

AS 61869.4:2021



Instrument transformers

**Part 4: Additional requirements for combined transformers
(IEC 61869-4:2013 (ED.1.0) MOD)**



AS 61869.4:2021

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- Australian Industry Group
- Energy Networks Australia
- Engineers Australia
- National Measurement Institute
- University of South Australia

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Part 4: Additional requirements for combined transformers (IEC 61869-4:2013 (ED.1.0) MOD)

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Preface

This Standard was prepared by the Standards Australia Committee EL-013, Measurement and Protection Transformers, to supersede AS 60044.3—2004, *Instrument transformers, Part 3: Combined transformers*.

The objective of this document is to apply to newly-manufactured combined transformers for use with electrical measuring instruments and electrical protective devices at frequencies from 15 Hz to 100 Hz.

The requirements and tests of this document, in addition to the requirements and tests of AS 61869.1, AS 61869.2 and AS 61869.3 cover current and inductive voltage transformers that are necessary for combined instrument transformers.

This document is an adoption with national modifications, and has been reproduced from, IEC 61869-4:2013, *Instrument transformers — Part 4: Additional requirements for combined transformers*. The modifications are additional requirements and are set out in [Appendix ZZ](#), which has been added at the end of the source text.

[Appendix ZZ](#) lists the variations to IEC 61869-4:2013 (ED.1.0) for the application of this document in Australia.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INSTRUMENT TRANSFORMERS –

Part 4: Additional requirements for combined transformers

FOREWORD

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This International Standard IEC 61869-4 has been prepared by IEC technical committee 38: Instrument transformers.

This standard replaces IEC 60044-3: Combined transformers.

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

FDIS	Report on voting
38/468/FDIS	38/472/RVD

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

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

This standard is Part 4 of IEC 61869, published under the general title *Instrument transformers*.

This Part 4 is to be read in conjunction with, and is based on, IEC 61869-1 *General Requirements* – first edition (2007), IEC 61869-2, *Additional requirements for current transformers* first edition (2012) and IEC 61869-3, *Additional requirements for inductive voltage transformers* first edition (2011) – however, the reader is encouraged to use the most recent edition of these documents.

This Part 4 follows the structure of IEC 61869-1, IEC 61869-2 and IEC 61869-3 and supplements or modifies its corresponding clauses.

When a particular subclause of Part 1, 2 or 3 is not mentioned in this Part 4, that subclause applies as far as is reasonable. When this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1, 2 or 3 is to be adapted accordingly.

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

- clauses, subclauses, tables and figures that are numbered starting from 401 are additional to those in Part 1, 2 or 3;
- additional annexes are lettered 4A, 4B, 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 TC38 is available at the website: www.iec.ch

The contents of the corrigendum of August 2014 have been included in this copy.

PRODUCT FAMILY STANDARDS		PRODUCT STANDARD	PRODUCTS	OLD STANDARD
61869-1 GENERAL REQUIREMENTS FOR INSTRUMENT TRANSFORMERS		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
	61869-6 ADDITIONAL GENERAL REQUIREMENT 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 STAND-ALONE CURRENT SENSORS	
		61869-11	ADDITIONAL REQUIREMENTS FOR LOW POWER STAND ALONE VOLTAGE SENSORS	60044-7
		61869-12	ADDITIONAL REQUIREMENTS FOR COMBINED ELECTRONIC INSTRUMENT TRANSFORMER OR COMBINED STAND ALONE SENSORS	
		61869-13	STAND ALONE MERGING UNIT	
		61869-14	ADDITIONAL REQUIREMENTS FOR DC CURRENT TRANSFORMERS	
		61869-15	ADDITIONAL REQUIREMENTS FOR DC VOLTAGE TRANSFORMERS	

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

INSTRUMENT TRANSFORMERS –

Part 4: Additional requirements for combined transformers

1 Scope

This part of IEC 61869 applies to newly-manufactured combined transformers for use with electrical measuring instruments and electrical protective devices at frequencies from 15 Hz to 100 Hz.

The requirements and tests of this standard, in addition to the requirements and tests of IEC 61869-1, IEC 61869-2 and IEC 61869-3 cover current and inductive voltage transformers that are necessary for combined instrument transformers.

2 Normative references

Clause 2 of IEC 61869-1:2007 is applicable with the following modifications:

Addition:

IEC 60028, *International Standard of resistance for copper*

IEC 60038, *IEC standard voltages*

IEC 61869-1:2007, *Instrument Transformers – Part 1: General requirements*

IEC 61869-2:2012, *Instrument Transformers – Part 2: Additional requirements for current transformers*

IEC 61869-3:2011, *Instrument Transformers – Part 3: Additional requirements for inductive voltage transformers*

3 Terms, definitions and abbreviations

For the purposes of this document, the terms and definitions given in IEC 61869-1:2007, IEC 61869-2:2012 and IEC 61869-3:2011, as well as the following apply.

3.1 General definitions

3.1.401

combined instrument transformer

instrument transformer consisting of a current and a voltage transformer in the same enclosure

3.1.402

error of voltage transformer

ϵ_v

ratio error of voltage transformer determined with disconnected current transformer