

SLOVENSKI STANDARD

SIST EN 60051-5:2018

01-junij-2018

Nadomešča:

SIST EN 60051-5:1995

Neposredni kazalni analogni električni merilni instrumenti in njihov pribor - 5. del: Posebne zahteve za merilnike faze, merilnike faktorja moči in za sinhroskope (IEC 60051-5:2017)

Direct acting indicating analogue electrical measuring instruments and their accessories - Part 5: Special requirements for phase meters, power factor meters and synchrosopes (IEC 60051-5:2017)

Direkt wirkende anzeigende elektrische Meßgeräte und ihr Zubehör - Meßgeräte mit Skalenanzeige - Teil 5: Spezielle Anforderungen für Phasenverschiebungswinkel-Meßgeräte, Leistungsfaktor-Meßgeräte und Synchronoskope (IEC 60051-5:2017)

Appareils mesureurs électriques indicateurs analogiques à action directe et leurs accessoires - Partie 5: Prescriptions particulières pour les phasemètres, les indicateurs de facteur de puissance et les synchrosopes (IEC 60051-5:2017)

Ta slovenski standard je istoveten z: EN IEC 60051-5:2018

ICS:

17.220.20	Merjenje električnih in magnetnih veličin	Measurement of electrical and magnetic quantities
-----------	---	---

SIST EN 60051-5:2018

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Full standard:
<https://standards.iteh.ai/catalog/standards/sist/ce12b68d-6e1d-459e-9afd-ac67a105227c/sist-en-60051-5-2018>

EUROPEAN STANDARD

EN IEC 60051-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2018

ICS 17.220.20

Supersedes EN 60051-5:1989

English Version

Direct acting indicating analogue electrical measuring
instruments and their accessories - Part 5: Special requirements
for phase meters, power factor meters and synchrosopes
(IEC 60051-5:2017)

Appareils mesureurs électriques indicateurs analogiques à
action directe et leurs accessoires - Partie 5: Exigences
particulières pour les phasemètres, les appareils de mesure
de facteur de puissance et les synchrosopes
(IEC 60051-5:2017)

Direkt wirkende anzeigende elektrische Meßgeräte und ihr
Zubehör - Meßgeräte mit Skalenanzeige - Teil 5: Spezielle
Anforderungen für Phasenverschiebungswinkel-Meßgeräte,
Leistungsfaktor- Meßgeräte und Synchronoskope
(IEC 60051-5:2017)

This European Standard was approved by CENELEC on 2018-01-19. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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

EN IEC 60051-5:2018 (E)**European foreword**

The text of document 85/581/CDV, future edition 5 of IEC 60051-5, prepared by IEC/TC 85 "Measuring equipment for electrical and electromagnetic quantities" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60051-5:2018.

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) 2018-10-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-01-19

This document supersedes EN 60051-5:1989.

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.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directives.

For the relationship with EU Directives see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 60051-5:2017 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:

IEC 60051-9¹ NOTE Harmonized as EN 60051-9².

¹ To be published. Stage at the time of publication: IEC CDV 60051-9:2018.

² To be published. Stage at the time of publication: prEN 60051-9:2018.

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 60051-1	2016	Direct acting indicating analogue electrical measuring instruments and their accessories – Part 1: Definitions and general requirements common to all parts	EN 60051-1	2017

iTech STANDARD PREVIEW
(standards.itech.ai)
Full standard:
<https://standards.itech.ai/catalog/standards/sist/ce12b68d-6e1d-459e-9afd-ac67a105227c/sist-en-60051-5-2018>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Full standard:
<https://standards.iteh.ai/catalog/standards/sist/ce12b68d-6e1d-459e-9afd-ac67a105227c/sist-en-60051-5-2018>



IEC 60051-5

Edition 5.0 2017-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Direct acting indicating analogue electrical measuring instruments and their accessories –
Part 5: Special requirements for phase meters, power factor meters and synchrosopes**

**Appareils mesureurs électriques indicateurs analogiques à action directe et leurs accessoires –
Partie 5: Exigences particulières pour les phasemètres, les appareils de mesure de facteur de puissance et les synchronoscopes**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.220.20

ISBN 978-2-8322-5187-4

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
4 Description, classification and compliance.....	7
4.1 Description	7
4.2 Classification	7
4.3 Compliance with the requirements of this standard	7
5 Requirements	8
5.1 Reference conditions	8
5.2 Limits of intrinsic uncertainty, fiducial value	8
5.2.1 Limits of intrinsic uncertainty	8
5.2.2 Correspondence between intrinsic uncertainty and accuracy class	8
5.2.3 Fiducial value	8
5.3 Nominal range of use and variations	8
5.3.1 Nominal range of use.....	8
5.3.2 Limits of variations.....	9
5.3.3 Conditions for the determination of variations	10
5.4 Operating uncertainty, overall system uncertainty and variations	10
5.5 Electrical requirements	10
5.5.1 Electrical safety requirements.....	10
5.5.2 Self-heating.....	10
5.5.3 Permissible overloads.....	10
5.5.4 Limiting range of temperature	11
5.5.5 Deviation from zero	11
5.5.6 Electromagnetic compatibility (EMC)	11
5.5.7 Special requirements for synchroscopes.....	12
5.6 Constructional requirements	12
5.6.1 General constructional requirements	12
5.6.2 Damping.....	12
5.6.3 Sealing to prevent access.....	12
5.6.4 Scales	12
5.6.5 Stopper.....	12
5.6.6 Preferred values	12
5.6.7 Adjusters, mechanical and/or electrical.....	13
5.6.8 Effects of vibration and shock.....	13
5.6.9 Degrees of protection provided by enclosure	13
5.6.10 Terminals	13
6 Information, markings and symbols.....	13
6.1 Information	13
6.2 Markings, symbols and their locations.....	13
6.3 Markings relating to the reference values and nominal ranges of use of influence quantities.....	13
6.4 The symbols for marking instruments and accessories.....	13
6.5 Markings and symbols for terminals	13

6.5.1	Requirements for markings	13
6.5.2	Earthing (grounding) terminals.....	13
6.5.3	Measuring circuit terminals	14
6.5.4	Special markings for terminals.....	14
6.6	Instructions for use	14
7	Package	14
8	Test rules	14
Annex A (normative) Nonconformity classification of tests		15
Bibliography.....		16

Table 1 – Reference conditions and tolerances, additional to those given in Table 2 of IEC 60051-1:2016, for testing purposes relating to the influence quantities.....8

Table 2 – Limits of the nominal range of use and permissible variations in addition to those given in Table 3 of IEC 60051-1:2016.....9

Table 3 – Overloads of short duration

Table A.1 – Nonconformity classification of tests

iTeh STANDARD PREVIEW
 (standards.iteh.ai)
 Full standard:
<https://standards.iteh.ai/catalog/standards/sist/ce12b68d-6e1d-459e-9afd-ac67a105227c/sist-en-60051-5-2018>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DIRECT ACTING INDICATING ANALOGUE ELECTRICAL
MEASURING INSTRUMENTS AND THEIR ACCESSORIES –****Part 5: Special requirements for phase meters,
power factor meters and synchrosopes**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 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 60051-5 has been prepared by IEC technical committee 85: Measuring equipment for electrical and electromagnetic quantities.

This fifth edition cancels and replaces the fourth edition published in 1985. This edition constitutes a technical revision.

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

- a) updating of content in line with new editions of IEC 60051-1 and IEC 60051-9;
- b) addition of Annex A to specify the nonconformity classification of test items.