

Railway applications — Fixed installations — D.C. switchgear —

Part 4: Outdoor d.c. disconnectors, switch-disconnectors and earthing switches

ICS 29.120.60; 45.020

National foreword

This British Standard is the UK implementation of EN 50123-4:2003+A1:2013. It supersedes BS EN 50123-4:2003 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee GEL/9, Railway Electrotechnical Applications, to Subcommittee GEL/9/3, Railway Electrotechnical Applications – Fixed Equipment.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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**Railway applications –
Fixed installations – D.C. switchgear
Part 4: Outdoor d.c. disconnectors, switch-disconnectors
and earthing switches**

Applications ferroviaires –
Installations fixes –
Appareillages à courant continu
Partie 4: Interrupteurs-sectionneurs,
sectionneurs et sectionneurs de terre
pour l'extérieur

Bahnanwendungen –
Ortsfeste Anlagen –
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Teil 4: Freiluft-Gleichstrom-Trennschalter,
-Lasttrennschalter und -Erdungsschalter

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by SC 9XC, Electric supply and earthing systems for public transport equipment and ancillary apparatus (fixed installations), of the Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

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The following dates were fixed:

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This Part 4 is to be used in conjunction with EN 50123-1:2003.

Annexes designated “informative” are given for information only.
In this standard, annex A is informative.

Foreword to amendment A1

This document (EN 50123-4:2003/A1:2013) has been prepared by CLC/SC 9XC "Electric supply and earthing systems for public transport equipment and ancillary apparatus (Fixed installations)", of Technical Committee CLC/TC 9X "Electrical and electronic applications for railways".

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1 Scope

This part of EN 50123 specifies requirements for outdoor d.c. switch-disconnectors, disconnectors and earthing switches for use in outdoor fixed installations of traction systems.

NOTE 1 EN 50121-5 specifies requirements for electromagnetic compatibility (EMC).

NOTE 2 In this document the word "unit" means "switch-disconnector and/or disconnector and/or earthing switch" as defined in 3.1.4, 3.1.5 and 3.1.6 of EN 50123-1.

2 Normative references

This European Standard incorporates by dated or undated references, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

See EN 50123-1:2003.

3 Definitions

For the purposes of this European Standard, the terms and definitions given in EN 50123-1 apply.

4 Service requirements

The equipment covered in this standard is mainly intended for outdoor installations.

The requirements given for outdoor equipment in EN 50125-2 or in 2.1.2 of EN 60694 may be used and EN 50119 may be taken into account. In this standard the pollution degree PD 4A (see EN 50124-1) is considered as normal condition.

Where service requirements and environmental class differ from those defined in the above standards, require to be specified or a particular environmental class is required, the purchaser shall state this fact in the tender specification. The supplier shall confirm that the unit is suitable for the service requirements specified.

5 Characteristics of the unit

5.1 Enumeration of the characteristics

The characteristics of the unit and its assigned designations and values (where applicable) are as follows:

- type of unit (5.2);
- rated values (5.3);

- class of use (5.4);
- control circuits (5.5).

5.2 Type of unit

A unit shall be defined by the following details (where applicable):

- whether the unit is a switch disconnector, disconnector, earthing switch or a combination of these types;
- number of poles;
- number of positions (if there are more than two);
- provision of an enclosure;
- degree of protection provided by the enclosure, if any (see EN 60529).

5.3 Rated values

5.3.1 General

The rated characteristic values shall be specified by the purchaser. Rated insulation voltage values shall be selected from the values indicated in Table 1 of EN 50123-1; current values should have one of the preferred values in 5.1.2 of EN 50123-1.

These values shall be confirmed by the manufacturer, who shall indicate the rated values for the type of unit proposed, and shall be complemented with other data.

All these values are to be stipulated in accordance with 5.3.2 to 5.3.4, but it is not necessary to specify all the listed rated values.

5.3.2 Voltages

A unit is defined by the following voltages.

The nominal voltages and the system voltages and limits shall be taken from EN 50163. The insulation values shall be taken from Table 1 of EN 50123-1:

- nominal voltage U_n (see 3.2.1.1 of EN 50123-1);
- system voltages and limits (see 3.2.1.2 of EN 50123-1);
- rated voltage U_{Ne} (see 3.2.3 of EN 50123-1);
- rated insulation voltage U_{Nm} (this value shall be equal to or higher than U_{max}) (see 3.2.2 of EN 50123-1);
- rated impulse withstand voltage U_{Ni} (see 3.2.4 of EN 50123-1);
- power-frequency voltage withstand level (dry and wet) U_a (see 3.2.5 of EN 50123-1);
- auxiliary and control supply voltages (see 3.2.3.1 of EN 50123-1).

5.3.3 Currents

A unit is defined by the following currents.

The current values shall be selected taking into account 5.1 of EN 50123-1:

- conventional thermal current I_{th} , I_{the} (see 3.2.8 and 3.2.9 of EN 50123-1);
NOTE 1 Earthing switches are not required to be assigned this rating.
- rated service current I_{Ne} (see 3.2.10 of EN 50123-1);
NOTE 2 Earthing switches are not required to be assigned this rating.
- rated breaking and making capacity (see 3.2.18 and 3.2.22 of EN 50123-1);
 - Switch-disconnectors and those disconnectors for which the manufacturer declares a making capacity, shall be able to make the stated prospective current at a voltage U equal to U_{Ne} .
 - A rated breaking capacity requires the unit to be able to interrupt any current of a value lower than or equal to this rated breaking capacity.
- rated short-time withstand current I_{New} (see 3.2.11 of EN 50123-1);
- overload capability: the purchaser shall inform the supplier of the load cycle requirements (see 3.2.10, note 2 of EN 50123-1).

5.4 Class of use

Disconnectors shall close and open at no-load except if otherwise declared by the manufacturer.

Switch-disconnectors shall close and open on-load, including highly inductive loads.

Both devices have either electrically latched or mechanically latched mechanisms.

The minimum breaking, making and short-time withstand currents of the units shall be at least those given in Table 1 for the appropriate category.