

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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**Instrument transformers –  
Part 11: Additional requirements for low-power passive voltage transformers**

**Transformateurs de mesure –  
Partie 11: Exigences supplémentaires pour les transformateurs de tension  
passifs de faible puissance**



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## INSTRUMENT TRANSFORMERS –

### Part 11: Additional requirements for low-power passive voltage transformers

#### FOREWORD

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International Standard IEC 61869-11 has been prepared by IEC technical committee 38: Instrument transformers.

This first edition of IEC 61869-11, together with IEC 61869-1 and IEC 61869-6, cancels and replaces the relevant clauses or subclauses of the first edition of IEC 60044-7, published in 1999 and the first edition of IEC 60044-8, published in 2002<sup>1</sup>. This edition constitutes a technical revision.

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<sup>1</sup> IEC 60044-7 and IEC 60044-8 will eventually be replaced by the IEC 61869 series, but until all the relevant parts of the IEC 61869 series will be published, these two standards are still in force.

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

FDIS	Report on voting
38/549/FDIS	38/552/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.

This standard is Part 11 of IEC 61869, published under the general title *Instrument transformers*.

This Part 11 is to be read 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 edition of these documents.

This Part 11 follows the structure of IEC 61869-1:2007 and IEC 61869-6:2016 and supplements or modifies the corresponding clauses.

When a particular subclause of Part 1 or Part 6 is not mentioned in this part Part 11, 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 1101 are additional to those in Part 1 and Part 6;
- additional annexes are lettered 11A, 11B, 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).

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

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- withdrawn,
- replaced by a revised edition, or
- amended.

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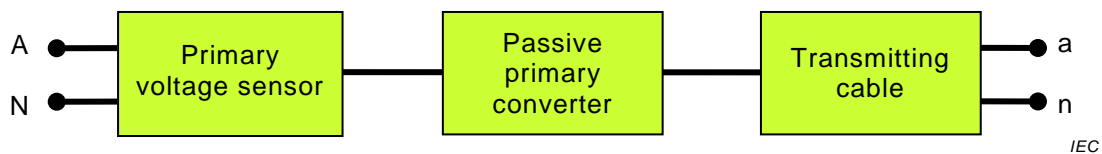
## INTRODUCTION

Low-power passive voltage transformers are based on the voltage divider principle. They can be built for example as resistive dividers, capacitive dividers or resistive-capacitive dividers. Annex 11C shows the schematic diagram of the different dividers.

According to a general block diagram given in Figure 601 of IEC 61869-6:2016, the low-power passive voltage transformers do not use an active primary converter (i.e. without any active electronic component); therefore, there is no need for primary power supply. Additionally, neither the secondary converter nor the secondary power supply is used.

The general block diagram of a low-power passive voltage transformer is given in Figure 1101.

The applied technology decides which part is necessary for the realization of a low-power passive voltage transformer, i.e. it is not necessary that the transmitting cable or primary converter described in Figure 1101 be included in the low-power passive voltage transformer.



**Figure 1101 – General block diagram of a single-phase low-power passive voltage transformer**

## INSTRUMENT TRANSFORMERS –

### Part 11: Additional requirements for low-power passive voltage transformers

#### 1 Scope

This part of IEC 61869 is a product standard and covers only additional requirements for low-power passive voltage transformers (passive LPVT). The product standard for low-power passive voltage transformers is composed of IEC 61869-1, along with IEC 61869-6 and this document with specific requirements.

This document is applicable to newly manufactured low-power passive voltage transformers with analogue output having rated frequencies from 15 Hz to 100 Hz for use with electrical measuring instruments or electrical protective devices.

This document covers low-power passive voltage transformers used for measurement or protection and low-power passive voltage transformers used for both measurement and protection.

Low-power passive voltage transformers have analogue output only (for digital output or for technology using any kind of active electronic components refer to future IEC 61869-7<sup>2</sup>). Such low-power passive voltage transformers can include the secondary signal cable (transmitting cable). The secondary voltage of the low-power passive voltage transformer is proportional to the primary voltage. Derivative output signals are not within the scope of this document.

#### 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.

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

IEC 61869-6:2016, *Instrument transformers – Part 6: Additional general requirements for low-power instrument transformers*

#### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61869-1 and IEC 61869-6 apply with the following additions and modifications:

##### 3.1 General definitions

###### 3.1.613 transmitting system

Definition 3.1.613 of IEC 61869-6:2016 is applicable with the following addition:

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<sup>2</sup> Under preparation.