

# PGT9000

## ■ AC Traction Group Protection



Our PGT9000 protection relay protects the traction groups located in electrical railway sub-stations and facilitates the operation of your railway electrical network.

Based on more than 40 years of experience in this field, our PGT9000 relay is part of our 9000 Series designed for monitoring and controlling railway systems.



- High resolution colour touch screen
- Embedded web server
- IEC 61850 ed2 or Modbus servers
- 2x16 A circuit breaker outputs
- 28 configurable digital outputs
- 18 configurable digital inputs
- 16 configurable LEDs
- 48 Vdc to 125 Vdc  $\pm 15\%$  power supply
- 19" - 3U - 355mm rack

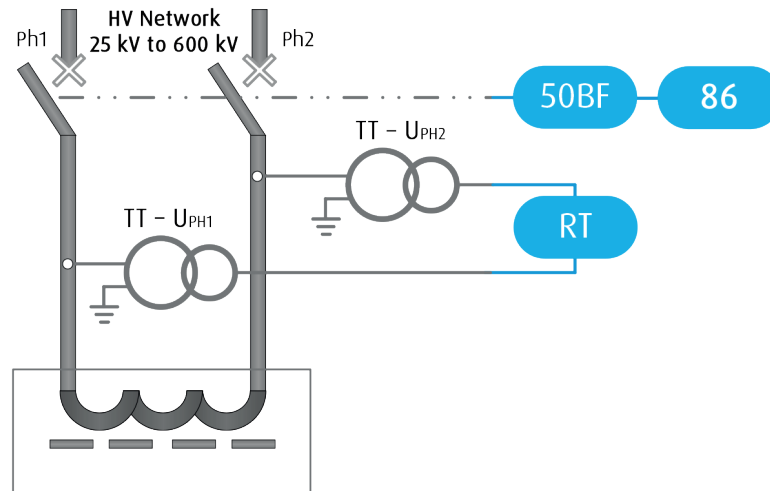
- Performance
  - Instantaneous tripping time < 30 ms
  - Sampling rate: 6.4 kHz
  - Operating temperature: -5 °C to 55 °C
- Main standards
  - Design according to IEC 60255, EN 50124-1
  - EMC according to IEC 61000-4-\*, EN 50121-5
  - Communication according to IEC 61850
  - CE marking according to IEC 60255-27 and IEC 60255-26

#### OUR TRADEMARKS

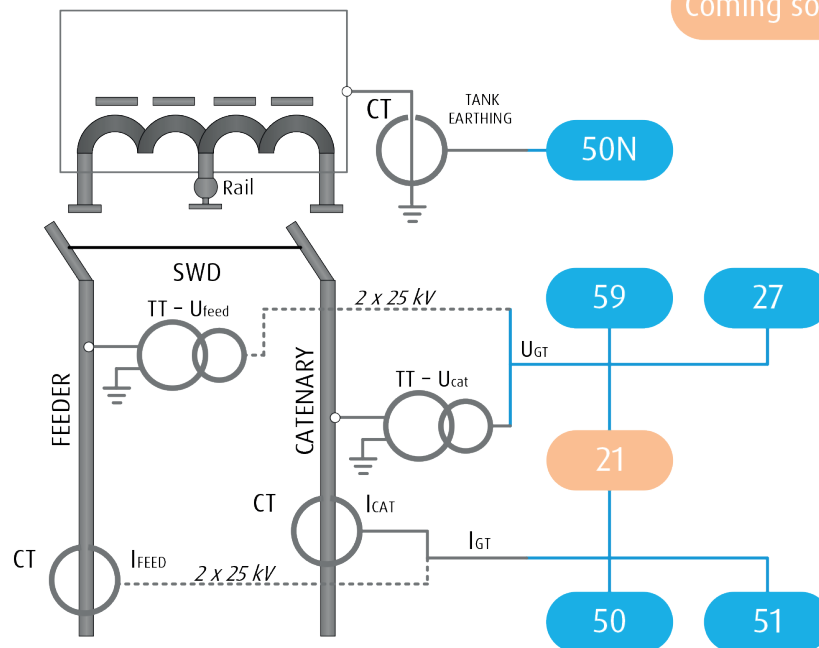


## FUNCTIONAL SCHEME

### Primary view



### Secondary view



Coming soon

NB: [27] / [50] / [51] / [59] functions can work on both side of the transformer.

## PROTECTION FUNCTIONS

- [50] [51] Overcurrent function
- [50BF] Breaker failure function
- [27] Undervoltage function
- [59] Overvoltage function
- [50N] Earth tank function
- [RT] Voltage reverse function
- [21] Underimpedance function

## OPERATING FUNCTIONS

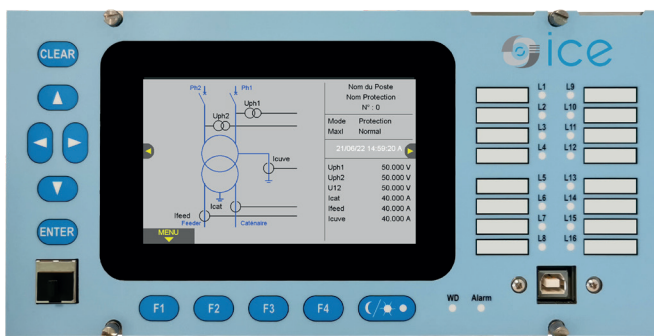
- [86] Circuit breaker monitoring
- Disturbance recording
- Logic selectivity

## ADVANCED CONNECTIVITY

Compliant with the requirements of the IEC 61850 edition 2 standards, our PGT9000 relay also incorporates the following communication features:

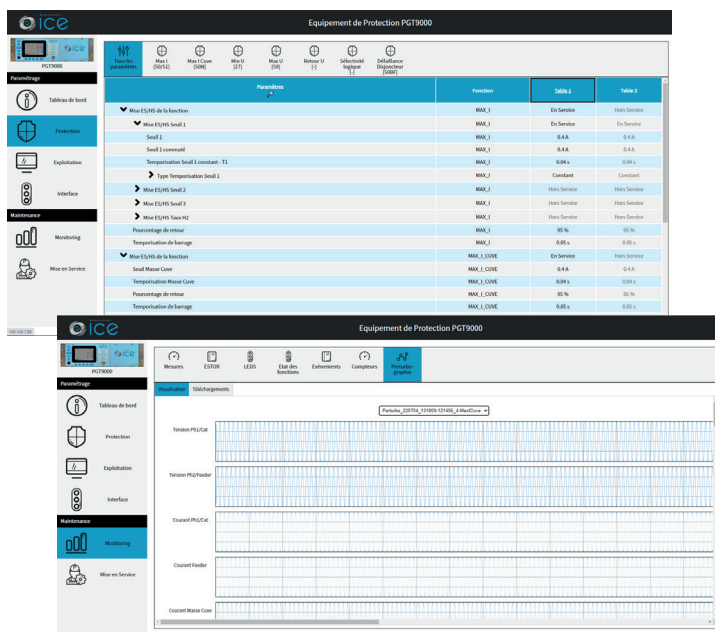
- IEC 61850-8-1 (MMS) and IEC 61850-9-2 (SV) synchronised by PTP 1588 (option)
- Modbus (serial and over TCP/IP) – 2 separate parameter sets
- Https (Configuration by Embedded Web Server)
- Time synchronisation by NTP
- Network redundancy via HSR/PRP (option)
- SFP cage (Ethernet RJ45 reception or optic fibre choice)

## ADVANCED CONNECTIVITY



- 800x480 colour touch screen
- Navigation directly from the screen or via the dedicated keys
- 16 configurable LEDs

## WEB INTERFACE



- Interface easily accessible with a web browser, locally via the USB type b interface or via the Ethernet port
- Convenient tool that simplifies and speeds up operations of:
  - Diagnostic
  - Setup
  - Equipment commissioning

## TECHNICAL CHARACTERISTICS

### Current inputs: Catenary, Feeder, Earth tank (3)

- Bi-calibre 1 A-5 A with short-circuiters
- Consumption at In < 0.5 VA
- Withstand a permanent 3 In and 80 In/1 s
- Measurement at  $\pm 1\%$  from 0.1 to 4 In and  $\pm 5\%$  from 4 to 12 In
- Working frequency:  $F_{nom} \pm 3$  Hz

### Voltage inputs: Catenary and Feeder (2)

- Un 100 V or 110 V
- Withstand a permanent 1.5 Un and 1.9 Un/5 s
- Measurement at  $\pm 1\%$  from 0.1 to 1.4 Un
- Working frequency:  $F_{nom} \pm 3$  Hz

### Digital inputs: 18

- Proofreading of inputs status
- Power supply: 48 Vdc to 125 Vdc  $\pm 10\%$
- Current:  $\geq 2$  mA

### CB outputs: 2

- Trip relay
  - DC voltage withstand: 300 V
  - Continuous current: 16 A
  - Breaking capacity: 4,000 VA
- Output control

### Digital outputs: 28

- Signalling relays
  - DC voltage: 300 V
  - Continuous current: 6 A
  - Breaking capacity: 1,500 VA
  - Max switching time: 10 ms (activation and deactivation)
- Coil/contact insulation: 4 kV
- Output control

### Performance

- Instantaneous tripping time < 30ms
- Sampling rate: 6.4 kHz

### Dimensions

- 19" - 3U - 355mm rack

### Recordings

- 1,000 events
- 32 disturbance records in COMTRADE format

### Communication protocols

- IEC 61850 edition 2
  - IEC 61850-8-1 (GOOSE, MMS)
  - IEC 61850-2 SV with IEEE 1588 PTP sync
- Network redundancy
  - PRP (Parallel Redundancy Protocol)
  - HSR (High-availability Seamless Redundancy)
- Modbus
- Configuration via HTTPS (Embedded Web server)

### Power supply

- 48 V to 125 V  $\pm 15\%$

### Operating temperature

- From  $-5$  °C to  $+55$  °C