



**SLOVENSKI STANDARD**  
**SIST EN IEC 61869-14:2019**

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**Instrumentni transformatorji - 14. del: Dodatne zahteve za tokovne transformatorje za enosmerno napajanje (IEC 61869-14:2018)**

Instrument transformers - Part 14: Additional requirements for current transformers for DC applications (IEC 61869-14:2018)

Messwandler - Teil 14: Besondere Anforderungen für Gleichstromwandler (IEC 61869-14:2018)

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Transformateurs de mesure - Partie 14. Exigences supplémentaires concernant les transformateurs de courant pour application en courant continu (IEC 61869-14:2018)

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**Ta slovenski standard je istoveten z: EN IEC 61869-14:2019**

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**ICS:**

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

EN IEC 61869-14

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2019

ICS 17.200.20

English Version

## Instrument transformers - Part 14: Additional requirements for current transformers for DC applications (IEC 61869-14:2018)

Transformateurs de mesure - Partie 14: Exigences supplémentaires concernant les transformateurs de courant pour application en courant continu  
(IEC 61869-14:2018)

Messwandler - Teil 14: Besondere Anforderungen für Gleichstromwandler  
(IEC 61869-14:2018)

This European Standard was approved by CENELEC on 2018-08-21. 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.

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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

**EN IEC 61869-14:2019 (E)****European foreword**

The text of document 38/560/FDIS, future edition 1 of IEC 61869-14, prepared by IEC/TC 38 "Instrument transformers" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61869-14:2019.

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) 2020-01-05
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-07-05

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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 Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

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The text of the International Standard IEC 61869-14:2018 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 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](http://www.cenelec.eu).

Clause 2 of IEC 61869-6:2016 is applicable, with the following additions and modifications:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TS 60815-4	2019	Selection and dimensioning of high-voltage - insulators intended for use in polluted conditions - Part 4: Insulators for d.c. systems		-
IEC/TS 61245:2015	2015	Artificial pollution tests on high-voltage - ceramic and glass insulators to be used on d.c. systems		-
IEC 61869-6	2016	Instrument transformers - Part 6: Additional general requirements for low-power instrument transformers	EN 61869-6	2016
IEC 61869-9	2016	Instrument transformers - Part 9: Digital interface for instrument transformers	EN IEC 61869-9	2019

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IEC 61869-14

Edition 1.0 2018-07

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Instrument transformers –**  
**Part 14: Additional requirements for current transformers for DC applications**

**Transformateurs de mesure –**  
**Partie 14: Exigences supplémentaires concernant les transformateurs de**  
**courant pour application en courant continu**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## INSTRUMENT TRANSFORMERS –

## Part 14: Additional requirements for current transformers for DC applications

## 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 61869-14 has been prepared by IEC technical committee 38: Instrument transformers.

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

FDIS	Report on voting
38/560/FDIS	38/565/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61869 series, published under the general title *Instrument transformers*, can be found on the IEC website.

This Part 14 is to be used in conjunction with, and is based on, IEC 61869-1:2007, *General requirements*, and IEC 61869-6:2016, *Additional general requirements for low-power instrument transformers* – however the reader is encouraged to use the most recent editions.

This Part 14 follows the structure of IEC 61869-1:2007 and IEC 61869-6:2016 and supplements or modifies their corresponding clauses.

When a subclause of Part 1 or Part 6 is not mentioned in this Part 14, that subclause applies. When this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 or Part 6 is to be adapted accordingly.

For additional clauses, subclauses, figures, tables, annexes or notes, the following numbering system is used:

- clauses, subclauses, tables, figures and notes that are numbered starting from 1401 are additional to those in Part 1 and Part 6;
- additional annexes are lettered 14A, 14B, etc.

An overview of the planned set of standards at the date of publication of this document is given below. The updated list of standards issued by IEC TC 38 is available at the website: [www.iec.ch](http://www.iec.ch)

## iTeh STANDARD PREVIEW

PRODUCT FAMILY STANDARDS	PRODUCT STANDARD	PRODUCTS	OLD STANDARD	
<b>61869-1</b> GENERAL REQUIREMENTS	61869-2	ADDITIONAL REQUIREMENTS FOR CURRENT TRANSFORMERS	60044-1 60044-6	
	61869-3	ADDITIONAL REQUIREMENTS FOR INDUCTIVE VOLTAGE TRANSFORMERS	60044-2	
	61869-4	ADDITIONAL REQUIREMENTS FOR COMBINED TRANSFORMERS	60044-3	
	61869-5	ADDITIONAL REQUIREMENTS FOR CAPACITIVE VOLTAGE TRANSFORMERS	60044-5	
	<b>61869-6</b> ADDITIONAL GENERAL REQUIREMENTS FOR LOW-POWER INSTRUMENT TRANSFORMERS	61869-7	ADDITIONAL REQUIREMENTS FOR ELECTRONIC VOLTAGE TRANSFORMERS	60044-7
		61869-8	ADDITIONAL REQUIREMENTS FOR ELECTRONIC CURRENT TRANSFORMERS	60044-8
		61869-9	DIGITAL INTERFACE FOR INSTRUMENT TRANSFORMERS	
		61869-10	ADDITIONAL REQUIREMENTS FOR LOW-POWER PASSIVE CURRENT TRANSFORMERS	
		61869-11	ADDITIONAL REQUIREMENTS FOR LOW-POWER PASSIVE VOLTAGE TRANSFORMERS	60044-7
		61869-12	ADDITIONAL REQUIREMENTS FOR COMBINED ELECTRONIC INSTRUMENT TRANSFORMER OR COMBINED LOW-POWER PASSIVE TRANSFORMERS	
		61869-13	STAND ALONE MERGING UNIT	
		61869-14	ADDITIONAL REQUIREMENTS FOR CURRENT TRANSFORMERS FOR DC APPLICATIONS	
		61869-15	ADDITIONAL REQUIREMENTS FOR VOLTAGE TRANSFORMERS FOR DC APPLICATIONS	

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://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.

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## INTRODUCTION

### General

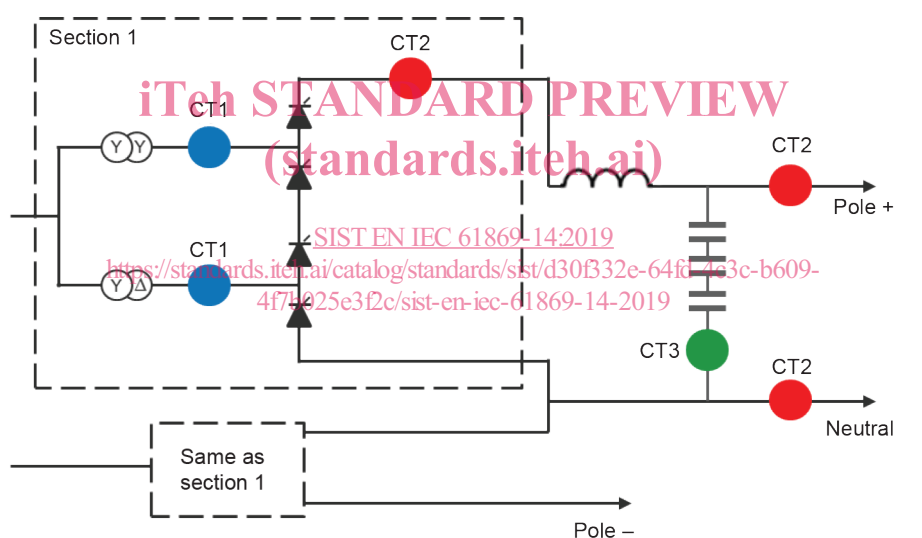
This document applies to current transformers intended to be used in DC applications with at least one of the following functions:

- measure DC current (with significant harmonics);
- withstand DC voltage.

Depending on the position of the current transformer on the DC system, different kinds of application exist, which are briefly described below, together with the approximate voltage or current wave shape.

### Line-commutated converters (LCC)

Line-commutated converters (LCC) are based on thyristor converters (see Figure 1401). They are characterized by a single direction of current flow, and a voltage polarity reversal possibility. Significant voltage and current harmonics exist up to frequencies of about 3 kHz to 4 kHz.



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**Figure 1401 – Example of LCC scheme**

We distinguish three different current-measurement functions:

- CT1: measurement of the current at the AC side of the converter;
- CT2: measurement of the current at the DC side of the converter;
- CT3: measurement of the current in the DC filter.

Table 1401 gives an overview of the current and voltage waveshapes as well as the main characteristics of the different applications of the CT.