INTERNATIONAL STANDARD

Railway applications – DC surge arresters and voltage limiting devices – Part 2: Voltage limiting devices

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FOREWORD

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International Standard IEC 62848-2 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

This document is based on EN 50526-2:2014.

The text of this International Standard is based on the following documents:

<table>
<thead>
<tr>
<th>FDIS</th>
<th>Report on voting</th>
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<td>9/2503/RVD</td>
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Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.
A list of all parts in the IEC 62848 series, published under the general title *Railway applications – DC surge arresters and voltage limiting devices*, can be found on the IEC website.

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

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

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- withdrawn,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

A bilingual version of this publication may be issued at a later date.
RAILWAY APPLICATIONS –
DC SURGE ARRESTERS AND VOLTAGE LIMITING DEVICES –

Part 2: Voltage limiting devices

1 Scope

This document applies to Voltage Limiting Devices (VLDs) to be applied in DC traction systems in order to comply with protective provisions against electric shock from DC, and combined AC – DC voltages, in accordance with the IEC 62128 series, taking into account stray current provisions.

VLDs operate in such a way as to connect the track return circuit of DC railway systems to the earthing system or to conductive parts within the overhead contact line zone or current collector zone.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60060-1, High-voltage test techniques – Part 1: General definitions and test requirements

IEC 60085, Electrical insulation – Thermal evaluation and designation

IEC 60529:1989, Degrees of protection provided by enclosures (IP Code)

IEC 60850:2014, Railway applications – Supply voltages of traction systems

IEC 61643-311, Components for low-voltage surge protective devices – Part 311: Performance requirements and test circuits for gas discharge tubes (GDT)

IEC 61992-1:2006, Railway applications – Fixed installations – DC switchgear – Part 1: General

IEC 61992-1:2006/AMD1:2014

IEC 61992-7:2006 (all parts), Railway applications – Fixed installations – DC switchgear – Part 7-x: Measurement, control and protection devices for specific use in d.c. traction systems

IEC 62128-1:2013, Railway applications – Fixed installations – Electrical safety, earthing and the return circuit – Part 1: Protective provisions against electric shock


IEC 62497-1, Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment

IEC 62498-2, Railway applications – Environmental conditions for equipment – Part 2: Fixed electrical installations
IEC 62848-1:2016, Railway applications – DC surge arresters and voltage limiting devices – Part 1: Metal-oxide surge arresters without gaps

ISO 4287:1997, Geometrical Product Specifications (GPS) -Surface texture: Profile method – Terms, definitions and surface texture parameters

ISO 4892-1, Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance

ISO 4892-2, Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps

ISO 4892-3, Plastics – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps

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3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

• IEC Electropedia: available at http://www.electropedia.org/
• ISO Online browsing platform: available at http://www.iso.org/obp

3.1 voltage-limiting device

VLD

protective device whose function is to prevent existence of an impermissible high touch voltage


3.2 recoverable VLD

VLD that recovers after triggering

3.3 non-recoverable VLD

VLD remaining in its low resistance state permanently after triggering

3.4 welding shut spark gap

VLD which is triggered by electrical discharge across a gap causing a permanent short-circuit by welding shut of metallic parts

Note 1 to entry: Sometimes the term voltage fuse is used for this type of VLD.

3.5 rated current

$I_r$

<for a voltage-limiting device> maximum value of the direct current that may flow for the specified long term through the VLD in specified environmental conditions without exceeding the temperature rise limits