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**Železniške naprave - Oprema voznih sredstev - Kondenzatorji za močnostno elektroniko - 3. del: Električni dvoplastni kondenzatorji (IEC 61881-3:2012)**

Railway applications - Rolling stock equipment - Capacitors for power electronics - Part 3: Electric double-layer capacitors (IEC 61881-3:2012)

Bahnanwendungen - Betriebsmittel auf Bahnfahrzeugen - Kondensatoren für Leistungselektronik - Teil 3: Doppelschichtkondensatoren (IEC 61881-3:2012)

Applications ferroviaires - Matériel roulant - Condensateurs pour électronique de puissance - Partie 3: Condensateurs électriques à double couche (CEI 61881-3:2012)

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**Ta slovenski standard je istoveten z: EN 61881-3:2012**

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45.040	Materiali in deli za železniško tehniko	Materials and components for railway engineering

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61881-3**

September 2012

ICS 45.060

English version

**Railway applications -  
Rolling stock equipment -  
Capacitors for power electronics -  
Part 3: Electric double-layer capacitors  
(IEC 61881-3:2012)**

Applications ferroviaires -  
Matériel roulant -  
Condensateurs pour électronique de  
puissance -  
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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 9/1680/FDIS, future edition 1 of IEC 61881-3, prepared by IEC/TC 9, "Electrical equipment and systems for railways" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61881-3:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-06-12
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-09-12

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## Endorsement notice

The text of the International Standard IEC 61881-3:2012 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60077-1:1999	NOTE	Harmonized as EN 60077-1:2002 (modified). <a href="https://standards.iteh.ai/catalog/standards/sist/3e2e347d-dbe5-43f3-b5d2-73786722581e/iec-60077-1-1999">https://standards.iteh.ai/catalog/standards/sist/3e2e347d-dbe5-43f3-b5d2-73786722581e/iec-60077-1-1999</a>
IEC 60077-2:1999	NOTE	Harmonized as EN 60077-2:2002 (modified).
IEC 60384-1:2008	NOTE	Harmonized as EN 60384-1:2009 (not modified).
IEC 60664-1:2007	NOTE	Harmonized as EN 60664-1:2007 (not modified).
IEC 61287-1:2005	NOTE	Harmonized as EN 61287-1:2006 (not modified).
IEC 61881-1:2010	NOTE	Harmonized as EN 61881-1:2011 (not modified).
IEC 61881-2	NOTE	Harmonized as EN 61881-2.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1 + corr. October + A1	1988 1988 1992	Environmental testing - Part 1: General and guidance	EN 60068-1 - <sup>1)</sup>	1994 -
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60068-2-17	1994	Environmental testing - Part 2: Tests - Test Q: Sealing	EN 60068-2-17	1994
IEC 60068-2-20	-	Environmental testing - Part 2-20: Tests - Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	-
IEC 60068-2-21	-	Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60571 +A1	1998 2006	Electronic equipment used on rail vehicles	-	-
IEC 60721-3-5	-	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 5: Ground vehicle installations	EN 60721-3-5	-
IEC 61373 + corr. October	2010 2011	Railway applications - Rolling stock equipment - Shock and vibration tests	EN 61373	2010
IEC 62236-3-2	-	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus	-	-
IEC 62391-1	2006	Fixed electric double-layer capacitors for use in electronic equipment - Part 1: Generic specification	EN 62391-1	2006
IEC 62391-2	2006	Fixed electric double-layer capacitors for use in electronic equipment - Part 2: Sectional specification - Electric double-layer capacitors for power application	EN 62391-2	2006
IEC 62497-1	-	Railway applications - Insulation coordination -- Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment	-	-

<sup>1)</sup> EN 60068-1 includes A1 to IEC 60068-1+ corr. October .

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62498-1 + corr. November	2010 2010	Railway applications - Environmental conditions for equipment - Part 1: Equipment on board rolling stock	-	-
IEC 62576	2009	Electric double-layer capacitors for use in hybrid electric vehicles - Test methods for electrical characteristics	EN 62576	2010

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IEC 61881-3

Edition 1.0 2012-08

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Railway applications – Rolling stock equipment – Capacitors for power electronics –  
Part 3: Electric double-layer capacitors**

**Applications ferroviaires – Matériel roulant – Condensateurs pour électronique de puissance –  
Partie 3: Condensateurs électriques à double couche**

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ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
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PRICE CODE  
CODE PRIX

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RAILWAY APPLICATIONS –  
ROLLING STOCK EQUIPMENT –  
CAPACITORS FOR POWER ELECTRONICS –**

**Part 3: Electric double-layer capacitors**

**FOREWORD**

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International Standard IEC 61881-3 has been prepared by subcommittee 9: Electrical equipment and systems for railways.

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

FDIS	Report on voting
9/1680/FDIS	9/1708/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 of IEC 61881 series, under the general title *Railway applications – Rolling stock equipment – Capacitors for power electronics*, 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 web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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- amended.

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