Overcurrent Relays REJ 521/523/525/527

Protects your power system investments
General-use overcurrent and earth-fault relays
Single-phase and three-phase O/C relays
Directional or non-directional E/F relays
Easy to configure for your application
Flexible connectivity including IEC 61850 support

Scope
The REJ 52_ series comprises four protection relays; a single-phase residual overcurrent relay REJ 521, a three-phase phase overcurrent relay REJ 523, a combined three-phase phase and residual overcurrent relay REJ 525 and a directional residual overcurrent relay REJ 527. All four relays have two operating stages: a high-set stage and a low-set stage. The low-set stages of the relays can be given definite time or inverse time delay with all standard and several proprietary IDMT curves.

Application
The REJ 52_ overcurrent relay series is primarily intended for the overcurrent and earth-fault protection of utility substations and feeders, and industrial power distribution systems. The relays can also be used together with other protection relays in applications requiring short-circuit and earth-fault protection. The REJ 52_ relays have an external digital control input, which can be used to, e.g., block relay functions under certain conditions. This feature makes the relays ideal for busbar protection schemes based on blockings and for cascade relay schemes.

REJ 521 is a single-phase, two-stage residual overcurrent relay for general non-directional earth-fault protection applications.

REJ 523 is a three-phase, two-stage overcurrent relay for short-circuit and time overcurrent protection of substation feeders and busbars.

REJ 525 is a combined phase and neutral overcurrent relay for short-circuit and time overcurrent protection and non-directional earth-fault protection of overhead lines and cable feeders.
REJ 527 is a two-stage directional earth-fault relay for the protection of distribution network overhead lines and cable feeders. The relay can also be set for non-directional operation. A special feature of the REJ 527 relay is that its two directional residual overcurrent stages can be set to function as residual overvoltage stages, giving three separate residual overvoltage stages.

Circuit-breaker failure protection
The REJ 52_ series relays incorporate circuit-breaker failure protection, which generates a second trip signal, should the circuit-breaker fail to operate in time.

Disturbance recording
The REJ 52_ series relays provide configurable disturbance detection and waveform recording of analog signals, and capture of external and/or internal binary signals, for troubleshooting and analysis. The number of available analog and digital channels and the total recording length vary with relay type. Recordings can be uploaded and analyzed on a PC.

Local and remote communication
The REJ 52_ overcurrent relays provide flexible communications capability. Set and measured values and recorded data can be read by a centralized substation control and management system via the relay’s rear communication port. Relay information can also be read locally via the relay’s multilingual HMI or with a laptop connected to the optical communication port on the front panel.

Innovative technology
The REJ 52_ relay series is a part of ABB’s substation automation concept. The support for a wide range of communication protocols and standards, including the novel IEC 61850, makes these relays an excellent choice for your power system protection and management environment. The relays’ common configuration, setting and monitoring tools offer you yet another benefit. You just need to learn how to handle one relay to be able to manage the whole RE500 series of protection and control devices.

You can download the connectivity package from www.abb.com/substationsautomation

Technical Data

<table>
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<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Protection functions</td>
<td>Directional earth-fault protection, residual overcurrent protection, phase discontinuity protection</td>
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<tr>
<td>Non-directional earth-fault protection</td>
<td>l_1, l_2, l_3, l_4</td>
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<tr>
<td>High-speed stages</td>
<td>l_1, l_2, l_3, l_4</td>
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<td>Three-phase overcurrent protection</td>
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<tr>
<td>High-speed stages</td>
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<td>Phase discontinuity protection</td>
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<tr>
<td>Directional earth-fault protection</td>
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<td>Residual overcurrent protection</td>
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<tr>
<td>Circuit-breaker failure protection</td>
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</tbody>
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Disturbance recording
- Number of recording channels: 1 to 8
- Recording length in cycles: 50, 100, 250, 500, 1000
- Sampling rate: 20, 50, 100, 500 Hz

General
- Non-volatile memory for settings, events and recordings
- One wake-up function to external power input
- Two high-speed circuit-breaker trip relays
- Two wake-up relays
- One raw data communication (RD) system signaling relay

Communication and connectivity
- IEC 8807/IEC 61850 protocol, rear port, 4.8 or 9.6 kbps, with interface adapter
- Connectivity package

Dimensions and weight
- Width: 165 mm (41 mounting holes, 111.4 mm), 258.4 mm (48 mounting holes, 181 mm)
- Depth: 239.5 mm (41 mounting holes, terminal cover 251.7 mm)
- Weight of relay unit: 0.6 kg, case: 0.9 kg