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Innovative protection for low voltage with SIPROTEC 5

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Description

SIPROTEC 5 medium-voltage protection devices are particularly well-suited to low-voltage applications. They offer several functions in a single package which could otherwise only be implemented by installing multiple individual components. Thanks to using EMC-compatible external resistors, SIPROTEC 5 devices can be directly connected to AC 400 V measuring voltage in low-voltage switchgear.

Fields of Application

- Coupled voltage supply:
Voltage measurement in low-voltage applications is required in systems with several infeeds, as well as in systems in coupled operation.
- Direct connection of SIPROTEC 5 protection devices:
Direct connection of protection devices in low-voltage applications is normally only possible in conjunction with external voltage transformers.
- No need for voltage transformers in low-voltage distribution:
Voltage transformers have relatively high additional costs and require lots of installation space.

Prerequisite

SIPROTEC 5 devices meet the requirements of the low-voltage directive 2014/35/EU. In accordance with European standard EN 60255-27:2014 (Measuring Relays and Protection Equipment: Product Safety Requirements), voltage measurement inputs have a maximum insulation voltage rating of 300 VAC. The measuring voltage of 400 VAC must not be directly connected to SIPROTEC 5 devices. For low-voltage use, adaptation of the measuring voltage is carried out by using upstream voltage dividers and setting the device parameters.



SIPROTEC 5 multifunctional protection device

Functions

All functions of SIPROTEC 5 devices, particularly voltage functions, can be readily used in low-voltage applications:

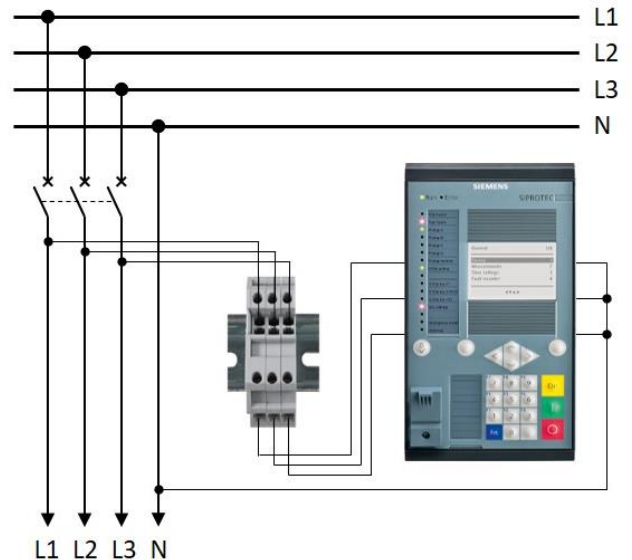
- Measured values (primary, secondary, %) are correctly displayed relative to AC 400 V – thus eliminating the need for conversion by the user.
- Protection, Control and Monitoring
- Display of messages and measured values
- Switching device control via the device display
- Current-dependent protection functions such as short-circuit protection
- Voltage-dependent protection functions such as over-voltage and undervoltage protection
- Current- and voltage-dependent protection functions, such as directional overcurrent protection, power direction protection or reverse-power protection
- Operational voltage and power measurement
- Energy metering

Compact and Reliable

Benefits

All advantages of a multifunctional protection device can be used, even in low-voltage applications

- Cost-efficient and space-saving design eliminates the need for external voltage transformers
- Circuit-breaker control – even via the device display
- Can be integrated into control systems
- Display of device readiness via live contact
- Comprehensive fault analysis using fault records (SIGRA) and saved logs
- Power and energy monitoring for in-house cost tracking/analysis
- Protection function, also as backup protection for medium-voltage end of the infeed transformer
- Compliance with EMC electromagnetic compatibility directive
- Reduced product variance, meaning less product training required for engineers
- Can easily be ordered online



Connection example: SIPROTEC 5 multifunctional protection device

3 terminal blocks (with integrated resistors) replace 3 star-connected voltage transformers

Siemens AG
Smart Infrastructure
Digital Grid
Humboldtstraße 59
90459 Nuremberg, Germany

Customer Support: <http://www.siemens.com/csc>

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