

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Railway applications – Rolling stock –  
Batteries for auxiliary power supply systems –  
Part 1: General requirements**

**Applications ferroviaires – Matériel roulant –  
Batteries pour systèmes d'alimentation auxiliaire –  
Partie 1: Exigences générales**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## RAILWAY APPLICATIONS – ROLLING STOCK – BATTERIES FOR AUXILIARY POWER SUPPLY SYSTEMS –

### Part 1: General requirements

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International Standard IEC 62973-1 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

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

| FDIS        | Report on voting |
|-------------|------------------|
| 9/2362/FDIS | 9/2386/RVD       |

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.

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

A list of all parts in the IEC 62973 series, published under the general title *Railway applications – Rolling stock – Batteries for auxiliary power supply systems*, can be found on the IEC website.

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

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## INTRODUCTION

This document considers general requirements for all rechargeable battery technologies.

Details of each battery technology are described in other parts as follows:

Part 2: Nickel Cadmium (NiCd) batteries

Part 3: Lead Acid (LA) batteries

Future parts: Other battery technologies, such as Nickel metal hydride (NiMH), Lithium ion (Li-ion), etc.

In this document the interface with a battery charger is specified and the battery charger itself is out of scope.

# RAILWAY APPLICATIONS – ROLLING STOCK – BATTERIES FOR AUXILIARY POWER SUPPLY SYSTEMS –

## Part 1: General requirements

### 1 Scope

This part of IEC 62973 applies to various rechargeable battery technologies for auxiliary power supply systems used on rolling stock.

This document applies to any rolling stock types (e.g. light rail vehicles, tramways, streetcars, metros, commuter trains, regional trains, high speed trains, locomotives, etc.).

This document focuses on:

- the description of electrical interfaces for the following battery nominal voltages: 24 V, 32 V, 36 V, 48 V, 64 V, 72 V, 87 V, 96 V, 110 V;
- the description of electrical interfaces: considering battery load profile and battery capacity sizing parameters (e.g. operating voltage range and charging characteristics).

This document with the other parts of the standard is used in conjunction with other related IEC standards for auxiliary equipment used for railway rolling stock applications.

The main objective of this document is to achieve standardization of the electrical interfaces by considering various battery parameters in order to allow for calculating the battery capacity required for a specific load profile for the various battery technologies as detailed in the other parts of the standard.

### 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 60077-1, *Railway applications – Electric equipment for rolling stock – Part 1: General service conditions and general rules*

IEC 61373:2010, *Railway applications – Rolling stock equipment – Shock and vibration test*

IEC 62485-2, *Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries*

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

IEC 62847, *Railway applications – Rolling stock – Electrical connectors – Requirements and test methods*

ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs*