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Kopplingsapparater för spänning över 1 kV – Del 213: System för detektering och indikering av spänning

*High-voltage switchgear and controlgear –
Part 213: Voltage detecting and indicating system*

Som svensk standard gäller europastandarden EN IEC 62271-213:2021. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 62271-213:2021.

Nationellt förord

Europastandarden EN IEC 62271-213:2021

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62271-213, First edition, 2021 - High-voltage switchgear and controlgear - Part 213: Voltage detecting and indicating system**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61243-5, utgåva 1, 2001 och SS-EN 62271-206, utgåva 1, 2011, gäller ej fr o m 2024-07-29.

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English Version

**High-voltage switchgear and controlgear - Part 213: Voltage
detecting and indicating system
(IEC 62271-213:2021)**

Appareillage à haute tension - Partie 213: Système
détecteur et indicateur de tension
(IEC 62271-213:2021)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil
213: Spannungsprüf- und -anzeigesysteme
(IEC 62271-213:2021)

This European Standard was approved by CENELEC on 2021-07-29. 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.

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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 17C/787/FDIS, future edition 1 of IEC 62271-213, prepared by SC 17C “Assemblies” of IEC/TC 17 “High-voltage switchgear and controlgear” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62271-213:2021.

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) 2022-04-29
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-07-29

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.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62271-213:2021 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 60999-1 NOTE Harmonized as EN 60999-1

IEC 61243-5:1997 NOTE Harmonized as EN 61243-5:2001 (modified)

IEC 61243-1:2021 NOTE Harmonized as EN IEC 61243-1:2021 (not modified)

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.

<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 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 60068-2-6	-	Environmental testing - Part 2-6: Tests Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-11	-	Environmental testing - Part 2-11: Tests Test Ka: Salt mist	EN IEC 60068-2-11	-
IEC 60068-2-31	-	Environmental testing - Part 2-31: Tests Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31	-
IEC 60068-2-38	-	Environmental testing - Part 2-38: Tests Test Z/AD: Composite temperature/humidity cyclic test	EN IEC 60068-2-38	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests Test Cab: Damp heat, steady-state	EN 60068-2-78	-
IEC 60352-1	-	Solderless connections - Part 1: Wrapped connections - General requirements, test methods and practical guidance	EN 60352-1	-
IEC 60352-2	-	Solderless connections - Part 2: Crimped connections - General requirements, test methods and practical guidance	EN 60352-2	-
IEC 60352-5	-	Solderless connections - Part 5: Press-in connections - General requirements, test methods and practical guidance	EN IEC 60352-5	-
IEC 60417	-	Graphical symbols for use on equipment	-	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-

EN IEC 62271-213:2021 (E)

IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	-
IEC 61000-4-3	-	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN IEC 61000-4-3	-
IEC 61010-031	2015	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test	EN 61010-031	2015
+ A1	2018		+ FprA1	2018
IEC 61210	-	Connecting devices - Flat quick-connect terminations for electrical copper conductors - Safety requirements	EN 61210	-
IEC 62262	-	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	-
IEC 62271-1	-	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear	EN 62271-1	-

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**High-voltage switchgear and controlgear –
Part 213: Voltage detecting and indicating system**

**Appareillage à haute tension –
Partie 213: Système détecteur et indicateur de tension**

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	8
4 Normal and special service conditions	13
4.1 General.....	13
4.2 Normal service conditions	13
4.3 Special service conditions.....	13
5 Ratings.....	13
6 Design and construction	14
6.1 General.....	14
6.2 Parts of <i>voltage detecting and indicating system</i>	14
6.3 <i>VDIS</i> description	14
6.4 <i>Coupling system</i>	16
6.5 <i>Voltage limiting element</i>	17
6.6 <i>Connecting leads</i>	17
6.7 <i>Testing points</i>	18
6.8 <i>Connecting points</i>	22
6.9 <i>Indicator</i>	23
6.10 Degree of protection (IP code)	24
6.11 Climatic requirements	25
6.12 Mechanical requirements	25
6.13 Electromagnetic compatibility.....	26
6.14 Dielectric strength.....	26
6.15 <i>VDIS</i> with built-in power source	27
6.16 Marking.....	28
7 Type tests	29
7.1 General.....	29
7.2 Inspection	32
7.3 Dielectric tests	32
7.4 Maximum current of <i>coupling element</i>	33
7.5 Conditions on <i>testing points</i>	33
7.6 <i>Voltage limiting element</i>	34
7.7 Indication of <i>VDIS</i>	34
7.8 Clear perceptibility of visual indication	36
7.9 Phase shift.....	37
7.10 Response time	38
7.11 Non response to DC voltage	39
7.12 <i>Connecting leads</i>	39
7.13 Temperature dependence of indication	39
7.14 Degree of protection (IP code)	40
7.15 Damp heat	40
7.16 Composite temperature/humidity cyclic test	40
7.17 Vibration	40
7.18 Mechanical impact (IK code)	40

7.19	Fall	40
7.20	Electrostatic discharge.....	41
7.21	Radiated electromagnetic fields	41
7.22	<i>VDIS</i> with built-in power source	41
8	<i>Routine tests</i>	42
9	Guide to the selection of <i>VDIS</i> (informative)	42
10	Information to be given with enquiries, tenders and orders	43
10.1	General.....	43
10.2	Information with enquiries and orders	43
10.3	Information with tenders.....	43
11	Transport, storage, installation, operation, maintenance and instructions for use.....	44
11.1	General.....	44
11.2	Installation	44
11.3	Operating instructions	44
11.4	Maintenance	44
11.5	Instructions for use	46
12	Safety.....	47
13	Influence of <i>VDIS</i> on the environment.....	47
Annex A	(informative) Derivations and formulas.....	48
A.1	<i>Threshold voltages</i> for indication of <i>VDIS</i>	48
A.2	Maximum <i>measuring voltage</i> of <i>VDIS</i>	48
A.3	Impedances of connected devices to the <i>testing points</i> of <i>VDIS</i>	49
A.4	Current levels of the <i>testing points</i> of <i>VDIS</i>	50
Annex B	(informative) List of notes concerning certain countries.....	51
Bibliography	52
Figure 1	– Example of the typical structure of an integrated <i>VDIS</i>	15
Figure 2	– Example of the typical structure of a separable <i>VDIS</i>	16
Figure 3	– <i>Plug</i> and socket size and design without insulation shield	20
Figure 4	– <i>Plug</i> and socket size and design with insulation shield	21
Figure 5	– Maximum footprint dimensions of separable <i>VDIS</i> and example of arrangement	22
Figure 6	– Examples of <i>socket-outlet</i> arrangement for integrated <i>VDIS</i>	22
Figure 7	– Connection of the voltage source	35
Figure 8	– Test set-up for perceptibility of visual indication	37
Figure 9	– Examples of measure of the response time	38
Table 1	– Impedances of connected devices	18
Table 2	– Current levels (RMS values).....	19
Table 3	– Thresholds for voltage indication.....	24
Table 4	– Sequence of type tests.....	30
Table 5	– List of type tests without sequence.....	31
Table 6	– List of routine tests without sequence.....	42

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 213: Voltage detecting and indicating system

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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- 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 62271-213 has been prepared by subcommittee 17C:Assemblies, of IEC technical committee 17: High-voltage switchgear and controlgear.

This first edition cancels and replaces the first edition of IEC 61243-5 published in 1997 and the first edition of IEC 62271-206 published in 2011. This edition constitutes a merging of the content of IEC 61243-5 and IEC 62271-206.

This edition includes the following significant technical changes with respect to the previous editions of IEC 61243-5 and IEC 62271-206:

- a) an optional output signal is defined to be used for multipurpose use cases;
- b) only one *interface* is defined for *voltage detecting and indicating system (VDIS)*;
- c) the measurement of the current carrying capacity of the *voltage limiting element* is considered as inaccurate and is not considered in this document. Experience shows that the probability of failure of the *coupling element* is negligible.

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

FDIS	Report on voting
17C/787/FDIS	17C/794/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English .

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

In this document, the following print types are used:

- Terms defined in Clause 3: *in italic type*.

The reader's attention is drawn to the fact that Annex B lists all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this document.

A list of all parts in the IEC 62271 series, published under the general title *High-voltage switchgear and controlgear*, 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 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.

INTRODUCTION

This part of IEC 62271 has been prepared in accordance with the requirements of IEC 62271-1.

The products designed and manufactured in accordance with this document contribute to the safety of the users, provided they are used by skilled or instructed persons, in accordance with safe methods of work and the instructions for use.

The product covered by this document can have an impact on the environment during some or all stages of its life cycle. These impacts can range from slight to significant, be of short-term or long-term duration, and occur at the global, regional or local level.

IEC 62271-213 does not cover the phase comparison function of IEC 61243-5 which is covered by the new IEC 62271-215. Unless IEC 62271-215 is not published, the relevant subclauses in IEC 61243-5 related to UPCs are applicable.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 213: Voltage detecting and indicating system

1 Scope

This part of IEC 62271 is applicable to the *voltage detecting and indicating system (VDIS)* to be installed on indoor and outdoor high-voltage *equipment*.

The *VDIS* as defined by this document includes a *coupling system* per phase (capacitive, resistive coupling or other technology) to connect to live parts (*main circuit*).

The *VDIS* is applicable on systems with *nominal voltages* above 1 kV and service frequencies from 16,7 Hz up to and including 60 Hz. The *VDIS* is used to detect and indicate the presence or absence of *operating voltage*. It is not intended to distinguish between voltage not present (i.e. $U < 10\%$ of *nominal voltage*) and dead circuit state (i.e. $U = 0$ V).

NOTE 1 The use of a specific means of connection to earth of the *main circuit* (e.g. by an earthing switch) provides the "dead circuit" ($U = 0$ V) state.

NOTE 2 The *VDIS* has the same threshold values as the voltage presence indicating system (VPIS) (IEC 62271-206) and the voltage detecting system (VDS) (IEC 61243-5) for not indicating presence of voltage and for detecting an absence of *operating voltage*, respectively.

The *VDIS* is fixed on *equipment* such as switchgear and controlgear according to the IEC 62271 series or transformers according to their own standards.

The products designed and manufactured in accordance with this document contribute to the safety of the users, provided they are used by skilled or instructed persons in accordance with safe methods of work and the instructions for use.

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

IEC 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2:2007, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

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

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-38, *Environmental testing – Part 2-38: Tests – Test Z/AD: Composite temperature/humidity cyclic test*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60352-1, *Solderless connections – Part 1: Wrapped connections; general requirements, test methods and practical guidance*

IEC 60352-2, *Solderless connections – Part 2: Solderless crimped connections – General requirements, test methods and practical guidance*

IEC 60352-5, *Solderless connections – Part 5: Press-in connections – General requirements, test methods and practical guidance*

IEC 60417, *Graphical symbols for use on equipment* (available at <http://www.graphical-symbols.info/equipment>)

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61010-031:2015, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test*

IEC 61010-031:2015/AMD1:2018

IEC 61210, *Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements*

IEC 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

IEC 62271-1, *High-voltage switchgear and controlgear – Part 1: Common specifications for alternating current switchgear and controlgear*