

## **SOUTH AFRICAN NATIONAL STANDARD**

### **The wiring of premises**

#### **Part 1: Low-voltage installations**

**WARNING**  
This standard references other  
documents normatively.

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**SANS 10142-1:2017**  
Edition 2

**Table of changes**

<b>Change No.</b>	<b>Date</b>	<b>Scope</b>

**Foreword**

This South African standard was approved by National Committee SABS/TC 067/SC 06, *Electricity distribution systems and components – Installations*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in March 2017.

This document supersedes SANS 10142-1:2012 (edition 1.8).

**Compliance with this document cannot confer immunity from legal obligations.**

The test report in edition 1.8 may be used in parallel with the test report in edition 2.0 for a period of 12 months from the date of publication of edition 2.0.

With the first edition of this part of SANS 10142, the standard was subdivided and now consists of the following parts, under the general title *The wiring of premises*:

*Part 1: Low-voltage installations.*

*Part 2: Medium-voltage installations above 1 kV a.c. not exceeding 22 kV a.c. and up to and including 3 MVA installed capacity.*

Table 4.1 contains a list of the applicable standards for the components that may be installed in an electrical installation.

Information on national legislation that applies only in South Africa is given in text boxes in the introduction (see page 3).

To ensure that this part of SANS 10142 is always up to date, amendments will be introduced regularly. Each change made to the text as a result of an amendment is/will be indicated in the margin by the number of the amendment.

Annex I forms an integral part of this document. Annexes B, C, D, E, F, G, J, K, L, M, N, O and P are for information only.

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## Introduction

In this edition an attempt has been made to move towards the IEC codes: extra low voltage (below 50 V) and d.c. applications (up to 1,5 kV) have been introduced as new requirements owing to the extensive usage of, and increased fire risk that result from, high load currents. This part of SANS 10142 does not intend to cover the LV control circuits of machinery or system components that are external circuits between separately installed parts of the machinery or system components.

This part of SANS 10142 includes certain provisions which are for information and guidance only. These provisions do not use the word "shall" and they can be found in the text, in the notes and in the informative annexes. Except in tables, notes are always for information only.

The aim of this part of SANS 10142 is to ensure that people, animals and property are protected from hazards that can arise from the operation of an electrical installation under both normal and fault conditions. An electrical installation has to provide protection against:

- shock current,
- overcurrent,
- fault current,
- overvoltage,
- undervoltage,
- excessive temperatures, and
- electric arcs.

If any of the above arises, the protection should automatically disconnect the supply or limit currents and voltages to safe values. In the case of undervoltage, the protection should ensure that dangerous situations, due to the loss and restoration of supply (for example, to a motor), or due to a drop in voltage, cannot occur.

This part of SANS 10142 is concerned with ensuring the basic safety of electrical installations. To ensure the protection of people, animals and property and the proper functioning of an installation, the designer of an electrical installation should be aware of:

- a) the characteristics of the power supply,
- b) the nature of the demand, and
- c) the operating environment of each part of the installation.

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It is especially important to be aware of the activities of occupants of a building. For example, the occupants might be engaged in wet processes or in the handling of flammable or explosive materials. These activities will influence the design of the installation. If a client wants more safety features for the installation than those prescribed in this part of SANS 10142, such features have to be included in the contract documentation.

The provisions of this part of SANS 10142 apply only to the selection and application of electrical equipment, appliances and accessories, which are part of the fixed electrical installation. They do not apply to the construction and safety of the equipment, appliances and accessories; those aspects are dealt with in other standards.

The Mine Health and Safety Act, 1996 (Act No. 29 of 1996), which is administered by the Chief Inspector of Mines of the Department of Minerals and Energy, requires that certain prescribed electrical installations on mines comply with the requirements of SANS 10142-1. It also requires that a competent person, as defined, will be responsible to ensure that those prescribed electrical installations are in accordance with the standard.

The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHS Act), which is administered by the Chief Inspector of Occupational Health and Safety of the Department of Labour, requires that electrical installations comply with the requirements of SANS 10142-1. It also requires that a registered person, as defined (master installation electrician, installation electrician or electrical tester for single phase), will issue a Certificate of Compliance together with a test report. The certificate shall be in the form of the Certificate of Compliance published in the Electrical Installation Regulations, 2012, and the test report shall be in the form of the test report in this part of SANS 10142 (see 8.7).

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In terms of the OHS Act, the provisions of this part of SANS 10142 apply only from the point of control to the point of consumption.

Because this part of SANS 10142 is continually updated, problems can arise on which version of the standard will be applicable when a contract is signed. The date of approval of the latest revision or amendment of this part of SANS 10142 will be the implementation date of the revision or the amendment. The applicable version of this part of SANS 10142 is the one with the latest implementation date before the contract date. So contracts signed before the approval of an amendment shall be carried out in accordance with the provisions of the unamended standard. If an existing installation is extended or altered, such extension or alteration shall comply with the provisions of this part of SANS 10142 that were applicable at the time of the erection of the extension or alteration.

The edition of the standard that was applicable at the date of erection of an electrical installation is to be considered the edition defining the requirements applicable to that particular electrical installation.