

PDZI9000

AC Catenary Protection 25 kV & 2x25 kV



Our PDZI9000 protection relay protects the fixed electric traction installations responsible for supplying the catenaries with alternating current 25 kV or 2x25 kV, 50 or 60 Hz.

Thanks to a hybrid acquisition of currents and voltages (through sensors or IEC 61850-9-2 SV), it facilitates the operation of your railway electrical network.

Based on more than 40 years of experience in this field, our PDZI9000 relay is part of our 9000 Series designed for monitoring and controlling railway systems.



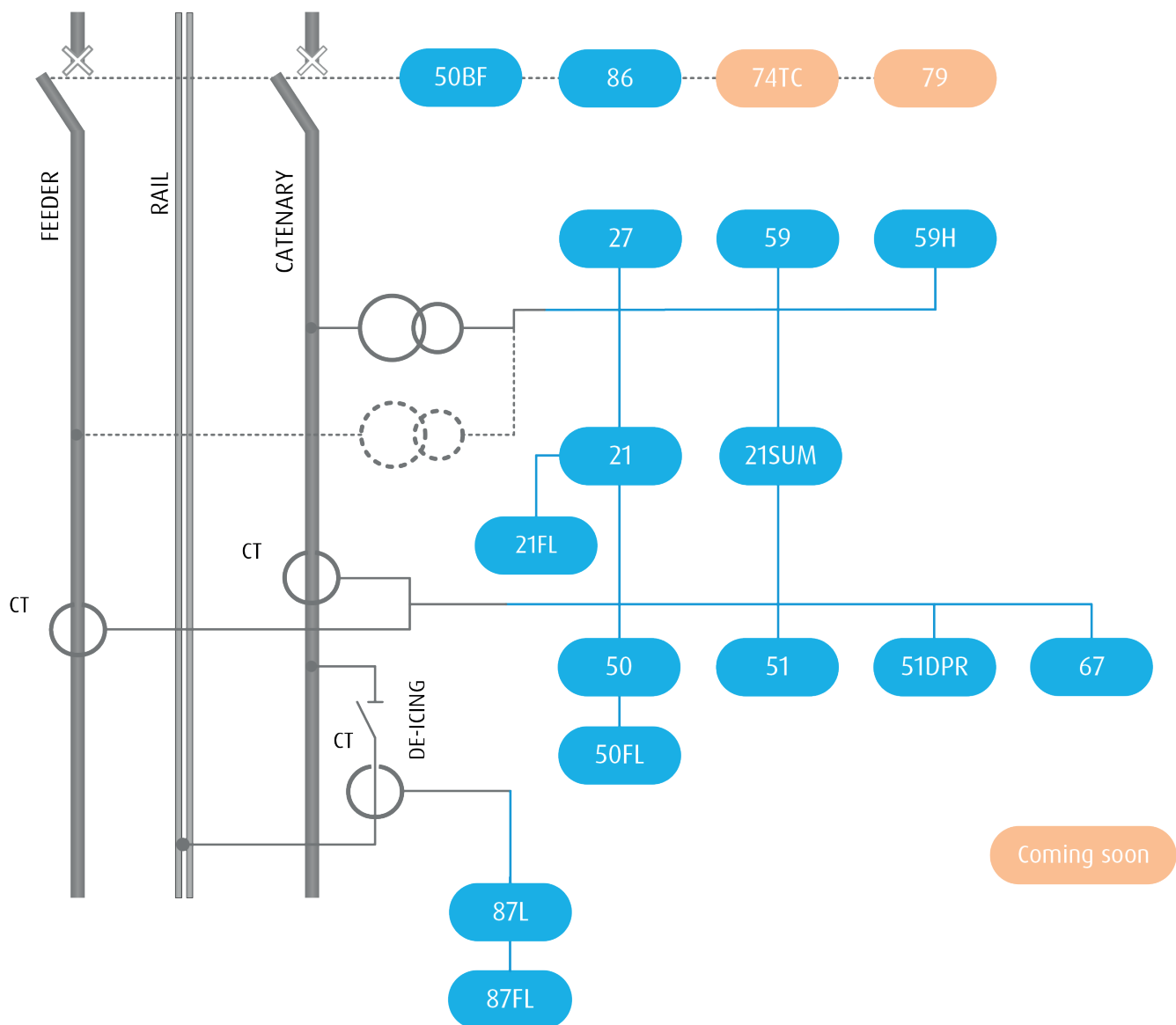
- High resolution colour touch screen
- Embedded web server
- IEC 61850 ed2 or Modbus servers
- 2x16 A circuit breaker outputs
- 28 configurable digital outputs
- 18 configurable digital inputs
- 16 configurable LEDs
- 48 Vdc to 125 Vdc $\pm 15\%$ power supply
- 19" - 3U - 355mm rack

- 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



PROTECTION FUNCTIONS

- [21] Underimpedance function
- [50] [51] Overcurrent function
- [51DPR] Power Swing Detection function
- [21SUM] Underimpedance summing function
- [50BF] Breaker failure function
- [87L] De-icing function
- [67] Directional function
- [27] Undervoltage function
- [59] Overvoltage function
- [59H] Harmonic Overvoltage function

OPERATING FUNCTIONS

- [21FL] [50FL] [87FL] Fault locator function
- [86] Circuit breaker monitoring
- [74TC] Trip circuit supervision function
- [79] Autoreclose function
- Disturbance recording
- Logic selectivity

ADVANCED CONNECTIVITY

Compliant with the requirements of the IEC 61850 edition 2 standards, our PDZI9000 relay also incorporates the following communication features:

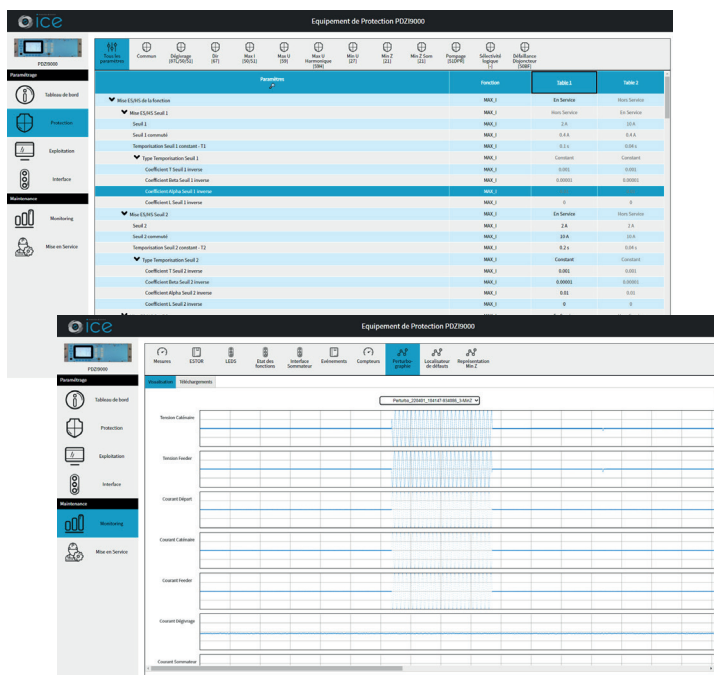
- IEC 61850-8-1 (MMS) and IEC 61850-9-2 (SV) synchronised by PTP 1588 (option)
- Modbus (serial and over TCP/IP) – 2 separate parameter sets
- Https (Configuration by Embedded Web Server)
- Time synchronisation by NTP
- Network redundancy via HSR/PRP (option)
- SFP cage (Ethernet RJ45 reception or optic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

HMI AND OPERATION



- 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, Rail (3)

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

Voltage inputs: Catenary and Feeder (2)

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

Digital inputs: 18

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

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 $< 30 \text{ ms}$
- 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 $-5 \text{ }^\circ\text{C}$ to $+55 \text{ }^\circ\text{C}$

