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**SANS 10199:2016**

Edition 2.2

# **SOUTH AFRICAN NATIONAL STANDARD**

## **The design and installation of earth electrodes**

**WARNING**

**This document references other documents normatively.**

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Published by SABS Standards Division  
1 Dr Lategan Road Groenkloof ☒ Private Bag X191 Pretoria 0001  
Tel: +27 12 428 7911 Fax: +27 12 344 1568

[www.sabs.co.za](http://www.sabs.co.za)

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**Table of changes**

<b>Change No.</b>	<b>Date</b>	<b>Scope</b>
Amdt 1	2010	Amended to update a referenced standard and to correct the number of a figure and the unit of measuring current in an equation.
Amdt 2	2016	Amended to clarify the table on example of a calculation using the Tagg method.

**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 2016.

This document supersedes SANS 10199:2010 (edition 2.1).

A vertical line in the margin shows where the text has been technically modified by amendment No. 2.

Annexes A, B and F form an integral part of this document. Annexes C, D and E are for information only.

**Compliance with a South African National Standard cannot confer immunity from legal obligations.**

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## The design and installation of earth electrodes

### 1 Scope

This standard is intended to give authoritative guidance on the methods to be used in providing an earthing system and in calculating and measuring the essential characteristics of earth electrodes.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards can be obtained from the SABS Standards Division.

EN 13509, *Cathodic protection measurement techniques*. **Amdt 1**

EN 50162, *Protection against corrosion by stray current from direct current systems*. **Amdt 1**

SANS 1063, *Earth rods, couplers and connections*.

### 3 Definitions

For the purposes of this standard, the following definitions apply:

#### 3.1

##### **corrosion**

chemical or electrolytic reaction between a material, usually a metal, and its environment, which produces a deterioration of the metal and its properties

#### 3.2

##### **earth electrode**

one or more conductive parts embedded in the earth for the purpose of making effective electrical contact with the general mass of the earth and to act as a path for the discharge of either lightning current or fault currents

#### 3.3

##### **earth fault current**

fault current that flows to earth