

RELAY

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## MEDIUM VOLTAGE CABINET PROTECTION RELAY



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# RELAY

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## Description

The protection relay for medium voltage applications is an essential device in medium voltage electrical systems, designed to detect and respond to abnormal conditions that may occur in the system, such as short circuits, overloads, and ground faults, among others.

This relay is responsible for sending open commands to isolation devices, such as circuit breakers, in the event of a fault, to quickly isolate the affected part of the system and prevent more severe damage.

The relay can be configured with adjustable parameters related to its protection functions, allowing for precise adaptation to the specific characteristics of the electrical system in which it is installed.

Additionally, the medium voltage protection relay offers advanced features such as local and remote communication, status and trip indicator LEDs, interlocking parameterization, and real-time monitoring for more efficient and secure management of the electrical system.

## Features

### Applications:

- Feeder Protection;
- Transformer Protection.

### Measurements:

- RMS Voltage and Current;
- Frequency;
- Power Factor;
- Active Power RMS.

### Control Functions:

- Local / Remote Control;
- Programmable Interlocking.



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## Protection Functions

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Overcurrent (3 Stages - IDMT) - ANSI 51

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Negative Sequence Overcurrent (2 Stages - IDMT) - ANSI 51Q

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Ground Fault (3 Stages - IDMT) - ANSI 51G

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Overload - ANSI 49

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Underfrequency - ANSI 81U

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Overvoltage - ANSI 59

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Undervoltage - ANSI 27

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Residual Overvoltage - ANSI 59 and 59 N

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Automatic Reset - ANSI 79

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PT Supervision - ANSI 60

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Loss of Supply - ANSI 27

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Switching Overcurrent - ANSI 50

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Ground Fault Current - ANSI 50 and 51

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Opening and Closing Supervision - ANSI 74

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Induced Overvoltage - ANSI 64

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Directional Neutral Overcurrent - ANSI 67N

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Technical Specifications

|                         |                                                                                                                          |                                                        |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Power Supply            | 220 VAC/DC                                                                                                               | ±15%                                                   |
|                         | 110 VAC/DC                                                                                                               | ±15%                                                   |
|                         | 48 VDC                                                                                                                   | ±15%                                                   |
|                         | 24 VDC                                                                                                                   | ±15%                                                   |
| Nominal AC Voltage      | 220 V                                                                                                                    | ± 10%                                                  |
| Ripple                  |                                                                                                                          | ≤ 5%                                                   |
| Voltage Inputs          | 3                                                                                                                        |                                                        |
| Nominal Voltage         | Input                                                                                                                    | Versions: 100 V; 100/√3 V; 115 V; 115/√3 V; 220 V (AC) |
| Current Inputs          | 4                                                                                                                        |                                                        |
| Nominal Current         | Input                                                                                                                    | 5A ; 1A AC                                             |
| Frequency               | Nominal                                                                                                                  | 50Hz; 60 Hz                                            |
| Communication Ports     | 1 RS485                                                                                                                  |                                                        |
| Communication Protocols | IEC60870-5-103                                                                                                           |                                                        |
|                         | Modbus-RTU                                                                                                               |                                                        |
| Digital Inputs          | Quantity                                                                                                                 | 8                                                      |
| Digital Outputs         | Quantity                                                                                                                 | 5                                                      |
| Monitoring              | Local/Remote                                                                                                             |                                                        |
| Measurements            | Voltage, Current, Frequency, Active Power, Reactive Power, Power Factor, Active Energy, Reactive Energy, Apparent Energy |                                                        |

Technical Specifications

|                          |                      |                            |
|--------------------------|----------------------|----------------------------|
| Records                  | Event Sequence       | 200 Event Sequence         |
|                          | Logs                 | 400 Logs                   |
|                          | Trip Data            | 10 s (Trip Data)           |
| Environmental Conditions | Temperature          | -25 °C to +55 °C           |
|                          | Humidity             | 5% to 95% (non-condensing) |
|                          | Atmospheric Pressure | 66 kPa to 106 kPa          |

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