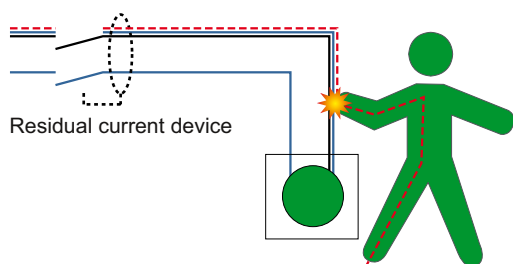


Earth leakage protection

Response time of high-sensitivity residual current devices

All the high-sensitivity residual current devices (30 mA) in the Acti9 range conform to the IEC/EN 61008 and IEC/EN 61009 standards. The response times defined by these standards guarantee their effectiveness in protecting people against direct contacts.



Response time

The response time of a residual current device is the time between the appearance of a dangerous leakage current and the interruption of the circuit.

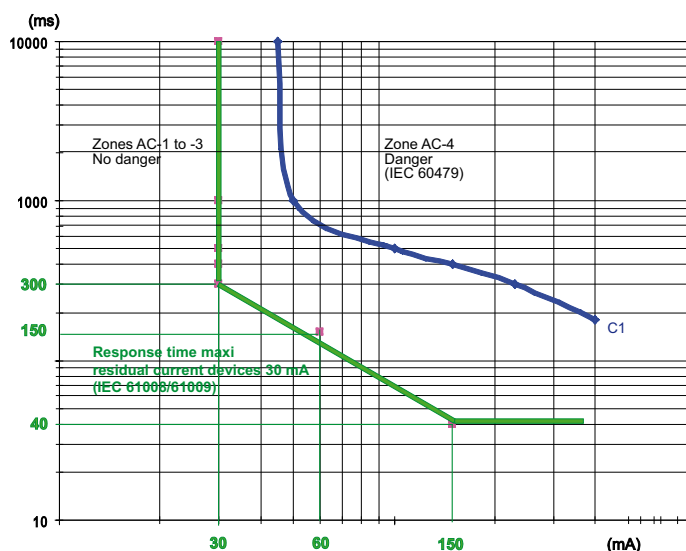
For a residual current device with a sensitivity of $I_{\Delta n}$ 30 mA:

Fault current (mA)	Maximum response time (ms)
$I_{\Delta n}/2$ 15 mA	No tripping
$I_{\Delta n}$ 30 mA	300 ms
$2 \times I_{\Delta n}$ 60 mA	150 ms
$5 \times I_{\Delta n}$ 150 mA	40 ms

These response times conform to the specifications of the IEC/EN 61008 and IEC/EN 61009 standards.

They guarantee protection of people against direct contacts for the following reasons :

- When a person comes into direct contact with a live conductor, the current passes directly through the human body.
- This current, with the same magnitude, is detected by the residual current device.



- The IEC 60479 technical report studies the sensitivity of the human body to the electric current. Curve c1 defines for each current value the maximum time before the current causes injury to a person.

- Superimposing the two curves shows that the above response times protects the users.

Measuring the response time

If the user wishes to check the response time of his residual current devices, he should follow a specific procedure to:

- establish a leakage current of calibrated magnitude
- measure the exact response time.

Procedure

The measuring instruments must conform to IEC/EN 61557-6.

Carry out the operations in the following order according to the safety instructions:

- disconnect the loads
- install the measuring instrument downstream of the residual current device to be tested (for example on a power outlet)
- perform the measurement.

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