



NSAI
Standards

Irish Standard
I.S. EN 62718:2016

Railway applications - Rolling stock - DC supplied electronic ballasts for lighting fluorescent lamps

I.S. EN 62718:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 62718:2016

Published:

2016-04-08

*This document was published
under the authority of the NSAI
and comes into effect on:*

2016-04-26

ICS number:

45.060

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 62718:2016 is the adopted Irish version of the European Document EN 62718:2016, Railway applications - Rolling stock - DC supplied electronic ballasts for lighting fluorescent lamps

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 62718

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2016

ICS 45.060

Supersedes EN 50311:2003

English Version

**Railway applications - Rolling stock - DC supplied electronic
ballasts for lighting fluorescent lamps
(IEC 62718:2013 + COR1:2016)**

Applications ferroviaires - Matériel roulant - Ballasts
électroniques à courant continu pour lampes fluorescentes
d'éclairage
(IEC 62718:2013 + COR1:2016)

Bahnanwendungen - Bahnfahrzeuge -
Gleichstromversorgte elektronische Vorschaltgeräte für
Leuchtstofflampen
(IEC 62718:2013 + COR1:2016)

This European Standard was approved by CENELEC on 2014-11-24. 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 62718:2016**European foreword**

This document (EN 62718:2016) consists of the text of IEC 62718:2013 + COR1:2016 prepared by IEC/TC 9 "Electrical equipment and systems for railways".

The following dates are fixed:

- latest date by which the document has to be implemented (dop) 2016-10-08
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting (dow) 2019-04-08
with the document have to be withdrawn

This document supersedes EN 50311:2003.

EN 62718:2016 includes the following significant technical changes with respect to EN 50311:2003:

- Sections 8.2.1.3 and 9.3.2.7: the value is extended from "50 Hz" to "50 Hz or 60 Hz";
- Sections 8.2.3.1 and 9.3.4.1: the specified Level (0,7 mA) of leakage current in EN 50311:2003 is omitted, instead of it a reference to the standard (IEC 60598-1:2008, Section 10.3) is noted;
- Section 9.3.2.8: Table 3 - Dielectric test voltage values are referenced to IEC 62497-1, this cause an extension of the nominal voltage levels;
- Section 9.3.4.1: the values of R and C in Figure 3 (EN 50311:2003 $R = 2\,000\ \Omega \pm 100\ \Omega$ $C = 112\ \text{nF} \pm 6\ \text{nF}$) are omitted;
- new Annex A (informative): Distance between lamp and metallic support (before it was normative in Section 8.2.4.4 of EN 50311:2003);
- Annex H from EN 50311:2003 is omitted.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62718:2013 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 60068-1:1988	NOTE	Harmonized as EN 60068-1:1994 ¹⁾ (not modified).
IEC 60081	NOTE	Harmonized as EN 60081.
IEC 60901:1996	NOTE	Harmonized as EN 60901:1996 (not modified).
IEC 60927	NOTE	Harmonized as EN 60927.
IEC 61347-2-7:2011	NOTE	Harmonized as EN 61347-2-7:2012 (not modified).
CISPR 15:2005	NOTE	Harmonized as EN 55015:2006 ²⁾ (not modified).
CISPR 15:2005/A1:2006	NOTE	Harmonized as EN 55015:2006/A1:2007 ²⁾ (not modified).

¹⁾ Superseded by EN 60068-1:2014 (IEC 60068-1:2013): DOW = 2016-11-11.

²⁾ Superseded by EN 55015:2013 (CISPR 15:2013 + IS1:2013 + IS2:2013): DOW = 2016-06-12.

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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-1	2007	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	2007
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005
IEC 60077-1 (mod)	1999	Railway applications - Electric equipment for rolling stock - Part 1: General service conditions and general rules	EN 60077-1	2002
IEC 60417-DB	-	Graphical symbols for use on equipment	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 +corr. May	1991 1993
IEC 60571	2012	Railway applications - Electronic equipment used on rolling stock	EN 50155 + corr. May + AC	2007 2010 2012
IEC 60598-1 (mod)	2008	Luminaires - Part 1: General requirements and tests	EN 60598-1 A11	2008 ³⁾ 2009 ³⁾
IEC 60929	-	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	EN 60929	-
IEC 61140	-	Protection against electric shock - Common aspects for installation and equipment	EN 61140	-
IEC 61347-1 (mod)	2007	Lamp controlgear - Part 1: General and safety requirements	EN 61347-1	2008 ⁴⁾
IEC 61347-2-3	-	Lamp controlgear - Part 2-3: Particular requirements for a.c. and/or d.c. supplied electronic control gear for fluorescent lamps	EN 61347-2-3	-

³⁾ Superseded by EN 60598-1:2015 (IEC 60598-1:2014): DOW = 2017-10-20.

⁴⁾ Superseded by EN 61347-1:2015 (IEC 61347-1:2015): DOW = 2018-03-26.

EN 62718:2016

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61373	-	Railway applications - Rolling stock equipment - Shock and vibration tests	EN 61373	-
IEC 62236-3-2	2008	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus	EN 50121-3-2	2006
IEC 62497-1	-	Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment	EN 50124-1	-
IEC 62498-1	-	Railway applications - Environmental conditions for equipment - Part 1: Equipment on board rolling stock	EN 50125-1	-

IEC 62718:2013/COR1:2016
© IEC 2016

– 1 –

INTERNATIONAL ELECTROTECHNICAL COMMISSION
COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

IEC 62718
Edition 1.0 2013-04

IEC 62718
Édition 1.0 2013-04

**RAILWAY APPLICATIONS – ROLLING STOCK –
DC SUPPLIED ELECTRONIC BALLASTS FOR
LIGHTING FLUORESCENT LAMPS**

**APPLICATIONS FERROVIAIRES – MATÉRIEL
ROULANT – BALLASTS ÉLECTRONIQUES À
COURANT CONTINU POUR LAMPES
FLUORESCENTES D'ÉCLAIRAGE**

CORRIGENDUM 1

6.2 Marking

*In the first sentence, replace references to
6.1.1 and 6.1.2 by 6.1.2 and 6.1.3.*

8.2.3.5 Magnetic effects

*In the second line, replace "25 mm or less"
by "25 mm or more".*

6.2 Marquage

*Dans la première phrase, remplacer les
références à 6.1.1 et 6.1.2 par 6.1.2 et
6.1.3.*

8.2.3.5 Effets magnétiques

*Cette correction ne concerne que le texte
anglais.*

This page is intentionally left blank



IEC 62718

Edition 1.0 2013-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Railway applications – Rolling stock – DC supplied electronic ballasts for
lighting fluorescent lamps**

**Applications ferroviaires – Matériel roulant – Ballasts électroniques à courant
continu pour lampes fluorescentes d'éclairage**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2013 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

Useful links:

IEC publications search - www.iec.ch/searchpub

The advanced search enables you to find IEC publications by a variety of criteria (reference number, text, technical committee,...).

It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available on-line and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary (IEV) on-line.

Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Liens utiles:

Recherche de publications CEI - www.iec.ch/searchpub

La recherche avancée vous permet de trouver des publications CEI en utilisant différents critères (numéro de référence, texte, comité d'études,...).

Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

Just Published CEI - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications de la CEI. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (VEI) en ligne.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.



IEC 62718

Edition 1.0 2013-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Railway applications – Rolling stock – DC supplied electronic ballasts for
lighting fluorescent lamps**

**Applications ferroviaires – Matériel roulant – Ballasts électroniques à courant
continu pour lampes fluorescentes d'éclairage**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

W

ICS 45.060

ISBN 978-2-83220-752-9

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions	8
3.1 General terms.....	8
3.2 Lamps and characteristics	9
4 Classification	10
5 Characteristics.....	10
5.1 Rated voltages.....	10
5.2 Overvoltages	10
5.3 Type of fluorescent lamps	10
6 Product information.....	11
6.1 Nature of information	11
6.1.1 General	11
6.1.2 Identification	11
6.1.3 Characteristics.....	11
6.1.4 Other characteristics and information for installation.....	11
6.2 Marking	11
6.3 Instructions for storage, installation, operation and maintenance	12
7 Normal service conditions	12
8 Constructional and performance requirements	12
8.1 Constructional requirements	12
8.1.1 General	12
8.1.2 Dimensions and wiring diagram.....	12
8.1.3 Terminals	12
8.1.4 Provisions for repair.....	12
8.1.5 Clearance and creepage distances.....	13
8.1.6 Protection	13
8.1.7 Inrush current	13
8.2 Performance requirements.....	13
8.2.1 Electronic ballast parameters in accordance with lamps characteristics	13
8.2.2 Exceptional conditions of use	14
8.2.3 Electronic ballast design requirements	15
8.2.4 Installation requirements	16
8.3 Safety requirements.....	17
9 Tests	17
9.1 Test conditions	17
9.1.1 Environmental conditions	17
9.1.2 Other conditions	18
9.2 Kinds of tests.....	18
9.2.1 Type tests.....	18
9.2.2 Routine tests	19
9.2.3 Investigatory tests.....	20
9.3 Verification of constructional and performance requirements	20

9.3.1	General	20
9.3.2	Sequence 1	20
9.3.3	Sequence 2	22
9.3.4	Sequence 3	24
9.3.5	Sequence 4	25
9.3.6	Sequence 5	27
Annex A (informative)	Distance between lamp and metallic support	29
Annex B (informative)	Electronic ballast for lamps up to 40 W (case 1)	30
Annex C (informative)	Electronic ballast for lamps up to 40 W (case 2)	31
Annex D (informative)	Electronic ballast for lamps up to 15 W	32
Annex E (informative)	Electronic ballast for lamps up to 20 W	33
Annex F (informative)	Electronic ballast for lamps up to 10 W	34
Annex G (informative)	Basic schematic diagrams	35
Bibliography	38
Figure 1	– Test circuit	22
Figure 2	– Current limiting curve.....	23
Figure 3	– Circuit for leakage current measurement.....	24
Figure 4	– Circuit for test B: Cathode deactivated (rectifying effect)	26
Figure B.1	– Overall dimensions for electronic ballast.....	30
Figure C.1	– Overall dimensions for electronic ballast.....	31
Figure D.1	– Overall dimensions for electronic ballast.....	32
Figure E.1	– Overall dimensions for electronic ballast.....	33
Figure F.1	– Overall dimensions for electronic ballast	34
Figure G.1	– One or two tubular lamps	35
Figure G.2	– One or two tubular lamps	35
Figure G.3	– One or two tubular lamps	36
Figure G.4	– One tubular lamp	36
Figure G.5	– One tubular lamp	36
Figure G.6	– One or two single capped lamps.....	36
Figure G.7	– One single capped lamp.....	37
Table 1	– Type tests.....	19
Table 2	– Routine tests	20
Table 3	– Dielectric test voltage values.....	22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RAILWAY APPLICATIONS – ROLLING STOCK – DC SUPPLIED ELECTRONIC BALLASTS FOR LIGHTING FLUORESCENT LAMPS

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62718 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

This standard is based on EN 50311:2003.

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

FDIS	Report on voting
9/1769A/FDIS	9/1798/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.

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

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

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-