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SIPROTEC 6MU85

Merging Unit

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Description

The new merging unit SIPROTEC 6MU85 has been universally designed based on the flexible SIPROTEC 5 system for conventional and non-conventional instrument transformers (LPIT) 2 and enables all primary data to be digitized close to the process. SIPROTEC 5 process-bus solutions enable a wide range of implementation options and migration concepts for new and existing systems.

Main function	Merging Unit, Breaker functions, Backup protection functions, Additional functions
Communication	Up to 4 sampled measured value streams according IEC 61850-9-2LE or IEC 61850-9-2 / IEC 61869 flexible streams
Hardware flexibility	Flexibly adjustable and expandable I/O quantity structure within the scope of the modular SIPROTEC 5 system; 1/6 expansion modules can be added.
Housing width	1/3 × 19 inches to 2/1 × 19 inches
Standard	Coated modules

Benefits

- Can be adjusted to a wide range of current transformer, voltage transformer, and low-power instrument transformer (LPIT) sensors 2
- The number of binary inputs and outputs can be scaled.
- It can be expanded by a second row.
- Direct High-speed circuit-breaker tripping < 1 ms
- Additional data acquisition (temperature, pressure, tapchanger setting, ...)
- Cybersecurity in accordance with NERC CIP and BDEW Whitepaper requirements



SIPROTEC 6MU85

- Highest availability even under extreme environmental conditions by standard coating of the modules

Functions

Merging Unit

- 1 or 2 sampled2 measured value streams per ETH-BD-2FO Ethernet module
- -Up to 32 analog values in every combination of current and voltage measured values or
- - 4 x current, 4 x voltage (IEC 61850-9-2LE)
- Up to 4 ETH-BD-2FO modules possible
- Reliable and redundant data transmission via PRP
- Compliant with IEC 61869-9, IEC 61869-13
- IEC 61850-8-1 GOOSE, MMS, and Merging Unit protocol on the same Ethernet module
- Measured value and date/time synchronization via IEEE 1588v2/PTP
- Redundant power supply
- Expanded temperature ranges (-40 °C to 70 °C)

Circuit-breaker and disconnect-switch functions

- Control system with switchgear interlocking

Efficient and modular

- Circuit-breaker failure protection (50BF)
- Circuit-breaker wear monitoring
- Switching statistics
- Point-on-wave switching (PoW)
- Trip-circuit supervision (74TC)
- Automatic reclosing (79)
- Synchrocheck (25)

Backup protection functions

- Non-directional overcurrent protection (50/51, 50N/51N)
- Directional overcurrent protection (67/67N)
- Overvoltage and undervoltage protection (27/59)

Additional protection functions

- Phasor Measurement Unit (PMU) for synchrophasor measured values and IEEE C37.118 protocol
- Arc protection
- Utility functions for simple commissioning and tests
- Temperature acquisition using a TR1200 RTD unit (7XV5662-6AD10 or 7XV5662-8AD10)
- 4-mA to 20-mA measuring input for a wide range of analog process values, for example, pressure, tap-changer setting
- PQ - Basic: Voltage unbalance; voltage changes: over-voltage, dip, interruptions; TDD, THD, and harmonics

Communication

- Pluggable communication modules, usable for different and redundant protocols (IEC 61850-8-1, IEC 61850-9-2 Merging Unit, IEC 60870-5-103, IEC

60870-5-104, Modbus TCP, DNP3 serial and TCP, PROFINET IO, PROFINET IO S2 redundancy)

- Serial protection communication via optical fibers, two-wire connections, and communication networks (IEEE C37.94 and others), including automatic switch-over between ring and chain topology.
- Extensive cybersecurity functionality, such as role-based access control (RBAC), logging of security-related events, signed firmware, or authenticated IEEE 802.1X network access
- Simple, fast, and secure access to the device via a standard Web browser to display all information and diagnostic data, vector diagrams, singleline and device display pages
- Virtual network partitioning (IEEE 802.1Q - VLAN)

Applications

Merging Unit for

- Analog measured values and digital inputs and outputs
- Centralized merging unit for transformer process-data acquisition
- Centralized protection
- Bay units for decentralized busbar protection
- Process-bus fault recorder
- Centralized synchrocheck
- Detection and recording of power-quality data in the medium-voltage and subordinate low-voltage power system



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For all products using security features of OpenSSL, the following shall apply:

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (www.openssl.org), cryptographic software written by Eric Young (eay@cryptsoft.com) and software developed by Bodo Moeller.