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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 (IEC 60099-8:2011 (EQV))

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EN 60099-8

April 2011

ICS 29.240.10

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 60099-8:2011)

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
(CEI 60099-8:2011)

Überspannungsableiter – Teil 8: Metalloxid-Überspannungsableiter mit externer Serienfunkenstrecke (EGLA) für Übertragungs- und Verteilungsleitungen von Wechselstromsystemen über 1 kV
(IEC 60099-8:2011)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

The text of document 37/370/FDIS, future edition 1 of IEC 60099-8, prepared by IEC TC 37, Surge arresters, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60099-8 on 2011-03-03.

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

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2011-12-03
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-03-03

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60099-8:2011 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60060-1	1989	High-voltage test techniques - Part 1: General definitions and test requirements	HD 588.1 S1[1)]	1991
IEC 60060-2	1994	High-voltage test techniques - Part 2: Measuring systems	EN 60060-2[2)]	1994
IEC 60068-2-11	1981	Environmental testing - 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 (mod) + A1 + A2	2004 2006 2009	Surge arresters - Part 4: Metal-oxide surge arresters without gaps for a.c. systems	EN 60099-4 + A1 + A2	2004 2006 2009
IEC 60270	2000	High-voltage test techniques - Partial discharge measurements	EN 60270	2001
IEC 60507	1991	Artificial pollution tests on high-voltage insulators to be used on a.c. systems	EN 60507	1993
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	-	-
IEC 62217	2005	Polymeric insulators for indoor and outdoor use with a nominal voltage > 1 000 V - General definitions, test methods and acceptance criteria	EN 62217	2006
ISO 3274	-	Geometrical Product Specifications (GPS) - Surface texture: Profile method - Nominal characteristics of contact (stylus) instruments	EN ISO 3274	-
ISO 4287	-	Geometrical Product Specifications (GPS) - Surface texture: Profile method - Terms, definitions and surface texture parameters	EN ISO 4287	-

[1)] HD 588.1 S1 is superseded by EN 60060-1:2010, which is based on IEC 60060-1:2010.

[2)] EN 60060-2 is superseded by EN 60060-2:2011, which is based on IEC 60060-2:2010.

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Publication	Year	Title	EN/HD	Year
ISO 4892-1	-	Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance	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	-	Plastics - Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps	EN ISO 4892-3	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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.

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

FDIS	Report on voting
37/370/FDIS	37/377/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.

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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 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.

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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 overvoltages. The external series gap, therefore, should spark over only due to fast-front overvoltages. The gap should withstand all power-frequency and slow-front overvoltages occurring on the system.

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

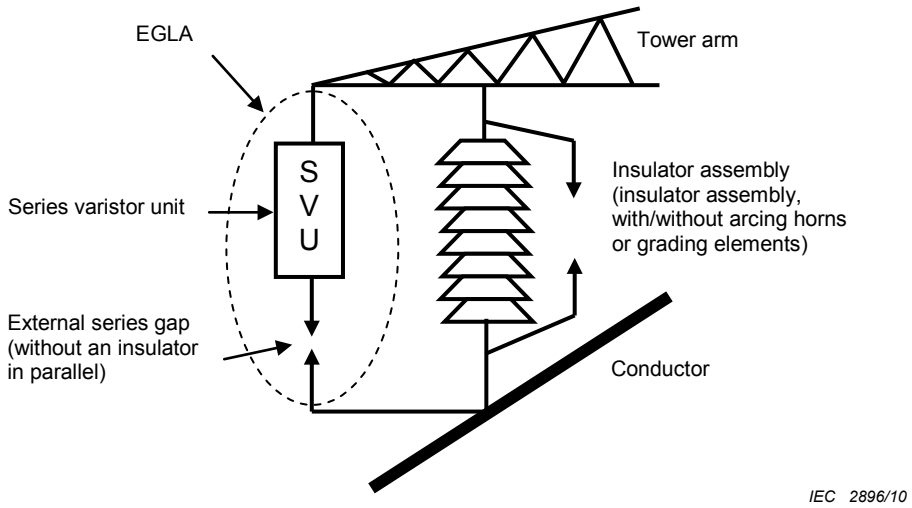

Figure 1 – Configuration of an EGLA with insulator and arcing horn

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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

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

- switching impulse sparkover 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 standard.

2 Normative references

The following referenced documents are indispensable for the application 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 60060-1:1989, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60060-2:1994, *High-voltage test techniques – Part 2: Measuring systems*

IEC 60068-2-11:1981, *Environmental testing – Part 2: Tests. Test kA: Salt mist*

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

IEC 60099-4:2009, *Surge arresters – Part 4: Metal-oxide surge arresters without gaps for a.c. systems*

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