

**CURRENT
REGULATIONS
BS7671**

**FUTURE
PROPOSALS
BS7671**



**HOW THIS
AFFECTS
YOU.**

A BITESIZE LOOK

at RCDs and parts of the
18th edition DPC.



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WHY CHOOSE ANYTHING LESS?



INTRODUCTION.

Current Regulations Require:

- Provision of additional protection (30mA RCD) on certain circuits
- Maintain power continuity on healthy circuits
- Avoid unwanted tripping of RCDs by dividing the installation into numerous circuits
- Make provision for safe inspection, testing and maintenance?

Will the requirements change when the 18th Edition is published?

This document looks at some of the proposals, within the draft 18th Edition, relating to RCDs.

HOW THIS AFFECTS YOU.

The trend over the past 20 years has been towards more use of RCDs i.e. on a higher number of circuits and a wider number of locations. This is likely to continue. This document looks at some of the proposals.



WHY CHOOSE ANYTHING LESS?



CURRENT REGULATIONS.

WHAT IT SAYS ABOUT DIVIDING THE INSTALLATION.

How can you achieve power continuity and avoid unwanted tripping of RCDs and make provision for safe inspection, testing and maintenance?

Every installation should be divided into circuits so as to:

Avoid danger and minimize inconvenience when there is a fault that causes protective devices to trip.

HOW THIS AFFECTS YOU.

The required number of individual circuits should be provided so that all healthy circuits provide power continuity and that only the individual circuit with fault is powered off.



WHY CHOOSE ANYTHING LESS?



CURRENT REGULATIONS.

WHAT IT SAYS ABOUT DIVIDING THE INSTALLATION.

How can you achieve additional protection, power continuity and **avoid unwanted tripping of RCDs**, and make provision for safe inspection, testing and maintenance?

Every installation should be divided into circuits so as to: **Reduce the possibility of unwanted tripping of RCDs due to excessive protective conductor currents.**

HOW THIS AFFECTS YOU.

Cumulative currents within the protective conductor can be such that they add up to more than 50% of the rated residual operating current. This will cause the RCD to trip. Dividing equipment with PE currents over a larger number of circuits will help to avoid this risk.



WHY CHOOSE ANYTHING LESS?



CURRENT REGULATIONS.

WHAT IT SAYS ABOUT DIVIDING THE INSTALLATION.

How can you achieve additional protection, power continuity and **avoid unwanted tripping of RCDs**, and make provision for safe inspection, testing and maintenance?

Every installation should be divided into circuits so as to:
Account for any hazards that can arise from the failure of a circuit e.g. lighting.

HOW THIS AFFECTS YOU.

Lighting circuits should be individually protected by their own protective device and not share devices such as RCDs that serve groups of circuits. Grouping circuits on one 30mA RCD should be avoided.



WHY CHOOSE ANYTHING LESS?



CURRENT REGULATIONS.

WHAT IT SAYS ABOUT DIVIDING THE INSTALLATION.

How can you achieve additional protection, power continuity and avoid unwanted tripping of RCDs, and **make provision for safe inspection, testing and maintenance?**

Every installation should be divided into circuits so as to: **Allow safe inspection, testing and maintenance.**

Footnote: disconnection of all live conductors (L&N) may also be required for purposes of isolation and mechanical maintenance.

HOW THIS AFFECTS YOU.

The required number of individual circuits should be provided so that only the individual circuit in test or maintenance is safely powered off.



WHY CHOOSE ANYTHING LESS?

INTRODUCTION TO 18TH EDITION DRAFT FOR PUBLIC COMMENT.



The 17th Edition is due to be replaced by the 18th Edition. A draft for public comment was released in 2017, comments will be considered prior to publishing the final content.

The 18th Edition is due to be published in July 2018 and all installations designed after December 31st 2018 are to comply with BS7671:2018. **Regulations related to division of the installation are not expected to change.**

HOW THIS AFFECTS YOU.

The DPC of 18th Edition contained a large number of changes, and additions that considerably expanded the content of the regulations. It will be necessary for designers and installers to undertake training on these changes and additions.



WHY CHOOSE ANYTHING LESS?

18TH EDITION.

ADDITIONAL PROTECTION; SOCKET OUTLETS.



30mA RCD is required for:

Socket outlets rated to 20A. Mobile equipment rated to 32A and for use outdoors.

17TH
EDITION

30mA RCD is required for:

Socket outlets rated to 32A. Mobile equipment rated to 32A and for use outdoors.

18TH
EDITION
DPC

HOW THIS AFFECTS YOU.

This change brings extra sockets and circuits into scope for additional protection by 30mA devices, and requires designers and installers to make provision for additional devices within consumer units and distribution boards.



WHY CHOOSE ANYTHING LESS?

18TH EDITION.

ADDITIONAL PROTECTION; CIRCUITS WITH LUMINAIRES.



No specific mention of RCDs on luminaire circuits in domestic (household) premises.

17TH
EDITION

Circuits with luminaires in domestic household premises - protection by an RCD rated not more than 30mA is required.

18TH
EDITION
DPC

HOW THIS AFFECTS YOU.

This new requirement probably brings into scope circuits that were not covered by regulations group 522.6.200 (buried cables etc) and extends scope of 30mA protection to include luminaire circuits. This may require A Class RCD devices in some circumstances.



WHY CHOOSE ANYTHING LESS?

18TH EDITION.

CIRCUIT PROTECTOR (PE) CURRENTS – NOT DUE TO A FAULT.



No specific value given for the maximum permitted (PE) circuit protector currents/earth leakage currents that are present during normal operating conditions.

17TH
EDITION

The accumulation of circuit protector currents/earth leakage currents that are present during normal operating conditions should not amount to more than 30% of the rated residual operating current of the RCD e.g. **a PE of no more than 30% of 30mA.**

18TH
EDITION
DPC

HOW THIS AFFECTS YOU.

Division of the installation into circuits with individual RCD/RCBOs may be an adopted method. Unless designers and installers are familiar with values for leakage currents (of equipment) under normal operating conditions and know that unwanted tripping will not occur.



WHY CHOOSE ANYTHING LESS?

18TH EDITION. TYPES OF RCD.



No detailed explanation of the types of RCD available or how the presence of DC components can be taken into account.

17TH
EDITION

Different types of RCD are described e.g. type AC, type A etc. Certain criteria are also provided on device behaviour when in the presence of DC components. Designers are required to select the appropriate RCD.

18TH
EDITION
DPC

HOW THIS AFFECTS YOU.

This section is expanded considerably but the additional information on types of RCD and the references to behaviours and operating characteristics should make RCD selection easier.



WHY CHOOSE ANYTHING LESS?

18TH EDITION.

SELECTIVITY BETWEEN RCDS.



Where selectivity is necessary to prevent danger and required for proper functioning of the installation, manufacturers' instructions shall be taken into account and the device characteristics shall be such that intended discrimination is achieved.

17TH
EDITION

Where selectivity is required verification shall be made either:

- By study
- By software
- By tests
- By manufacturer's declaration

18TH
EDITION
DPC

HOW THIS AFFECTS YOU.

This section is expanded considerably but the additional information on types of RCD and the references to behaviours and operating characteristics should make RCD selection easier.



WHY CHOOSE ANYTHING LESS?

18TH EDITION.

RCDS DISCONNECTING ALL LIVE CONDUCTORS.



In a TN system where, for certain equipment in a certain part of the installation, the requirement of 411.4.5 cannot be satisfied, that part may be protected by an RCD.

An RCD shall disconnect all live conductors of the circuit protected. RCD includes RCCB, RCBO, CBR and MRCD.

17TH
EDITION

Footnote: disconnection of all live conductors may also be required for other purposes, isolation or mechanical maintenance. See also notes for TN, TT systems and special locations.

18TH
EDITION
DPC

HOW THIS AFFECTS YOU.

These do not appear to be addressing the same point. The Draft of the 18th Edition appears to require RCDs to switch the neutral conductor as well as the live phase. Some RCD products do not switch all live poles. Designers need to be aware of which do.



WHY CHOOSE ANYTHING LESS?

18TH EDITION.

SPECIAL LOCATIONS 730.



Onshore Units - not included

Regulation 730

Onshore Units of Electrical
Shore Connections:

Socket outlets rated to 63A shall be
individually protected by a 30mA RCD.

The RCD shall disconnect all live
conductors, phases and neutral.

17TH
EDITION

18TH
EDITION
DPC

HOW THIS AFFECTS YOU.

730 is a new section and its content appears to follow the structure for other similar special locations. It contains similar requirements e.g. for sockets etc and that should make it reasonably straightforward to follow. However, it still needs detailed scrutiny.



WHY CHOOSE ANYTHING LESS?

#21

Our miniature RCBO fully isolates faulty circuits for maximum safety.

#14

Cutting edge Siemens technology inside.

#19

MCB sized RCBO for maximum working space.

#47

Switched neutral as standard for complete protection.

#58

Total isolation for a safer working environment.

#25

Totally Chapter 31 compliant



Miniature RCBOs with switched neutral as standard.

An easy way to comply with the requirements for dividing the installation & providing additional 30mA protection.



WHY CHOOSE ANYTHING LESS?

Note

This document is not a complete summary of proposed changes/additions to the wiring regulations and until the final publication is produced the proposals may be amended by the consultation process. Readers should obtain their own copy BS7671:2018.

N.B.

The term RCD is mentioned over 300 times in the draft of the 18th Edition.



WHY CHOOSE ANYTHING LESS?
