BS EN IEC 60099-8:2018

BSI Standards Publication

Surge arresters

Part 8: Metal-oxide surge arresters with external series gap (EGLA) for overhead transmission and distribution lines of a.c. systems above 1 kV (IEC 60099-8:2017)

bsi.

National foreword

This British Standard is the UK implementation of EN IEC 60099-8:2018. It is identical to IEC 60099-8:2017. It supersedes BS EN 60099-8:2011, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/37, Surge Arresters - High Voltage.

A list of organizations represented on this committee can be obtained on request to its secretary.

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

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Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN IEC 60099-8

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ICS 29.240.10

Supersedes EN 60099-8:2011

English Version

Surge arresters - Part 8: Metal-oxide surge arresters with external series gap (EGLA) for overhead transmission and distribution lines of a.c. systems above 1 kV (IEC 60099-8:2017)

Parafoudres - Partie 8: Parafoudres à oxyde métallique avec éclateur extérieur en série (EGLA) pour lignes aériennes de transmission et de distribution de réseaux à courant alternatif de plus de 1 kV (IEC 60099-8:2017)

Überspannungsableiter - Teil 8: Metalloxid-Überspannungsableiter mit externer Serienfunkenstrecke (EGLA) für Übertragungs- und Verteilungsleitungen von Wechselstromsystemen über 1 kV (IEC 60099-8:2017)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 37/436/FDIS, future edition 2 of IEC 60099-8, prepared by IEC/TC 37 "Surge arresters" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60099-8:2018.

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)	2018-09-19
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-12-19

This document supersedes EN 60099-8:2011.

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

Endorsement notice

The text of the International Standard IEC 60099-8:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

ISO 3274	NOTE	Harmonized as EN ISO 3274.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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.

Publication	Year	Title	EN/HD	Year
IEC 60060-1	2010	High-voltage test techniques -- Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60060-2	2010	High-voltage test techniques -- Part 2: Measuring systems	EN 60060-2	2011
IEC 60068-2-11	1981	Basic environmental testing procedures - Part 2-11: Tests - Test Ka: Salt mist	EN 60068-2-11	1999
IEC 60068-2-14	2009	Environmental testing -- Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60099-4	2014	Surge arresters - Part 4: Metal-oxide surge arresters without gaps for a.c. systems	EN 60099-4	2014
IEC 60270	2000	High-voltage test techniques - Partial discharge measurements	EN 60270	2001
IEC 60507	2013	Artificial pollution tests on high-voltage ceramic and glass insulators to be used on a.c. systems	EN 60507	2014
IEC 62217	2012	Polymeric HV insulators for indoor and outdoor use - General definitions, test methods and acceptance criteria	EN 62217	2013
IEC/TS 60815-1	2008	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 1: Definitions, information and general principles	-	-
ISO 4287	-	Geometrical Product Specifications (GPS) - Surface texture: Profile method - Terms, definitions and surface texture parameters	EN ISO 4287	-
ISO 4892-1	-		EN ISO 4892-1	-
ISO 4892-2	-	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps	EN ISO 4892-2	-
ISO 4892-3	-		EN ISO 4892-3	-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SURGE ARRESTERS –

Part 8: Metal-oxide surge arresters with external series gap (EGLA) for overhead transmission and distribution lines of a.c. systems above 1 kV

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.
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International Standard IEC 60099-8 has been prepared by IEC technical committee 37: Surge arresters.

This second edition cancels and replaces the first edition published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) The Lightning discharge capability test has been completely re-written and re-named to Test to verify the repetitive charge transfer rating, Qrs with lightning discharges to reflect changes introduced in IEC 60099-4 Ed. 3 (2014) regarding new methods for rating the energy and charge handling capability of metal-oxide arresters. In addition to testing to

evaluate the performance of the MO resistors, procedures for evaluating the performance of the EGLA series gaps have been introduced.

b) Omissions from Ed. 1 of this standard have been included, notably an RIV test and a means for determining the thermal time constant of the SUV portion of the EGLA.

c) Definitions for new terms have been added

d) A number of NOTES in Ed. 1 have been converted to normative requirements

A number of editorial changes have been made throughout the document to improve grammar and general flow of information.

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

FDIS	Report on voting
37/436/FDIS	37/438/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 of IEC 60098 series, under the general title *Surge arresters*, 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

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

A bilingual version of this publication may be issued at a later date.

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 part of IEC 60099 applies to the externally gapped line arrester (EGLA)

This type of surge arrester is connected directly in parallel with an insulator assembly. It comprises a series varistor unit (SVU), made up from non-linear metal-oxide resistors encapsulated in a polymer or porcelain housing, and an external series gap (see Figure 1).

The purpose of an EGLA is to protect the parallel-connected insulator assembly from lightning-caused over-voltages. The external series gap, therefore, should spark over only due to fast-front over-voltages. The gap should withstand all power-frequency and slow-front over-voltages occurring on the system.

In the event of SVU failure, the external series gap should be able to isolate the SVU from the system.

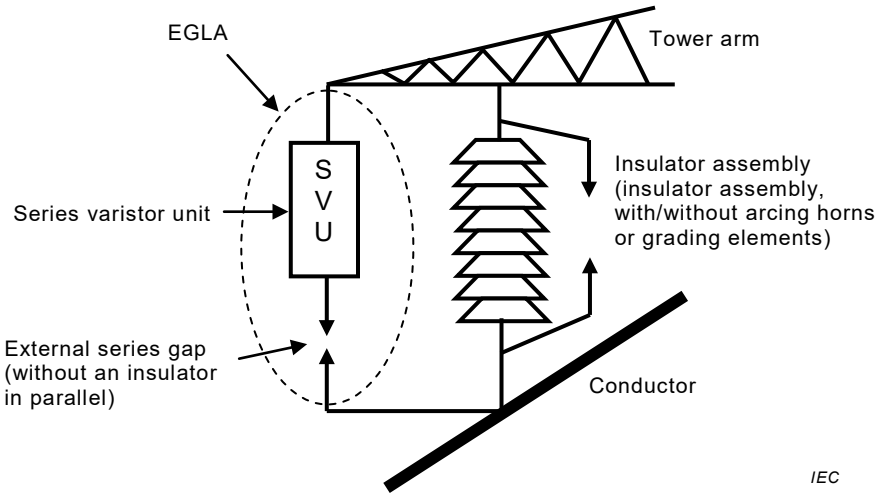

Figure 1 – Configuration of an EGLA with insulator and arcing horn

SURGE ARRESTERS –

Part 8: Metal-oxide surge arresters with external series gap (EGLA) for overhead transmission and distribution lines of a.c. systems above 1 kV

1 Scope

This part of IEC 60099 covers metal-oxide surge arresters with external series gap (externally gapped line arresters (EGLA)) that are applied on overhead transmission and distribution lines, only to protect insulator assemblies from lightning-caused flashovers.

This document defines surge arresters to protect the insulator assembly from lightning-caused over-voltages only. Therefore, and since metal-oxide resistors are not permanently connected to the line, the following items are not considered for this document:

- switching impulse spark-over voltage;
- residual voltage at steep current and switching current impulse;
- thermal stability;
- long-duration current impulse withstand duty;
- power-frequency voltage versus time characteristics of an arrester;
- disconnector test;
- aging duties by power-frequency voltage.

Considering the particular design concept and the special application on overhead transmission and distribution lines, some unique requirements and tests are introduced, such as the verification test for coordination between insulator withstand and EGLA protective level, the follow current interrupting test, mechanical load tests, etc.

Designs with the EGLA's external series gap installed in parallel to an insulator are not covered by this document.

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 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60060-2:2010, *High-voltage test techniques – Part 2: Measuring systems*

IEC 60068-2-11:1981, *Basic environmental testing procedures – Part 2-11: Tests – Test Ka: Salt mist*

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