



NSAI
Standards

Irish Standard
I.S. EN 60358-2:2013

Coupling capacitors and capacitor dividers --
Part 2: AC or DC single-phase coupling
capacitor connected between line and ground
for power line carrier-frequency (PLC)
application

I.S. EN 60358-2:2013

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 60358-2:2013

Published:

2013-12-13

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

2013-12-24

ICS number:

29.120.99

29.240.99

31.060.70

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 Chaighdeán Náisiúnta na hÉireann

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60358-2

December 2013

ICS 29.120.99; 29.240.99; 31.060.70

Supersedes HD 597 S1:1992 (partially)

English version

**Coupling capacitors and capacitor dividers -
Part 2: AC or DC single-phase coupling capacitor connected between line and
ground for power line carrier-frequency (PLC) application
(IEC 60358-2:2013)**

Condensateurs de couplage et diviseurs
capacitifs -
Partie 2: Condensateur de couplage
monophasé à courant alternatif ou à courant
continu connecté entre la ligne et la terre
pour application aux liaisons à courant
porteur sur lignes d'énergie (CPL)
(CEI 60358-2:2013)

Kopplungskondensatoren und kapazitive
Teiler -
Teil 2: Einphasen-Kopplungskondensatoren
für Wechsel- oder Gleichstrom, die für
Trägerfrequenzübertragungen auf
Hochspannungsleitungen (TFH-
Übertragung) zwischen Außenleiter und
Erde geschaltet sind
(IEC 60358-2:2013)

This European Standard was approved by CENELEC on 2013-09-16. 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.

CENELEC

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

Foreword

The text of document 33/531/FDIS, future edition 1 of IEC 60358-2, prepared by IEC/TC 33, "Power capacitors and their applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60358-2:2013.

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) 2014-06-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-09-16

This document supersedes HD 597 S1:1992 (partially).

This European Standard is to be used in conjunction with the latest edition of EN 60358-1 and its amendments. It was established on the basis of the first edition (2012) of that standard.

This Part 2 supplements or modifies the corresponding clauses in EN 60358-1.

When a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. Where this Part 2 states "addition" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

For additional clauses, subclauses, figures, tables or annexes, the following numbering system is used:

- subclauses, tables and figures which are additional to those in Part 1 are numbered starting from 200;
- additional annexes are lettered AA, BB etc.
- as the notes are integrated into the clauses, their numbering starts from 1 as usual.

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 60358-2:2013 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 60085	NOTE	Harmonized as EN 60085.
IEC 60721 Series	NOTE	Harmonized in EN 60721 series.
IEC 61462	NOTE	Harmonized as EN 61462.
CISPR 16-1-1	NOTE	Harmonized as EN 55016-1-1.

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 60060-1		High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	
IEC 60060-2		High-voltage test techniques - Part 2: Measuring systems	EN 60060-2	
IEC 60358-1 + corr. July	2012 2013	Coupling capacitors and capacitor dividers - Part 1: General rules	EN 60358-1 + AC:2013	2012 2013
IEC 60481		Coupling devices for power line carrier systems	-	-
IEC 61869-5		Instrument transformers - Part 5: Additional requirements for capacitor voltage transformers		

This page is intentionally left blank



IEC 60358-2

Edition 1.0 2013-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Coupling capacitors and capacitor dividers –
Part 2: AC or DC single-phase coupling capacitor connected between line and
ground for power line carrier-frequency (PLC) application**

**Condensateurs de couplage et diviseurs capacitifs –
Partie 2: Condensateur de couplage monophasé à courant alternatif ou à
courant continu connecté entre la ligne et la terre pour application aux liaisons à
courant porteur sur lignes d'énergie (CPL)**



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 60358-2

Edition 1.0 2013-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Coupling capacitors and capacitor dividers –
Part 2: AC or DC single-phase coupling capacitor connected between line and
ground for power line carrier-frequency (PLC) application**

**Condensateurs de couplage et diviseurs capacitifs –
Partie 2: Condensateur de couplage monophasé à courant alternatif ou à
courant continu connecté entre la ligne et la terre pour application aux liaisons à
courant porteur sur lignes d'énergie (CPL)**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

R

ICS 29.120.99; 29.240.99; 31.060.70

ISBN 978-2-8322-1038-3

**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	7
3.200 Carrier-frequency accessories definitions	8
4 Service conditions	8
5 Ratings	8
6 Design requirements	8
6.200 Design requirements for coupling capacitor and carrier-frequency accessories	8
6.200.1 Design requirements for coupling capacitor	8
6.200.2 Design requirements for carrier-frequency accessories	9
7 Test conditions	10
8 Classification of tests	10
8.1 General	10
8.2 Routine tests	10
8.2.200 General	10
8.2.201 Routine tests for carrier frequency accessories	10
8.3 Type tests	10
8.3.200 Type test for coupling capacitor and carrier-frequency accessories	10
8.4 Special tests	11
9 Routine tests	11
9.1 Tightness of the liquid-filled equipment	11
9.2 Electrical routine tests	11
9.2.200 Electrical tests for coupling capacitor and carrier frequency accessories	11
10 Type tests	12
10.200 Test on capacitor	12
10.200.1 High frequency capacitance and equivalent series resistance	12
10.200.2 Measurement of the stray capacitance and stray conductance of the low voltage terminal	12
10.201 Type test on carrier frequency accessories	13
10.201.1 General	13
10.201.2 Type tests for drain coil	13
10.201.3 Type test for voltage limitation device together with drain coil: Impulse voltage test	14
11 Special tests	14
12 Marking	15
12.1 General	15
12.2 Marking of capacitor	15
12.200 Marking of the carrier-frequency accessories	15
Annexes	15
Annex A (informative) Typical diagram of an equipment	16

Annex AA (informative) High-frequency characteristics of coupling capacitors for power line carrier circuits	17
Bibliography	19
Figure A.200.1 – Example of a diagram for a coupling capacitor with carrier-frequency accessories (see IEC 60481)	16
Figure AA.1 – Wiring diagram of the measuring circuit for the high-frequency capacitance and equivalent series resistance of a coupling capacitor	18
Figure AA.2 – Relation between length and capacitance where capacitive deviation – 20 % to +50 % can be fulfilled up to 500 kHz	18
Table 200 – Limits of temperature rise of windings.....	14

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COUPLING CAPACITORS AND CAPACITOR DIVIDERS –**Part 2: AC or DC single-phase coupling capacitor connected between line and ground for power line carrier-frequency (PLC) application**

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 60358-2 has been prepared by IEC technical committee 33: Power capacitors and their applications.

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

FDIS	Report on voting
33/531/FDIS	33/537/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 60358 series, published under the general title *Coupling capacitors and capacitor dividers*, can be found on the IEC website.

This International Standard is to be used in conjunction with the latest edition of IEC 60358-1 and its amendments. It was established on the basis of the first edition (2012) of that standard.

This Part 2 supplements or modifies the corresponding clauses in IEC 60358-1.

When a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. Where this Part 2 states “addition” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

For additional clauses, subclauses, figures, tables or annexes, the following numbering system is used:

- subclauses, tables and figures which are additional to those in Part 1 are numbered starting from 200;
- additional annexes are lettered AA, BB etc.
- as the notes are integrated into the clauses, their numbering starts from 1 as usual.

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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This series consists of the following parts:

- IEC 60358-1, *Coupling capacitors and capacitor dividers – Part 1: General rules*
- IEC 60358-2, *Coupling capacitors and capacitor dividers – Part 2: AC or DC single-phase coupling capacitor connected between line and ground for power line carrier-frequency (PLC) application*
- IEC 60358-3¹, *Coupling capacitors and capacitor dividers – Part 3: AC or DC single-phase coupling capacitor connected between line and ground for harmonic-filters applications*
- IEC 60358-4², *Coupling capacitors and capacitor dividers – Part 4: AC or DC single-phase capacitor-divider and RC-divider connected between line and ground (except for CVT's which belong to IEC 61869 series)*

¹ Under consideration.

² Under consideration.

COUPLING CAPACITORS AND CAPACITOR DIVIDERS –

Part 2: AC or DC single-phase coupling capacitor connected between line and ground for power line carrier-frequency (PLC) application

1 Scope

Clause 1 of IEC 60358-1:2012 is applicable with the following additions:

This part of the IEC 60358 series applies to AC or DC single-phase coupling capacitors, with rated voltage > 1 000 V, connected between line and ground with a low voltage terminal either permanently earthed or connected to a device for power line carrier-frequency (PLC) applications at frequencies from 30 kHz to 500 kHz or similar applications (DC or AC) at power frequencies from 15 Hz to 60 Hz.

The transmission requirements for coupling devices for power line carrier (PLC) systems are defined in IEC 60481.

NOTE Diagrams of coupling capacitors to which this standard applies are given in Figure A.1.

2 Normative references

Clause 2 of IEC 60358-1:2012 is replaced by the following:

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

IEC 60060-2, *High-voltage test techniques – Part 2: Measuring systems*

IEC 60358-1:2012, *Coupling capacitors and capacitor dividers. – Part 1: General rules*

IEC 60481, *Coupling devices for power line carrier systems*

IEC 61869-5, *Instrument transformers – Part 5: Additional requirements for capacitor voltage transformers*

3 Terms and definitions

Clause 3 of IEC 60358-1:2012 is applicable with the following additions:

For the purposes of this document, the terms and definitions given in Clause 3 of IEC 60358-1:2012, as well as the following apply.

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
-