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# Microprocessor-based overcurrent releases

## General specifications

The overcurrent protection for AC installations uses three types of microprocessor-based releases in the SACE PR111, PR112 and PR113 series, which can be installed as alternatives to one another on SACE Emax circuit-breakers:

- SACE PR111 with protection functions only
- SACE PR112 with protection, current measurement and dialogue functions
- SACE PR113 with a complete set of functions for protection, measurement, signalling, control and dialogue.

The protection systems can be three-phase or three-phase with neutral depending on the type of circuit-breaker used (three-pole, three-pole with external neutral or four-pole).

The protection system is made up of:

- 3 or 4 current transformers (CT) depending on the number of circuit-breaker poles; the fourth CT may be external
- a protection unit selected from among SACE PR111/P, SACE PR112/P and SACE PR113/P, or a protection and communication unit selected from among SACE PR112/PD with LON<sup>®</sup> or Modbus<sup>®</sup> protocol and SACE PR113/PD with Modbus<sup>®</sup> protocol
- an opening solenoid which acts directly on the circuit-breaker's operating mechanism (supplied with the protection unit).





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## Versions available

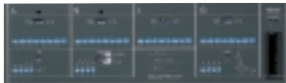

General specifications of the microprocessor-based releases include:

- operation without the need for an external power supply
- microprocessor technology (8-bit for SACE PR111 and 16-bit for SACE PR112 and PR113)
- high precision
- sensitivity to the true r.m.s. value of the current
- interchangeability among all types of releases
- setting for neutral normally 50% of setting for phases, with possibility of setting it to 100% (on request only for circuit -breakers E1, E2, E3 standard and E4/f, E6/f full-size versions).

For the release PR113, it is also possible to select neutral protection at 150% and 200% of the rated current of the phases, if compatible with the setting of the current transformers.

The main performance features of the releases are listed in the tables below.

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SACE PR111																					
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