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Järnvägsanläggningar – Elutrustning för rälsfordon – Kondensatorer för kraftelektronik – Del 2: Aluminiumelektrolytkondensatorer med flytande elektrolyt

*Railway applications –
Rolling stock equipment –
Capacitors for power electronics –
Part 2: Aluminium electrolytic capacitors with non-solid electrolyte*

Som svensk standard gäller europastandarden EN 61881-2:2012. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61881-2:2012.

Nationellt förord

Europastandarden EN 61881-2:2012

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61881-2, First edition, 2012 - Railway applications - Rolling stock equipment - Capacitors for power electronics - Part 2: Aluminium electrolytic capacitors with non-solid electrolyte**

utarbetad inom International Electrotechnical Commission, IEC.

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**Railway applications -
Rolling stock equipment -
Capacitors for power electronics -
Part 2: Aluminium electrolytic capacitors with non solid electrolyte
(IEC 61881-2:2012)**

Applications ferroviaires -
Matériel roulant -
Condensateurs pour électronique de
puissance -
Partie 2: Condensateurs électrolytiques à
l'aluminium, à électrolyte non solide
(CEI 61881-2:2012)

Bahnanwendungen -
Betriebsmittel auf Bahnfahrzeugen -
Kondensatoren für Leistungselektronik -
Teil 2: Aluminium Elektrolytkondensatoren
mit nicht festen Elektrolyten
(IEC 61881-2:2012)

This European Standard was approved by CENELEC on 2012-09-12. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 9/1679/FDIS, future edition 1 of IEC 61881-2, 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 61881-2:2012.

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 61881-2:2012 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).
IEC 60077-2:1999	NOTE	Harmonized as EN 60077-2:2002 (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	NOTE	Harmonized as EN 61881-1.
IEC 61881-3	NOTE	Harmonized as EN 61881-3.

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 60062	2004	Marking codes for resistors and capacitors	EN 60062 + corr. January	2005 2007
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 + corr. January	2006 2012	Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21	2006
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60384-1 + corr. November	2008 2008	Fixed capacitors for use in electronic equipment - Part 1: Generic specification	EN 60384-1	2009
IEC 60384-4	2007	Fixed capacitors for use in electronic equipment - Part 4: Sectional specification - Aluminium electrolytic capacitors with solid (MnO ₂) and non-solid electrolyte	EN 60384-4	2007
IEC 60721-3-5	1997	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 5: Ground vehicle installations	EN 60721-3-5	1997
IEC 61373 + corr. October	2010 2011	Railway applications - Rolling stock equipment - Shock and vibration tests	EN 61373	2010
IEC 62497-1	-	Railway applications - Insulation coordination -- Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment	-	-
IEC 62498-1 + corr. November	2010 2010	Railway applications - Environmental conditions for equipment - Part 1: Equipment on board rolling stock	-	-

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

Part 2: Aluminium electrolytic capacitors with non-solid electrolyte

1 Scope

This part of IEC 61881 applies to d.c. aluminium electrolytic capacitors (cell, module and bank) for power electronics intended to be used on rolling stock.

This standard specifies quality requirements and tests, safety requirements, and describes installation and operation information.

NOTE Example of the application for capacitors specified in this Standard; d.c. filtering, etc.

Capacitors not covered by this Standard:

- IEC 61881-1: Paper/plastic film capacitors;
- IEC 61881-3: Electric double-layer capacitors.

Guidance for installation and operation is given in Clause 9.

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 60062:2004, *Marking codes for resistors and capacitors*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-17:1994, *Environmental testing – Part 2-17: Tests. Test Q: Sealing*

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*

IEC 60068-2-21:2006, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60384-1:2008, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

IEC 60384-4:2007, *Fixed capacitors for use in electronic equipment – Part 4: Sectional specification – Aluminium electrolytic capacitors with solid (MnO₂) and non-solid electrolyte*

IEC 60721-3-5:1997, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 5: Ground vehicle installations*

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

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

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