

# SIEMENS

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## SIPROTEC 6MD86

Bay Controller

[www.siemens.com/siprotec](http://www.siemens.com/siprotec)

### Description

The SIPROTEC 6MD86 bay controller is a general-purpose control and automation device with protection function. It is designed for use in all voltage levels from distribution to transmission. As part of the SIPROTEC 5 family, it enables a wealth of protection functions from the SIPROTEC library. The modular hardware permits integration of the I/Os depending on the application. Adapt the hardware precisely to your requirements and rely on the future-oriented solutions for protection, control, automation, monitoring, and Power Quality – Basic.

**Main function** Bay controller for medium voltage and high to extra-high voltage switchgear with integrated operation and comprehensive protection functions. Powerful automation, simple configuration with DIGSI 5

**Inputs and outputs** 6 predefined standard variants with 8 current transformers, 8 voltage transformers, 11 to 75 binary inputs, 9 to 41 binary outputs

**Hardware flexibility** Flexible adjustable and expandable I/O quantity structure within the scope of the SIPROTEC 5 modular system. For great requirements placed on the quantity structure, the device can be extended in the 2nd row. For example, 240 (and more) binary inputs are possible with the IO230 (see Hardware section)

**Housing width** 1/3 × 19 inches to 2/1 × 19 inches

### Functions

DIGSI 5 permits all functions to be configured and combined as required.

- Integrated bay controller with versatile protection function from medium to extra-high voltage
- Control of switching devices
- Point-on-wave switching



SIPROTEC 6MD86 (1/3 Device with 1/6 Expansion Module with Key Switch Operation Panel)

- Synchrocheck, switchgear interlocking protection and switch-related protection functions, such as circuit-breaker failure protection and automatic reclosing
- Fixed integrated electrical Ethernet RJ45 interface for DIGSI 5 and IEC 61850 (reporting and GOOSE)
- Up to 4 pluggable communication modules, usable for different and redundant protocols (IEC 61850-8-1, IEC 61850-9-2 Client, IEC 60870-5-103, IEC 60870-5-104, Modbus TCP, DNP3 serial and TCP, PROFINET IO, PROFINET IO S2 redundancy)
- Virtual network partitioning (IEEE 802.1Q - VLAN)
- Reliable data transmission via PRP and HSR redundancy protocols

# Modular and flexible

- 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 data via a standard Web browser to display all information and diagnostic data, vector diagrams, single-line and device display pages
- Arc protection
- Graphical logic editor to create powerful automation functions in the device
- Optional overcurrent protection with 3-pole tripping
- Also used in switchgear with breaker-and-a-half layout
- Overcurrent protection also configurable as emergency function
- Secure serial protection communication, also over great distances and all available physical media (optical fiber, twowire connections and communication networks)
- PQ - Basic: Voltage unbalance; voltage changes: over-voltage, dip, interruption; TDD, THD, and harmonics
- Capturing operational measured variables and protection function measured values to evaluate the plant state, to support commissioning, and to analyze faults
- Synchrophasor measured values with the IEEE C37.118 protocol integrated (PMU)
- Powerful fault recording (buffer for a max. record time of 80 sec. at 8 kHz and 320 sec. at 2 kHz)
- Point-on-wave switching (PoW)
- Auxiliary functions for simple tests and commissioning

- Flexibly adjustable I/O quantity structure within the scope of the SIPROTEC 5 modular system

## Benefits

- Purposeful and simple operation of the devices and software thanks to user-friendly design
- Cybersecurity in accordance with NERC CIP and BDEW Whitepaper requirements
- Highest availability even under extreme environmental conditions by standard coating of the populated printed circuit boards

## Applications

The SIPROTEC 6MD86 bay controller is a general-purpose control and automation device with a protection function on the basis of the SIPROTEC 5 system. The standard variants of the SIPROTEC 6MD86 device are delivered with instrument transformers. Furthermore, protection-class current transformers are also possible in SIPROTEC 6MD86 devices, allowing protection functions to be used. Due to its high flexibility, the device is suitable as selective protection equipment for overhead lines and cables with single-ended and multi-ended infeeds when protection communication is used. The device supports all SIPROTEC 5 system characteristics as well as detection and recording of power-quality data in the medium-voltage and subordinate low-voltage power system..



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