configured.
- Equipment synchronisation from a global reference through the communications protocol or the demodulated IRIG-B input protocol.
- Breaker monitoring.
- Measurement: Current, voltage, power, power factor, frequency, negative sequence current, demand-maximeter, THD, fundamental values and RMS.
- Bi-directional active and reactive energy counters.
- Operation counters: trips, operation openings, energy cut off by the switch and automatic reclosure.
- Local interface with graphic display, LEDs and programmable buttons.
- Front panel with 4.9" monochromatic graphic display, programmable function keys with 2 LEDs each, 19 programmable LEDs and 1 fixed two-colour hardware status LED, numerical keypad and menu keys.
- Digital inputs for control or automatic functions.
- Digital outputs for control/tripping and signalling.
- Ethernet communication RJ45 and USB ports on the front.
- Up to 6 serial and 2 Ethernet rear ports.
- Automatic recloser, increasing the service's availability without user intervention.
- IEC 61850 communications and serial protocols.
- Web Server
- RIO module sensing (remote input/output)
- Applicable in redundant grids

## Options

- Two housing types: 1/2 x 19", 5U rack and 19", 4U rack, which can contain the following modules in different configurations:
  - 11 digital inputs and 9 digital outputs
  - 16 digital inputs and 16 digital outputs
  - 16 digital inputs and 8 digital outputs
  - 32 digital inputs
  - 16 digital inputs and 8 analog inputs
  - 16 digital inputs and 8 analog inputs (4 isolated)
  - 8 digital inputs, 4 digital outputs and 4 high break contact outputs.
  - 8 digital inputs and 8 digital outputs
- Selectable rear port connectivity:
  - Up to 6 serial communications
  - Up to 2 Ethernet communications
- Serial ports in glass optic fibre, plastic optic fibre, RS232 or RS485
- Ethernet ports in glass optic fibre or RJ45
- Protocols: IEC 61850, PROCOME, DNP3.0
- PRP, HSR and link failover redundancy
- Different models for auxiliary voltages most commonly found in electrical installations.
- Basic protection and control equipment or extended protection and control equipment
- IP54 lid
- 9 programmable graphics pages in the local interface.
- RIO module sensing (remote input/output)
- Redundant power supply source.

## Applications

- Grid Automation
- Capacitor bank connection/disconnection automatic operation for correctly controlling the system's reactive power
- Capacitor bank protection and control

