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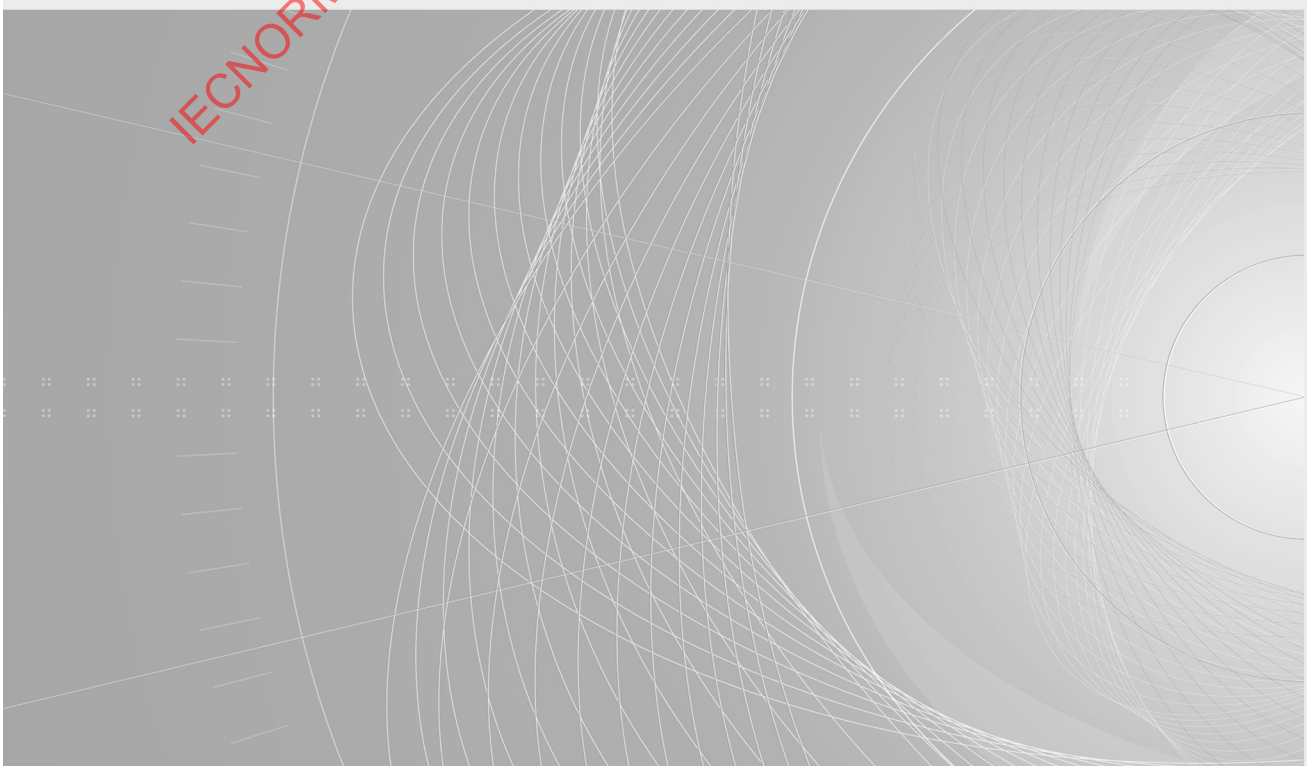
INTERNATIONAL STANDARD

Residual current operated circuit-breakers for household and similar use – Part 2: Residual current devices (RCDs) – Vocabulary



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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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RESIDUAL CURRENT OPERATED CIRCUIT-BREAKERS FOR HOUSEHOLD AND SIMILAR USE –

Part 2: Residual current devices (RCDs) – Vocabulary

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International Standard IEC 62873-2 has been prepared by subcommittee 23E: Circuit breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

The text of this standard is based on the following documents:

FDIS	Report on voting
23E/963/FDIS	23E/981/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 62873 series, published under the general title *Residual current operated circuit-breakers for household and similar use* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This document is part of the series described in the outline document IEC 62873-1.

RESIDUAL CURRENT OPERATED CIRCUIT-BREAKERS FOR HOUSEHOLD AND SIMILAR USE –

Part 2: Residual current devices (RCDs) – Vocabulary

1 Scope

This part of IEC 62873 provides the terms and definitions used in RCD product standards.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

Where the terms "voltage" or "current" are used, they imply r.m.s. values, unless otherwise specified.

NOTE Reference to IEV definitions is also made when the term "device" or "mechanical switching device" has been replaced by the term "RCCB", "RCBO" or "RCD".

Alphabetical index of definitions

Reference

Reference

M

O

P

R

3.1 Definitions relating to currents flowing from live parts to earth

3.1.1
earth fault current
current flowing to earth due to an insulation fault

[SOURCE: IEC 60050-442:1998, 442-01-23]

3.1.2
earth leakage current
current flowing from the live parts of the installation to earth, in the absence of an insulation fault

[SOURCE: IEC 60050-442:1998, 442-01-24]

3.1.3
pulsating direct current
current of pulsating wave form which assumes, in each period of the rated power frequency, the value 0 during one single interval of time, expressed in angular measure, of at least 180°

Note 1 to entry: The adjective "pulsating" is defined in IEC 60050-103:2009, 103-06-07.

3.1.4
current delay angle
α
time, expressed in angular measure, by which the starting instant of current conduction is delayed by phase control

[SOURCE: IEC 60050-442:1998, 442-05-42, modified – In the definition, "the phase angle representing the time" has been replaced by "time, expressed in angular measure,".]

3.1.5
smooth direct current
direct current which is ripple free

Note 1 to entry: A current is considered to be ripple free when the coefficient of ripple is below 10 %.

3.2 Definitions relating to the energization of an RCD

3.2.1
energizing quantity
electrical excitation quantity which, alone or in combination with other such quantities, is applied to an RCD to enable it to accomplish its function under specified conditions

3.2.2
energizing input-quantity
energizing quantity by which the RCD is activated when it is applied under specified conditions

Note 1 to entry: These conditions involve, for example, the energizing of certain auxiliary elements.

3.2.3
residual current
I_{Δ}
r.m.s. value of the vector sum of the instantaneous values of the currents flowing through the main circuit of the RCD

[SOURCE: IEC 60050-442:1998, 442-05-19, modified – “of the instantaneous values” has been inserted.]

3.2.4
residual operating current
$I_{\Delta n}$
value of residual current which causes the RCD to operate under specified conditions

[SOURCE: IEC 60050-442:1998, 442-05-20]

3.2.5
residual non-operating current
$I_{\Delta no}$
value of residual current at which (and below which) the RCD does not operate under specified conditions

[SOURCE: IEC 60050-442:1998, 442-05-21]

3.2.6
residual current
$I_{\Delta t}$
<of an RCBO> value of residual current which is the lower limit of the overcurrent instantaneous tripping range

3.3 Definitions relating to the operation and functions of an RCD

3.3.1
switching device
device designed to make or break the current in one or more electric circuits

[SOURCE: IEC 60050-441:2000, 441-14-01]

3.3.2
mechanical switching device
switching device designed to close and open one or more electric circuits by means of separable contacts

[SOURCE IEC 60050-441:2000, 441-14-02, modified – Note has been deleted.]

3.3.3
circuit-breaker
mechanical switching device, capable of making, carrying and breaking currents under normal circuit conditions and also making, carrying for a specified duration and breaking currents under specified abnormal circuit conditions such as those of short-circuit

[SOURCE: IEC 60050-441:2000, 441-14-20]

3.3.4
fuse
a device that by the fusing of one or more of its specially designed and proportioned components, opens the circuit in which it is inserted by breaking the current when this exceeds a given value for a sufficient time. The fuse comprises all the parts that form the complete device

[SOURCE: IEC 60050-441:2000, 441-18-01]

3.3.5
residual current device
RCD
mechanical switching device or association of devices designed to make, carry and break currents under normal service conditions and to cause the opening of the contacts when the residual current attains a given value under specified conditions

[SOURCE: IEC 60050-442:1998, 442-05-02, modified – “or association of devices” has been inserted and the Note has been deleted.]

3.3.6
detection
<of a residual current device> function consisting in sensing the presence of a residual current

Note 1 to entry: This function can be performed, for example, by a transformer integrating the vector sum of the currents.

[SOURCE: IEC 60050-442:1998, 442-05-24]

3.3.7
evaluation
<of a residual current device> function consisting in giving to the residual current device the possibility to operate, when the detected residual current exceeds a specified reference value

[SOURCE: IEC 60050-442:1998, 442-05-25]

3.3.8
interruption
<for a residual current device> function consisting in bringing automatically the main contacts of the residual current device from the closed position into the open position, thereby interrupting the current(s) flowing through them

[SOURCE: IEC 60050-442:1998, 442-05-26]

3.3.9
r.c. unit
device performing simultaneously the functions of detection of the residual current and of comparison of the value of this current with the residual operating value, and incorporating the means of operating the tripping mechanism of a circuit-breaker with which it is designed to be assembled or associated

3.3.10
residual current operated circuit-breaker without integral overcurrent protection
RCCB
residual current operated circuit-breaker not designed to perform the functions of protection against overloads and/or short circuits

[SOURCE: IEC 60050-442:1998, 442-05-03, modified – "switching device" has been replaced by "circuit-breaker".]

3.3.11
residual current operated circuit-breaker with integral overcurrent protection
RCBO
residual current operated circuit-breaker designed to perform the functions of protection against overloads and/or short circuits

[SOURCE: IEC 60050-442:1998, 442-05-04, modified – "switching device" has been replaced by "circuit-breaker".]

3.3.12
RCD functionally independent of line voltage
RCD for which the functions of detection, evaluation and interruption do not depend on the line voltage

[SOURCE: IEC 60050-442:1998, 442-05-08]

3.3.13
RCD functionally dependent on line voltage
RCD for which the functions of detection, evaluation or interruption depend on the line voltage

Note 1 to entry: It is understood that the line voltage is applied to the RCD, for detection, evaluation or interruption.

[SOURCE: IEC 60050-442:1998, 442-05-09]

3.3.14
trip-free RCD
RCD the moving contacts of which return to and remain in the open position when the automatic opening operation is initiated after the initiation of the closing operation, even if the closing command is maintained

Note 1 to entry: To ensure proper breaking of the current which has been established, it could be necessary that the contacts momentarily reach the closed position.

[SOURCE: IEC 60050-441:2000, 441-16-31, modified – "mechanical switching device" has been replaced by "RCD" and the word "automatic" has been inserted.]

3.3.15
break time
<of an RCD> time which elapses between the instant when the residual operating current is suddenly attained and the instant of arc extinction in all poles

3.3.16
limiting non-actuating time
maximum delay during which a value of residual current higher than the residual non-operating current can be applied to the RCD without causing it to operate

[SOURCE: IEC 60050-442:1998, 442-05-23, modified – In the definition, "bringing it actually" has been replaced by "causing it".]

3.3.17
time-delay RCD
RCD specially designed to attain a predetermined value of limiting non-actuating time, corresponding to a given value of residual current

[SOURCE: IEC 60050-442:1998, 442-05-05]

3.3.18
reset RCD
residual current device which must be intentionally reset prior to reclosing by a means different from the operation means to be able to be reclosed and to operate again

[SOURCE: IEC 60050-442:1998, 442-05-10, modified – In the definition, "prior to reclosing" has been introduced, "operating" has been replaced by "operation", and "to operate on the occurrence of a residual current" has been replaced by “to be reclosed and to operate again”.]

3.3.19
closed position
<of a mechanical switching device> position in which the predetermined continuity of the main circuit of the RCD is secured

[SOURCE: IEC 60050-441:2000, 441-16-22, modified – In the definition, "device" has been replaced by "RCD".]

3.3.20
open position
<of a mechanical switching device> position in which the predetermined clearance between open contacts in the main circuit of the RCD is secured

[SOURCE: IEC 60050-441:2000, 441-16-23, modified – In the definition, "device" has been replaced by "RCD".]

3.3.21
pole
part of an RCD associated exclusively with one electrically separated conducting path of its main circuit provided with contacts intended to connect and disconnect the main circuit itself and excluding those portions which provide a means for mounting and operating the poles together

[SOURCE: IEC 60050-441:2000, 441-15-01, modified – The term and first part of the definition have been reviewed and the Note has been deleted.]

3.3.21.1
overcurrent protected pole
protected pole
pole provided with an overcurrent release

[SOURCE: IEC 60050-442:1998, 442-05-40, modified – The second preferred term has been added.]

3.3.21.2
overcurrent unprotected pole
unprotected pole
pole without an overcurrent release, but otherwise generally capable of the same performance as a protected pole of the same RCBO

Note 1 to entry: To ensure this requirement, the unprotected pole may be of the same construction as the protected pole(s), or of a particular construction.

Note 2 to entry: If the short-circuit capacity of the unprotected pole is different from that of the protected pole(s), this should be indicated by the manufacturer.

[SOURCE: IEC 60050-442:1998, 442-05-41, modified – The second preferred term and Notes to entry have been added.]

3.3.21.3
switched neutral pole
pole only intended to switch the neutral and not intended to have a short-circuit capacity

[SOURCE: IEC 60050-442:1998, 442-05-45]

3.3.22
uninterrupted neutral
current path, not interrupted and not overcurrent protected, intended to be connected to the neutral conductor of the installation

[SOURCE: IEC 60050-442:1998, 442-01-51]

3.3.23
main circuit
<of an RCD> all the conductive parts of an RCD included in the current paths

[SOURCE: IEC 60050-441:2000, 441-15-02, modified – In the definition, "switching device" has been replaced by "RCD" and the last part has been deleted.]

3.3.24
control circuit
<of an RCD> circuit (other than a path of the main circuit) intended for the closing operation or the opening operation, or both, of the RCD

Note 1 to entry: The circuits intended for the test device are included in this definition.

3.3.25
auxiliary circuit
<of an RCD> all the conductive parts of an RCD which are intended to be included in a circuit other than the main circuit and the control circuit of the RCD

[SOURCE: IEC 60050-441:2000, 441-15-04, modified – In the definition, "switching device" and "device" have been replaced by "RCD", and the Note has been deleted.]

3.3.26
RCD type AC
RCD for which tripping is ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly rising

3.3.27
RCD type A
RCD for which tripping is ensured for residual sinusoidal alternating currents and residual pulsating direct currents, whether suddenly applied or slowly rising, and in addition for residual pulsating direct currents superimposed on smooth direct current up to 6 mA

3.3.28
RCD type F
residual current device for which tripping is ensured as for type A as applicable, and in addition:

– for composite residual currents, whether suddenly applied or slowly rising intended for circuit supplied between phase and neutral or phase and earthed middle conductor;
– for residual pulsating direct currents superimposed on smooth direct current up to 10 mA

Note 1 to entry: The tripping for type A is according to IEC 61008-1 or IEC 61009-1.

3.3.29
RCD type B
residual current device for which tripping is ensured as for type F and in addition:

– for residual sinusoidal alternating currents up to 1 000 Hz;
– for residual alternating currents superimposed on a smooth direct current equal to 0,4 $I_{\Delta n}$ or 10 mA, whichever is the higher value;
– for residual pulsating direct currents superimposed on a smooth direct current;
– for residual pulsating rectified direct current which results from two or more phases;
– for residual smooth direct currents whether suddenly applied or slowly increased independent of polarity

3.3.30
test device
device incorporated in the RCD simulating the residual current conditions for the operation of the RCD under specified conditions

3.4 Definitions relating to values and ranges of energizing quantities

3.4.1
rated value
quantity value assigned, generally by a manufacturer, for a specified operating condition of an RCD

[SOURCE: IEC 60050-441:2000, 441-18-35, modified – In the definition, "a component, device or equipment" has been replaced by "an RCD", and the Note has been deleted.]

3.4.2
overcurrent
current exceeding the rated current

[SOURCE: IEC 60050-442:1998, 442-01-20]

3.4.3
limiting value of the non-operating current in case of single phase overcurrent
maximum value of single phase overcurrent which, in the absence of a residual current, can flow through an RCD (whatever the number of poles) without causing it to operate

Note 1 to entry: In the case of overcurrent in the main circuit, in the absence of residual current, operation of the detecting device may occur as a consequence of asymmetry existing in the detecting device itself.

3.4.4
overload current
overcurrent occurring in an electrically undamaged circuit

Note 1 to entry: An overload current may cause damage if sustained for a sufficient time.

3.4.5
short-circuit current
overcurrent resulting from a fault of negligible impedance between points intended to be at different potentials in normal service

Note 1 to entry: A short-circuit current could result from a fault or from an incorrect connection.

3.4.6
residual short-circuit withstand current
maximum value of the residual current for which the operation of the RCCB is ensured under specified conditions and above which the device may undergo irreversible alterations

3.4.7
prospective current
current that would flow in the circuit, if each main current path of the RCD and of the overcurrent protective device, if any, were replaced by a conductor of negligible impedance

Note 1 to entry: The prospective current can be qualified in the same manner as an actual current, for example: prospective breaking current, prospective peak current, prospective residual current, etc.

[SOURCE: IEC 60050-442:1998, 442-01-47, modified – In the definition, "switching device" has been replaced by "RCD".]

3.4.8
prospective peak current
peak value of a prospective current during the transient period following initiation

Note 1 to entry: The definition assumes that the current is made by an ideal RCBO, i.e. with instantaneous transition from infinite to zero impedance. For circuits where the current can follow several different paths, e.g. polyphase circuits, it further assumes that the current is made simultaneously in all poles, even if only the current in one pole is considered.

[SOURCE: IEC 60050-441:2000, 441-17-02]

3.4.9
maximum prospective peak current
<of an AC circuit> prospective peak current when the initiation of the current takes place at the instant which leads to the highest possible value

Note 1 to entry: For a multipole RCD in a polyphase circuit, the maximum prospective peak current refers to a single pole only.

[SOURCE: IEC 60050-441:2000, 441-17-04]

3.4.10
short-circuit (making and breaking) capacity
short-circuit capacity
alternating component of the prospective current, expressed by its r.m.s. value, which the RCD is designed to make, to carry for its opening time and to break under specified conditions

3.4.11
making capacity
value of the AC component of a prospective current that an RCD is capable of making at a stated voltage under prescribed conditions of use and behaviour

[SOURCE: IEC 60050-442:1998, 442-01-48, modified – In the definition, "of the AC component" has been added and "switching device" has been replaced by "RCD".]

3.4.12
breaking capacity
value of the AC component of a prospective current that an RCD is capable of breaking at a stated voltage under prescribed conditions of use and behaviour

[SOURCE: IEC 60050-442:1998, 442-01-49, modified – In the definition, "of the AC component" has been added and "switching device" has been replaced by "RCD".]

3.4.13
residual making and breaking capacity
$I_{\Delta m}$
value of the AC component of a residual prospective current which an RCD can make, carry for its opening time and break under specified conditions of use and behaviour

[SOURCE: IEC 60050-442:1998, 442-05-27, modified – In the definition, "alternating component" has been replaced by "AC component".]

3.4.14
short-circuit protective device
SCPD
<for an RCD> device, specified by the residual current device manufacturer, which has to be installed in the circuit in series with the RCD in order to protect it against short-circuits only

[SOURCE: IEC 60050-442:1998, 442-05-12]

3.4.15
conditional short-circuit current
I_{nc}
value of the AC component of a prospective current, which an RCD without integral short-circuit protection, but protected by a short-circuit protective device in series, can withstand under specified conditions of use and behaviour

[SOURCE: IEC 60050-442:1998, 442-05-28, modified – In the definition, "alternating component" has been replaced by "AC component".]

3.4.16
service short-circuit breaking capacity
breaking capacity for which the prescribed conditions according to a specified test sequence include the capability of the RCBO to carry 0,85 times its non-tripping current for the conventional time

Note 1 to entry: For the conventional time, see IEC 60050-442:1998, 442-05-54 and 442-05-55.

[SOURCE: IEC 60050-442:1998, 442-05-50]

3.4.17
ultimate short-circuit breaking capacity
breaking capacity for which the prescribed conditions according to a specified test sequence do not include the capability of the RCBO to carry 0,85 times its non-tripping current for the conventional time

Note 1 to entry: For the conventional time, see IEC 60050-442:1998, 442-05-54 and 442-05-55.

[SOURCE: IEC 60050-442:1998, 442-05-49]

3.4.18
breaking current
current in a pole of an RCBO at the instant of initiation of the arc during a breaking process

[SOURCE: IEC 60050-441:2000, 441-17-07, modified – In the definition, "of a switching device or in a fuse" has been replaced by "of an RCBO".]

3.4.19
conditional residual short-circuit current
$I_{\Delta c}$
value of the AC component of a residual prospective current which an RCD without integral short-circuit protection but protected by a short-circuit protective device in series, can withstand under specified conditions of use and behaviour

[SOURCE: IEC 60050-442:1998, 442-05-22]

3.4.20
loss of supply
loss of one or more active conductors

3.4.21
minimum operating voltage
U_x
lower supply voltage limit at which the RCD still provides its dedicated function

3.4.22
opening time
time measured from the instant at which, the RCD being in the closed position, the current in the main circuit reaches the operating value to the instant when the arcing contacts have separated in all poles

Note 1 to entry: The opening time is commonly referred to as tripping time, although, strictly speaking, tripping time applies to the time between the instant of initiation of the opening time and the instant at which the opening command becomes irreversible.

3.4.23
temporary overvoltage
TOV
power frequency overvoltage of relatively long duration

[SOURCE: IEC 60050-614:2016, 614-03-13, modified – Note 1 to entry has been deleted.]

3.5 Definitions relating to arcing time

3.5.1
arcing time
<of a pole> interval of time between the instant of initiation of the arc in a pole and the instant of final arc extinction in that pole

[SOURCE: IEC 60050-441:2000, 441-17-37, modified – Reference to fuses has been deleted.]

3.5.2
arcing time
<of a multipole RCD> interval of time between the instant of first initiation of the arc and the instant of final arc extinction in all poles

[SOURCE: IEC 60050-441:2000, 441-17-38]

3.5.3
break time
<in case of overcurrent> interval of time between the beginning of the opening time of an RCBO and the end of the arcing time

[SOURCE: IEC 60050-441:2000, 441-17-39, modified – The domain has been added before the definition and "mechanical switching device" has been replaced by "RCBO".]

3.5.4
joule integral
I^2t
integral of the square of the current over a given time interval (t_0, t_1):

$$I^2t = \int_{t_0}^{t_1} i^2 \mathrm{d}t$$

[SOURCE: IEC 60050-441:2000, 441-18-23]

3.5.5
applied voltage
voltage which exists across the terminals of a pole of an RCD just before the making of the current

Note 1 to entry: This definition refers to a single pole RCD. For a multipole RCD, the applied voltage is the voltage across the supply terminals of the RCD.

[SOURCE: IEC 60050-441:2000, 441-17-24, modified – In the definition, "a switching device" has been replaced by "an RCD", and Note 1 to entry has been added.]

3.5.6
recovery voltage
voltage which appears across the terminals of a pole of an RCD after the breaking of the current

Note 1 to entry: This voltage is considered as comprising two successive intervals of time, one during which a transient voltage exists, followed by a second interval during which power-frequency voltage alone exists.

Note 2 to entry: This definition refers to a single-pole RCD. For a multipole RCD, the recovery voltage is the voltage across the supply terminals of the RCD.

[SOURCE: IEC 60050-441:2000, 441-17-25, modified – In the definition, "a switching device or a fuse" has been replaced by "an RCD", and Note 2 to entry has been added.]

3.5.7
transient recovery voltage
recovery voltage during the time in which it has a significant transient character

Note 1 to entry: The transient voltage may be oscillatory or non-oscillatory or a combination of these depending on the characteristics of the circuit and of the RCD. It includes the voltage shift of the neutral of a polyphase circuit.

[SOURCE: IEC 60050-441:2000, 441-17-26, modified – Note 2 to entry has been deleted.]

3.5.8
power-frequency recovery voltage
recovery voltage after the transient voltage phenomena have subsided

[SOURCE: IEC 60050-441:2000, 441-17-27]

3.5.9
I^2t characteristic
<of an RCD> curve giving the maximum value of I^2t as a function of the prospective current under stated conditions of operation

3.6 Coordination between overcurrent protective devices in series

3.6.1
selectivity-limit current
I_s
current coordinate of the intersection between the maximum break-time–current characteristic of the protective device on the load side and the pre-arcing (for fuses) or tripping (for circuit-breakers) time–current characteristic of the other protective device

Note 1 to entry: The selectivity-limit current is a limiting value of current:

– below which, in the presence of two overcurrent protective devices in series, the protective device on the load side completes its breaking operation in time to prevent the other protective device from starting its operation (i.e. selectivity is ensured);

– above which, in the presence of two overcurrent protective devices in series, the protective device on the load side could not complete its breaking operation in time to prevent the other protective device from starting its operation (i.e. selectivity is not ensured).

Note 2 to entry: I^2t characteristics may be used instead of time–current characteristics.

[SOURCE: IEC 60050-442:1998, 442-05-60, modified – Notes to entry have been added.]

3.6.2
take-over current
I_B
current coordinate of the intersection between the maximum break-time–current characteristics of two overcurrent protective devices

Note 1 to entry: The take-over current is a limiting value of current above which, in the presence of two overcurrent protective devices in series, the protective device generally, but not necessarily, on the supply side, provides back-up operation for the other protective device.

Note 2 to entry: I^2t characteristics may be used instead of time–current characteristics.

[SOURCE: IEC 60050-442:1998, 442-05-61, modified – Notes to entry have been added.]

3.6.3
conventional non-tripping current
I_{nt}
specified value of current which the RCBO can carry for a specified time (conventional time) without operating

[SOURCE: IEC 60050-441:2000, 441-17-22, modified – In the definition, "release" has been replaced by "RCBO".]

3.6.4
conventional tripping current
I_t
specified value of current which causes the RCBO to operate within a specified time (conventional time)

[SOURCE: IEC 60050-441:2000, 441-17-23]

3.6.5
instantaneous tripping current
minimum value of current which causes the circuit-breaker to operate automatically without intentional time-delay

[SOURCE: IEC 60050-442:1998, 442-05-46, modified – The first part of the definition has been changed.]

3.7 Definitions relating to values and ranges of influencing quantities

3.7.1
influencing quantity
any quantity likely to modify the specified operation of an RCD

[SOURCE: IEC 60050-442:1998, 442-05-35]

3.7.2
reference value of an influencing quantity
<for a residual current device> value of an influencing quantity to which the manufacturer's stated characteristics are referred

[SOURCE: IEC 60050-442:1998, 442-05-36]

3.7.3
reference conditions of influencing quantities
<for a residual current device> collectively, the reference values of all influencing quantities

[SOURCE: IEC 60050-442:1998, 442-05-37]

3.7.4
preferred range of an influencing quantity
<for a residual current device> range of values of an influencing quantity which permits the RCD to operate under specified conditions, the other influencing quantities having their reference values

[SOURCE: IEC 60050-442:1998, 442-05-38]

3.7.5
extreme range of an influencing quantity
<for a residual current device> range of values of an influencing quantity within which the RCD suffers only spontaneously reversible changes, while not necessarily complying with any requirements

[SOURCE: IEC 60050-442:1998, 442-05-39]

3.7.6
ambient air temperature
temperature, determined under prescribed conditions, of the air surrounding the RCD

Note 1 to entry: For RCDs installed inside an enclosure, it is the temperature of the air outside the enclosure.

[SOURCE: IEC 60050-441:2000, 441-11-13, modified – In the definition and Note 1 to entry, "switching device or fuse" has been replaced by "RCD".]

3.7.7
reference ambient air temperature
ambient air temperature on which the time–overcurrent characteristics of an RCBO are based

3.8 Definitions relating to terminals

3.8.1
terminal
conductive part of an RCD, provided for re-usable electrical connection to external circuits

3.8.2
screw-type terminal
terminal for the connection and subsequent disconnection of one conductor or the interconnection of two or more conductors capable of being dismantled, the connections being made, directly or indirectly, by means of screws or nuts of any kind

3.8.3
pillar terminal
screw-type terminal in which the conductor(s) is (are) inserted into a hole or cavity, where it is clamped under the shank of the screw

Note 1 to entry: The clamping pressure can be applied directly by the shank of the screw or through an intermediate part, to which pressure is applied by the shank of the screw

[SOURCE: IEC 60050-442:1998, 442-06-22]

3.8.4
screw terminal
terminal in which the conductor is clamped under the head of one or more screws and where the clamping pressure can be applied directly by the head of the screw or through an intermediate part, such as a washer, a clamping plate or an anti-spread device

[SOURCE: IEC 60050-442:1998, 442-06-08]

3.8.5
stud terminal
screw-type terminal in which the conductor is clamped under a nut

Note 1 to entry: The clamping pressure may be applied directly by a suitably-shaped nut or through an intermediate part, such as a washer, a clamping plate or an anti-spread device.

[SOURCE: IEC 60050-442:1998, 442-06-23]

3.8.6
saddle terminal
screw-type terminal in which the conductor is clamped under a saddle by means of two or more screws or nuts

[SOURCE: IEC 60050-442:1998, 442-06-09, modified – In the definition, "screw-type" has been added.]

3.8.7
lug terminal
screw terminal or stud terminal, designed for clamping a cable lug or a bar by means of a screw or nut

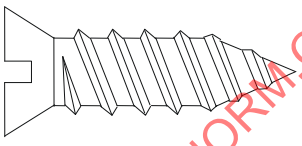
[SOURCE: IEC 60050-442:1998, 442-06-16, modified – In the definition, "screw-type terminal" has been replaced by "screw terminal or stud terminal" and "directly or indirectly" has been deleted.]

3.8.8
screwless terminal
connecting terminal for the connection and subsequent disconnection of one conductor or the dismountable interconnection of two or more conductors capable of being dismantled, the connection being made, directly or indirectly, by means of springs, wedges, eccentrics or cones, etc., without special preparation of the conductor other than removal of insulation

3.8.9
tapping screw
screw manufactured from a material having high resistance to deformation, when applied by rotary insertion to a hole in a material having less resistance to deformation than the screw

Note 1 to entry: The screw is made with a tapered thread, the taper being applied to the core diameter of the thread at the end section of the screw. The thread produced by application of the screw is formed securely only after sufficient revolutions have been made to exceed the number of threads on the tapered section.

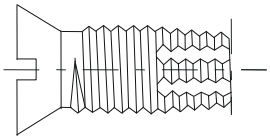
3.8.10
thread forming tapping screw
tapping screw having an uninterrupted thread



IEC

Note 1 to entry: It is not a function of this thread to remove material from the hole.

3.8.11
thread cutting tapping screw
tapping screw having an interrupted thread; it is a function of this thread to remove material from the hole



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3.9 Definitions relating to conditions of operation

3.9.1
operation
<of a mechanical switching device> transfer of the moving contact(s) from the open position to the closed position or vice versa

Note 1 to entry: If distinction is necessary, an operation in the electrical sense (i.e. make or break) is referred to as a switching operation and an operation in the mechanical sense (i.e. close or open) is referred to as a mechanical operation.

[SOURCE: IEC 60050-441:2000, 441-16-01, modified – The definition has been reworded and Note 1 has been deleted.]

3.9.2
closing operation
<of a mechanical switching device> operation by which the RCD is brought from the open position to the closed position

[SOURCE: IEC 60050-441:2000, 441-16-08, modified – In the definition, "device" has been replaced by "RCD".]

3.9.3
opening operation
<of a mechanical switching device> operation by which the RCD is brought from the closed position to the open position

[SOURCE: IEC 60050-441:2000, 441-16-09, modified – In the definition, "device" has been replaced by "RCD".]

3.9.4
dependent manual operation
<of a mechanical switching device> operation solely by means of directly applied manual energy, such that the speed and force of the operation are dependent on the action of the operator

[SOURCE: IEC 60050-441:2000, 441-16-13]

3.9.5
independent manual operation
<of a mechanical switching device> stored energy operation where the energy originates from manual power, stored and released in one continuous operation, such that the speed and force of the operation are independent of the action of the operator

[SOURCE: IEC 60050-441:2000, 441-16-16]

3.9.6
operating cycle
<of a mechanical switching device> succession of operations from one position to another and back to the first position through all other positions, if any

[SOURCE: IEC 60050-441:2000, 441-16-02]

3.9.7
sequence of operations
succession of specified operations with specified time intervals

3.9.8
uninterrupted duty
duty in which the main contacts of an RCD remain closed whilst carrying a steady current without interruption for long periods (which could be weeks, months, or even years)

[SOURCE: IEC 60050-442:1998, 442-05-43, modified – In the definition, "a switching device" has been replaced by "an RCD".]

3.10 Definitions relating to constructional elements

3.10.1
main contact
contact included in the main circuit of an RCD, intended to carry, in the closed position, the current of the main circuit

[SOURCE: IEC 60050-441:2000, 441-15-07, modified – In the definition, "a mechanical switching device" has been replaced by "an RCD".]

3.10.2
arcing contact
contact on which the arc is intended to be initiated

Note 1 to entry: An arcing contact may serve as a main contact. It may also be a separate contact so designed that it opens after and closes before another contact which it is intended to protect from damage.

[SOURCE: IEC 60050-441:2000, 441-15-08, modified – In the definition, "established" has been replaced by" initiated", and "also" has been added in Note 1 to entry.]

3.10.3
control contact
contact included in a control circuit of an RCD and mechanically operated by the RCD

[SOURCE: IEC 60050-441:2000, 441-15-09, modified – In the definition, "mechanical switching device" and "device" have been replaced by "RCD".]

3.10.4
auxiliary contact
contact included in an auxiliary circuit and mechanically operated by the RCD

Note 1 to entry: An auxiliary contact can, for example, be operated to indicate the position of the contacts.

[SOURCE: IEC 60050-441:2000, 441-15-10, modified – In the definition, "switching device" has been replaced by "RCD", and Note 1 to entry has been added.]

3.10.5
release
device, mechanically connected to (or integrated into) an RCBO, which releases the holding means and permits the automatic opening of the RCBO

[SOURCE: IEC 60050-441:2000, 441-15-17, modified – In the definition, "mechanical switching device" and "switching device" have been replaced by "RCBO".]

3.10.6
overcurrent release
release which permits an RCBO to open with or without time-delay when the current in the release exceeds a predetermined value

Note 1 to entry: In some cases, this value depends upon the rate of rise of current.