

# SIPROTEC 7VK87

## Breaker management device

www.siemens.com/siprotec

### Description

The SIPROTEC 7VK87 circuit breaker management device has specifically been designed for circuit-breaker management. With its modular structure, flexibility and the powerful DIGSI 5 engineering tool, the SIPROTEC 7VK87 device offers future-oriented solutions for protection, control, automation, monitoring, and Power Quality – Basic.

| | |
|---|---|
| Main function | Automatic reclosing, synchrocheck, circuit breaker failure protection |
| Tripping | 1-pole and 3-pole or 3-pole |
| Inputs and outputs | 12 predefined standard variants with 4/4 or 8/8 current/voltage transformers, 5 to 31 binary inputs, 8 to 46 binary outputs |
| Hardware flexibility | Flexibly adjustable I/O quantity structure within the scope of the SIPROTEC 5 modular system |
| Housing width | 1/3 × 19 inch to 2/1 × 19 inch |

### Applications

- Automatic reclosing after 1/3-pole tripping
- Synchrocheck before reclosing
- Circuit-Breaker Failure Protection
- Also used in switchgear with breaker-and-a-half layout
- Backup overcurrent and voltage protection
- Serial protection communication with SIPROTEC 5 and SIPROTEC 4 devices over different distances and physical media, such as optical fiber, two-wire connections, and communication networks
- Phasor Measurement Unit (PMU)
- Detection and recording of power-quality data in the medium-voltage and subordinate low-voltage power system

### Functions

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



SIPROTEC 5 Device with Expansion Module

- 1-pole automatic reclosing function secondary arc detection (SAD)
- Circuit-breaker failure protection for 1-pole and 3-pole tripping
- Point-on-wave switching
- Control, synchrocheck, and switchgear interlocking protection
- Voltage controller for transformers
- Fault locator plus for accurate fault location with inhomogenous line sections and targeted automatic overhead-line section reclosing (AREC)
- Arc protection
- Voltage protection
- Graphical logic editor to create high-performance automation functions in the device
- Single-line representation in the small or large display
- Fixed integrated electrical Ethernet RJ45 interface for DIGSI 5 and IEC 61850 (reporting and GOOSE)
- Up to 4 optional, pluggable communication modules, usable for different and redundant protocols (IEC 61850-8-1, IEC 61850-9-2 Client, IEC 60870-5-103,



# Efficient and modular

- IEC 60870-5-104, Modbus TCP, DNP3 serial and TCP, PROFINET IO, PROFINET IO S2 redundancy)
- Virtual network partitioning (IEEE 802.1Q - VLAN)
- 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.
- PQ – Basic: Voltage unbalance; voltage changes: overvoltage, dip, interruption; TDD, THD, and harmonics
- Reliable data transmission via PRP and HSR redundancy protocols
- 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, single-line and device display pages
- Phasor Measurement Unit (PMU) for synchrophasor measured values and IEEE C37.118 protocol
- Time synchronization using IEEE 1588
- High-performance fault recording (buffer for a max. record time of 80 s at 8 kHz or 320 s at 2 kHz)
- Auxiliary functions for simple tests and commissioning
- Flexibly adjustable I/O quantity structure within the scope of the SIPROTEC 5 modular system

**Benefits**

- Safe and reliable automation and control of your systems
- Purposeful and easy handling of devices and software thanks to a user-friendly design
- Cyber security in accordance with NERC CIP and BDEW Whitepaper requirements

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



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