

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



Overcurrent relay series REJ 52_

REJ 521/523/525/527 is a series of basic-line overcurrent relays for power system short-circuit and earth-fault protection. The series features all the functionality required for the basic protection of busbars and feeders in utility substations and industrial power distribution systems.

The REJ 52_ series is a part of ABB's RE500 platform of communicating numerical protection relays.

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/substationautomation

Technical Data REJ 521/523/525/527

	Symbol	ANSI Number	REJ 521	REJ 523	REJ 525	REJ 527
Protection functions						
Non-directional earth-fault protection						
- low-set stage	$I_{0>}$	51 N	•	•	•	•
- high-set stage	$I_{0>}^H$	50 N	•	•	•	•
Three-phase overcurrent protection						
- low-set stage	$I_{b>}$	51	•	•	•	•
- high-set stage	$I_{b>}^H$	59	•	•	•	•
Phase discontinuity protection						
	ΔI_b	46		•		
Directional earth-fault protection						
- low-set stage	$I_{0>}^D$	67 N				•
- high-set stage	$I_{0>}^{DH}$	67 N				•
Residual overvoltage protection						
- low-set stage	$U_{0>}$	59 N				•
- high-set stage	$U_{0>}^H$	59 N				•
- 2nd low-set stage	$U_{0b>}$	59 N				•
Circuit-breaker failure protection						
	CBFP	62BF	•	•	•	•

Disturbance recording

- number of recording channels

- analog channels	1	3	4	2
- digital channels	5	5	8	7

- total recording length in cycles

- sampling rate 800 Hz	90	40	32	60
- sampling rate 400 Hz	180	80	64	120
- sampling rate 50 Hz	1440	640	512	960

GENERAL

- Non-volatile memory for settings, events and recordings
- One user-assignable external digital control input
- Two heavy-duty circuit-breaker trip relays
- Two freely assignable signaling relays
- One self-supervision (IRF) system signaling relay

Communication and connectivity

- IEC 60870-5-103 protocol, rear port, 4.8 or 9.6 kbps, SPA bus protocol, rear or front port, 4.8 or 9.6 kbps, IEC 61850 (with interface adapter)
- Connectivity package

Dimensions and weight:

Width 94.0 mm (incl. mounting frame 111.4 mm),
Height 249.8 mm (incl. mounting frame 265.9 mm)
Depth 235.0 mm (incl. terminal cover 245.1 mm)
Weight of relay unit incl. case ~3.0 kg



ABB Oy
Distribution Automation
P.O. Box 699
FI-65101 VAASA, Finland
Phone: +358 10 22 11
Fax: +358 10 22 41094
www.abb.com/substationautomation