

Our Railways solutions

USC-P

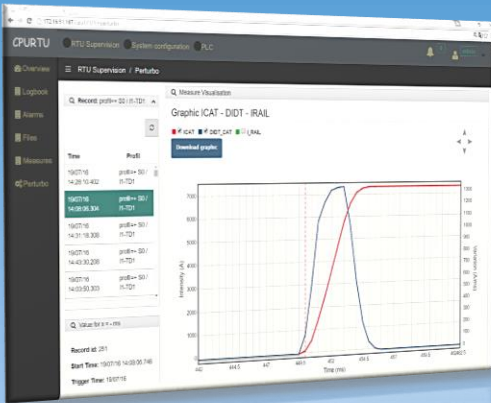
Protection relay
IEC 61850 PLC



PLC & PROTECTION RELAY

USC-P is a modular Programmable Logic Controller with integrated DC protection relay. USC-P is the 3rd generation of GILLAM protection relays product range featuring IEC61131-3 PLC, IEC61850 communication and touchscreen display.

The USC-P is the privileged choice for All-In-One supervision, automation and protection of DC traction cubicles.



POWERFUL MAIN CPU

- Built around a powerful ARM9 communication processor, USC-P includes 3 Ethernet ports, isolated RS-485 and USB interfaces.
- Embedding Straton core (from Copa-Data company), the CPU realizes IEC61131-3 PLC, and multi-protocol binding.

HUMAN-MACHINE INTERFACES

- Embedded WEB server and optional touchscreen provide modern maintenance information. Consultation of faults records through integrated graph analyzer tool.
- Programming of the PLC performed through STRATON workbench. This best-in-class programming suite provides an intuitive support for the 5 PLC programming languages (FBD, ST, LD, IL, SFC) with powerful debugging tools (online step-by-step debugging, variable browser, soft oscilloscope, ...)

FULLY-FEATURED PROTECTION RELAY

Taking heritage from its GILLAM predecessors, The USC-P protection relay is designed to offer a complete and modern protection for DC metro and railways feeders, with simplicity of use always in our designer's mind. USC-P is connected to isolated transducers to monitor the feeder's currents and voltages. A large panel of customizable algorithms allows exhaustive detection of different types of line faults.

Alarms, history and detailed fault records provide in-depth view of events that occur on the line.

PLC & FIELDBUS PROTOCOLS

Modular input/output cards are provisioned upon demand to monitor and control your industrial application (switchgear enclosures, ...).

USC-P is able to interoperate with other fieldbus communicating devices. USC-P provides a large panel of Northbound protocols (i.e. to SCADA) as well as Southbound protocols (i.e. to IED, fault indicator, protection relay, power meter, PLC, ...).

Programmable logic and advanced computation is implemented through Straton IDE.

CYBERSECURITY

The use of Ethernet based communication in substation environment raises the focus on cyber security. Threats are evolving as well as standards. USC-P is hardened to provide a robust solution for today as for the future.

LINE PROTECTION

- ✓ di/dt
- ✓ Current increase ΔI
- ✓ I_{max}
- ✓ Thermal
- ✓ V_{min}
- ✓ V_{max}
- ✓ Line impedance
- ✓ Defrost Mode

FAILURE DETECTION

- ✓ Breaker failure
- ✓ Sensor failure

SERVICE FUNCTIONS

- ✓ Automatic reclosure
- ✓ Voltage difference
- ✓ Anti-pumping
- ✓ Line test
- ✓ Breaker maintenance
- ✓ Cable isolation

COMMUNICATION

- ✓ Modbus Master & Slave (ASCII, RTU, RS485, UDP, TCP IP)
- ✓ IEC60870-5-101 Master & Slave
- ✓ IEC60870-5-104 Client & Server
- ✓ IEC61850 Client, Server & Goose (v2)
- ✓ Gillam USC3000
- ✓ Other (contact us)



POWER SUPPLY

- 48VDC or 110VDC
- Redundancy (option)
- Auxiliary supply for sensors
- 2 kVrms isolation

PROTECT

- 4 analog inputs I_{cat}, V_{cat}, I_{rail}, V_{ss}
- 16 bits sampling
- Bandwidth > 1kHz
- Adaptative digital filter
- 4DO and 8DI, for fast logics

PLC DI / DO

- Optional 12DI and 8DO cards
- IEC61131-3 PLC
- 1ms timestamping
- 3.7 kVrms isolation (input)

- 5.0 kVrms isolation (output)
- 48 or 110 VDC inputs

CPU

- Arm9 - 456MHz / 32 bits
- 128MB RAM / 64MB FLASH
- Micro-SD slot for FLASH extension
- 3 Ethernet ports
- 1 USB port
- 1 RS485
- Web or Touchscreen HMI
- Linux embedded (kernel >3.4)



NETWORK PROTOCOLS

- DHCP Client and Server
- NTP Client and Server
- HTTP / HTTPS Web server
- SSH Server for encryption tunnel

- TLS1.2 | AES256CBC | SHA256 | DH256
- SFTP Server

DISPLAY

- Optional LCD display 7"
- 800x480 resolution
- touchscreen
- Built-in or panel mount

MECHANICS

- ½ 19" version - 8 slots
- Full 19" version - 16 slots
- 3U height (131 mm)
- Stainless steel
- Rackable or backwards mounting
- Spring-in or screw type connectors
- ≤ 1.5 mm² wire cross-section

ENVIRONMENT

- Operation : -20°C to +55°C
- Storage : -40°C to +70°C
- EN 50121-5
- EN 61000-4-2
- EN 61000-4-3
- EN 61000-4-4
- EN 61000-4-5
- EN 61000-4-6
- EN 61000-4-8
- EN 61000-4-12