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
NATIONAL FOREWORD

This Estonian standard EVS-EN 60099-8:2011 consists of the English text of the European standard EN 60099-8:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 30.04.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

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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)
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- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2014-03-03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.
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.

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<td>IEC/TS 60815-1</td>
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<td>Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 1: Definitions, information and general principles</td>
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\(^1\) 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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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.

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Figure 1 – Configuration of an EGLA with insulator and arcing horn
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 60099-4:2009, Surge arresters – Part 4: Metal-oxide surge arresters without gaps for a.c. systems
3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 externally gapped line arrester
EGLA
arrester designed for installation on overhead lines to protect an insulator assembly from lightning-caused fast-front overvoltages only

NOTE This is accomplished by rising the sparkover level of the external series gap to a level that isolates the arrester from power-frequency overvoltages and from the worst case slow-front overvoltages due to switching and fault events expected on the line to which it is applied.

3.2 series varistor unit
SVU
non-linear metal-oxide resistor part, contained in a housing, which must be connected with an external series gap to construct the complete arrester

NOTE The series varistor unit may include several units.

3.3 section of an EGLA
complete, suitably assembled part of a complete EGLA necessary to represent the behaviour of a complete EGLA with respect to a particular test

3.4 section of an SVU
complete, suitably assembled part of an SVU unit necessary to represent the behaviour of an SVU with respect to a particular test