

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

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**Railway applications – DC surge arresters and voltage limiting devices –  
Part 1: Metal-oxide surge arresters without gaps**

**Applications ferroviaires – Parafoudres et appareils limiteurs de tension pour  
réseaux à courant continu –  
Partie 1: Parafoudres à oxyde métallique sans éclateur**



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ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RAILWAY APPLICATIONS – DC SURGE ARRESTERS  
AND VOLTAGE LIMITING DEVICES –****Part 1: Metal-oxide surge arresters without gaps**

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International Standard IEC 62848-1 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

This International Standard is based on EN 50526-1:2012, the main technical changes with regard to EN 50526-1:2012 are as follows:

- a) According to Resolution 52/33, taken by IEC technical committee 9, this international standard should apply to both fixed installations and rolling stock, therefore the title is replaced with “Railway applications – DC surge arresters and voltage limiting devices – Part 1: Metal-oxide surge arresters without gaps”, and the scope of IEC 62848-1 is modified so that the standard can be used in both cases.
- b) As rolling stocks are supplied with many voltages as stated in IEC 60850, the surge arrester will limit voltage surge on DC systems specified in IEC 60850 with nominal voltage up to 3 kV.
- c) The European standards, listed in the original EN 50526-1:2012, are replaced with international standards, if they have corresponding international standards, as follows:

- 1) EN 50124-1:2001 → IEC 62497-1:2010;
  - 2) EN 50125-2:2002 → IEC 62498-2:2010;
  - 3) EN 60060-1:2010 → IEC 60060-1:2010;
  - 4) EN 60270:2001 → IEC 60270:2000;
  - 5) EN 61109:2008 → IEC 61109:2008;
  - 6) EN ISO 4287:1998 → ISO 4287:1997;
  - 7) EN ISO 4892-1:2000 → ISO 4892-1:1999;
  - 8) EN ISO 4892-2:2006 → ISO 4892-2:2006;
  - 9) EN ISO 4892-3:2006 → ISO 4892-3:2006.
- d) As this international standard will be used for both rolling stock and fixed installation, the following international standards relating to rolling stock are added:
- 1) IEC 62498 (all parts), *Railway applications – Environmental conditions for equipment*;
  - 2) IEC 61373, *Railway applications- Rolling stock equipment- Shock and vibration tests*.

The text of this standard is based on the following documents:

FDIS	Report on voting
9/2155/FDIS	9/2177/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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

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.

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

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

## RAILWAY APPLICATIONS – DC SURGE ARRESTERS AND VOLTAGE LIMITING DEVICES –

### Part 1: Metal-oxide surge arresters without gaps

#### 1 Scope

This part of IEC 62848 applies to non-linear metal-oxide surge arresters without gaps for both on board and fixed installations, designed to limit voltage surges on DC systems specified in IEC 60850 with nominal voltage up to 3 kV.

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-2-11:1981, *Basic environmental testing procedures – Part 2-11: Tests – Test Ka: Salt mist*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60270:2000, *High-voltage test techniques – Partial discharge measurements*

IEC 61109:2008, *Insulators for overhead lines – Composite suspension and tension insulators for a.c. systems with a nominal voltage greater than 1 000 V – Definitions, test methods and acceptance criteria*

IEC 61373, *Railway applications- Rolling stock equipment – Shock and vibration tests*

IEC 62497-1:2010, *Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment*

IEC 62498 (all parts), *Railway applications – Environmental conditions for equipment*

IEC 62498-1:2010, *Railway applications – Environmental conditions for equipment – Part 1: Equipment on board rolling stock*

IEC 62498-2:2010, *Railway applications – Environmental conditions for equipment – Part 2: Fixed electrical installations*

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

ISO 4892-1:1999, *Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance*