



BSI Standards Publication

Instrument transformers

Part 20: Safety requirements of instrument transformers for high voltage applications

National foreword

This British Standard is the UK implementation of EN IEC 61869-20:2025. It is identical to IEC 61869-20:2025.

The UK participation in its preparation was entrusted to Technical Committee PEL/38, Instrument transformers.

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

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 30087 1

ICS 17.220.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2025.

Amendments/corrigenda issued since publication

Date	Text affected
<hr/>	

English Version

Instrument transformers - Part 20: Safety requirements of
instrument transformers for high voltage applications
(IEC 61869-20:2025)

Transformateurs de mesure - Partie 20 : Exigences de
sécurité des transformateurs de mesure pour applications à
haute tension
(IEC 61869-20:2025)

Messwandler - Teil 20: Sicherheitsanforderungen von
Messwandlern für Hochspannungsanwendungen
(IEC 61869-20:2025)

This European Standard was approved by CENELEC on 2025-05-21. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



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 38/808/FDIS, future edition 1 of IEC 61869-20, prepared by TC 38 "Instrument Transformers" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61869-20:2025.

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) 2026-05-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2028-05-31

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 61869-20:2025 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 standard indicated:

IEC 60695-1-10	NOTE	Approved as EN 60695-1-10
IEC 60695-1-11	NOTE	Approved as EN 60695-1-11
IEC 60695-7-1	NOTE	Approved as EN 60695-7-1
IEC 60947-2	NOTE	Approved as EN IEC 60947-2
IEC 60947-7-1	NOTE	Approved as EN 60947-7-1

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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC/TS 60815-1	-	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 1: Definitions, information and general principles	-	-
IEC 61869-1	-	Instrument transformers - Part 1: General requirements	EN IEC 61869-1	-
IEC 61869-99	-	Instrument transformers - Part 99: Glossary	EN IEC 61869-99	-
IEC 62262	-	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	-

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions.....	5
4 Protection against electric shock.....	6
4.1 General.....	6
4.2 Earthing of enclosure, terminals and connection to carrier-frequency accessory.....	6
4.2.1 General.....	6
4.2.2 Earthing of high voltage circuit transformers (HV CTs).....	6
4.2.3 Earthing of high-voltage VTs (HV VTs).....	8
4.3 Access to secondary terminals.....	12
4.3.1 General.....	12
4.3.2 Indoor instrument transformers.....	12
4.3.3 Outdoor instrument transformers.....	12
4.3.4 Protection of equipment against mechanical impact under normal service conditions.....	13
4.4 Risk of open secondary terminals in CTs and shorted secondary terminals in VTs.....	13
4.4.1 General.....	13
4.4.2 Protections against the risk of open secondary terminals in CTs.....	13
4.4.3 Protections against the risk of shorted secondary terminals in VTs.....	13
5 Protection against thermal and chemical hazards.....	13
5.1 General.....	13
5.2 Risk of fire.....	13
5.3 Risk of internal arc.....	14
5.4 Risk of leakage of oil or release of gases.....	14
6 Protection against mechanical hazards.....	14
6.1 General.....	14
6.2 Hazards during mounting and dismounting.....	14
Bibliography.....	15
Figure 1 – Earthing of a CT with one secondary circuit (example).....	7
Figure 2 – Earthing of a CT with one secondary circuit having a tap (example).....	7
Figure 3 – Earthing of a CT with two secondary circuits (example).....	7
Figure 4 – Earthing terminal connected to the steel support structure.....	8
Figure 5 – Earthing terminal connected to earth via an earthing conductor.....	8
Figure 6 – Open delta earthing.....	9
Figure 7 – Earthing of an earthed VT with one secondary circuit (example).....	9
Figure 8 – Earthing of an unearthed VT with one secondary circuit (example).....	10
Figure 9 – Earthing of an earthed VT with two secondary circuits (example).....	10
Figure 10 – Earthing of an earthed VT with a multi-tap secondary circuit (example).....	10
Figure 11 – Earthing of an earthed VT with carrier-frequency accessory (example).....	11
Figure 12 – Earthing terminal connected to the steel support structure.....	11
Figure 13 – Earthing terminal connected to earth via an earthing conductor.....	12

Table 1 – Fire hazard of electrotechnical products.....	14
---	----