

MÕÕTETRAFOD. OSA 13: ERALDISEISEV
SIGNAALIMUUNDUR

Instrument transformers - Part 13: Stand-alone
merging unit (SAMU)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 61869-13:2021 sisaldab Euroopa standardi EN IEC 61869-13:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61869-13:2021 consists of the English text of the European standard EN IEC 61869-13:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
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English Version

**Instrument transformers - Part 13: Stand-alone merging unit
(SAMU)
(IEC 61869-13:2021)**

Transformateurs de mesure - Partie 13: Concentrateur
autonome (SAMU)
(IEC 61869-13:2021)

Messwandler - Teil 13: Unabhängige Merging Unit
(IEC 61869-13:2021)

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European foreword

The text of document 38/634/FDIS, future edition 1 of IEC 61869-13, prepared by IEC/TC 38 "Instrument transformers" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61869-13:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2022-01-16 level by publication of an identical national standard or by endorsement
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60255 series	NOTE Harmonized as EN 60255 series
IEC 60255-1	NOTE Harmonized as EN 60255-1
IEC 60255-21-1	NOTE Harmonized as EN 60255-21-1
IEC 60255-21-2	NOTE Harmonized as EN 60255-21-2
IEC 60255-21-3	NOTE Harmonized as EN 60255-21-3
IEC 60255-26:2013	NOTE Harmonized as EN 60255-26:2013 (not modified)
IEC 61000-6-5	NOTE Harmonized as EN 61000-6-5
IEC 61850-9-2	NOTE Harmonized as EN 61850-9-2
IEC 61869-3	NOTE Harmonized as EN 61869-3
IEC 61869-4	NOTE Harmonized as EN 61869-4
IEC 61869-5	NOTE Harmonized as EN 61869-5
IEC 62052 series	NOTE Harmonized as EN 62052 series
IEC 62053 series	NOTE Harmonized as EN 62053 series

IEC 62053-22	NOTE Harmonized as EN IEC 62053-22
IEC 62271 series	NOTE Harmonized as EN 62271 series
IEC 62271-1	NOTE Harmonized as EN 62271-1
IEC 62271-3	NOTE Harmonized as EN 62271-3

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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 60068-2-1	2007	Environmental testing - Part 2-1: Tests Test A: Cold	-EN 60068-2-1	2007
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests Test B: Dry heat	-EN 60068-2-2	2007
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests Test N: Change of temperature	-EN 60068-2-14	2009
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests Test Db: Damp heat, cyclic (12 h + 12 h cycle)	-EN 60068-2-30	2005
IEC 60068-2-78	2012	Environmental testing - Part 2-78: Tests Test Cab: Damp heat, steady-state	-EN 60068-2-78	2013
IEC 60255-27	2013	Measuring relays and protection equipment - Part 27: Product safety requirements	EN 60255-27	2014
IEC 60664-1	2020	Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests	EN IEC 60664-1	2020
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
+ A1	2007		+ A1	2008
+ A2	2010		+ A2	2010
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012

IEC 61000-4-5	2014	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014
IEC 61000-4-6	2013	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2014
IEC 61000-4-8	2009	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	2010
IEC 61000-4-9	2016	Electromagnetic compatibility (EMC) - Part 4-9: Testing and measurement techniques - Impulse magnetic field immunity test	EN 61000-4-9	2016
IEC 61000-4-10	2016	Electromagnetic compatibility (EMC) - Part 4-10: Testing and measurement techniques - Damped oscillatory magnetic field immunity test	EN 61000-4-10	2017
IEC 61000-4-11	2020	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase	EN IEC 61000-4-11	2020
IEC 61000-4-13	-	Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	EN 61000-4-13	-
IEC 61000-4-16	2015	Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz	EN 61000-4-16	2016
IEC 61000-4-17	1999	Electromagnetic compatibility (EMC) - Part 4-17: Testing and measurement techniques - Ripple on d.c. input power port immunity test	EN 61000-4-17	1999
+ A1	2001		+ A1	2004
+ A2	2008		+ A2	2009
IEC 61000-4-18	2006	Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test	EN 61000-4-18	2007
-	-		+ corrigendum	Sep. 2007
+ A1	2010		+ A1	2010
IEC 61000-4-29	2000	Electromagnetic compatibility (EMC) - Part 4-29: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests	EN 61000-4-29	2000

IEC 61850-7-4	-	Communication networks and systems for power utility automation - Part 7-4: Basic communication structure - Compatible logical node classes and data object classes	EN 61850-7-4	-
IEC 61869-1 (mod)	2007	Instrument transformers - Part 1: General requirements	EN 61869-1	2009
IEC 61869-2	2012	Instrument transformers - Part 2: Additional requirements for current transformers	EN 61869-2	2012
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
IEC 61869-10	2017	Instrument transformers - Part 10: Additional requirements for low-power passive current transformers	EN IEC 61869-10	2018
IEC 61869-11	2017	Instrument transformers - Part 11: Additional requirements for low-power passive voltage transformers	EN IEC 61869-11	2018
CISPR 11	-	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	-
CISPR 32	2015	Electromagnetic compatibility of multimedia equipment - Emission requirements	EN 55032	2015
+ A1	2019		+ A1	2020
-	-		+ A11	2020

INTERNATIONAL STANDARD

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**Instrument transformers –
Part 13: Stand-alone merging unit (SAMU)**

**Transformateurs de mesure –
Partie 13: Concentrateur autonome (SAMU)**



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Instrument transformers –
Part 13: Stand-alone merging unit (SAMU)**

**Transformateurs de mesure –
Partie 13: Concentrateur autonome (SAMU)**

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INSTRUMENT TRANSFORMERS –

Part 13: Stand-alone merging unit (SAMU)

FOREWORD

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International Standard IEC 61869-13 has been prepared by IEC technical committee 38: Instrument transformers.

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

FDIS	Report on voting
38/634/FDIS	38/640/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 13 is to be used in conjunction with IEC 61869-9:2016, *Digital interface for instrument transformers*, and IEC 61869-6:2016, *Additional general requirements for low-power instrument transformers*, which, in turn, are based on IEC 61869-1:2007, *General requirements*.

This Part 13 follows the structure of IEC 61869-1:2007 and IEC 61869-6:2016 and supplements or modifies their corresponding clauses.

When a particular clause/subclause of Part 1 or Part 6 is not mentioned in this Part 13, that subclause applies. When this document 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 note, the following numbering system is used:

- clauses, subclauses, tables, figures and notes that are numbered starting from 1301 are additional to those in Part 1 and Part 6;
- additional annexes are lettered 13A, 13B, 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.

PRODUCT FAMILY STANDARDS IEC	PRODUCT STANDARD IEC	PRODUCTS	OLD STANDARD IEC
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 CAPACITOR VOLTAGE TRANSFORMERS	60044-5
	61869-6 ADDITIONAL GENERAL REQUIREMENTS FOR LOW-POWER INSTRUMENT TRANSFORMERS	61869-7	60044-7
		61869-8	60044-8
		61869-9	
		61869-10	
		61869-11	60044-7
		61869-12	
		61869-13	
		61869-14	
		61869-15	

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

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INTRODUCTION

General

This document is an IEC 61869 series product standard which defines additional requirements for a stand-alone merging unit (SAMU).

The general block diagram showing a typical SAMU application example is given in Figure 1301.

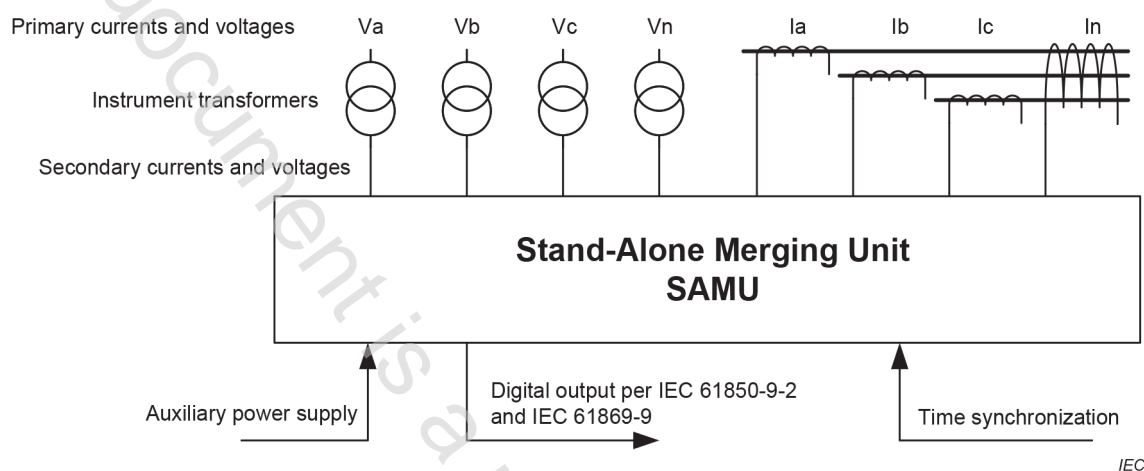


Figure 1301 – Stand-alone merging unit (functional concept example)

An application example showing a three-phase dead tank circuit breaker equipped with bushing type current transformers and a stand-alone merging unit mounted inside the breaker control cabinet is shown in Figure 1302.

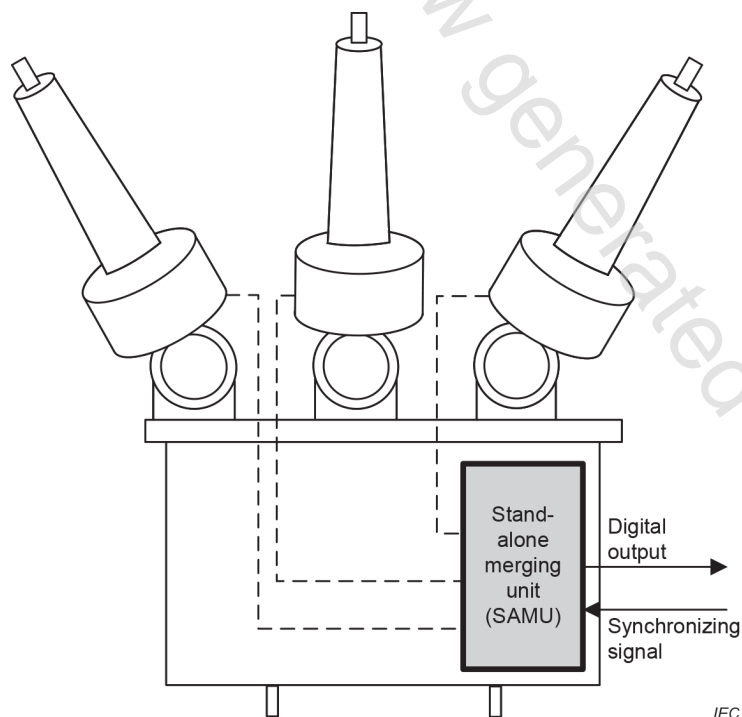


Figure 1302 – Stand-alone merging unit application example

The SAMU output may be used by many devices and is therefore of interest to multiple technical committees in addition to TC 38, for example: TC 57: Power systems management and

associated information exchange, TC 95: Measuring relays and protection equipment, TC 13: Electrical energy measurement and control, TC 85: Measuring equipment for electrical and electromagnetic quantities, and TC 17: High-voltage switchgear and controlgear, as shown in Figure 1303.

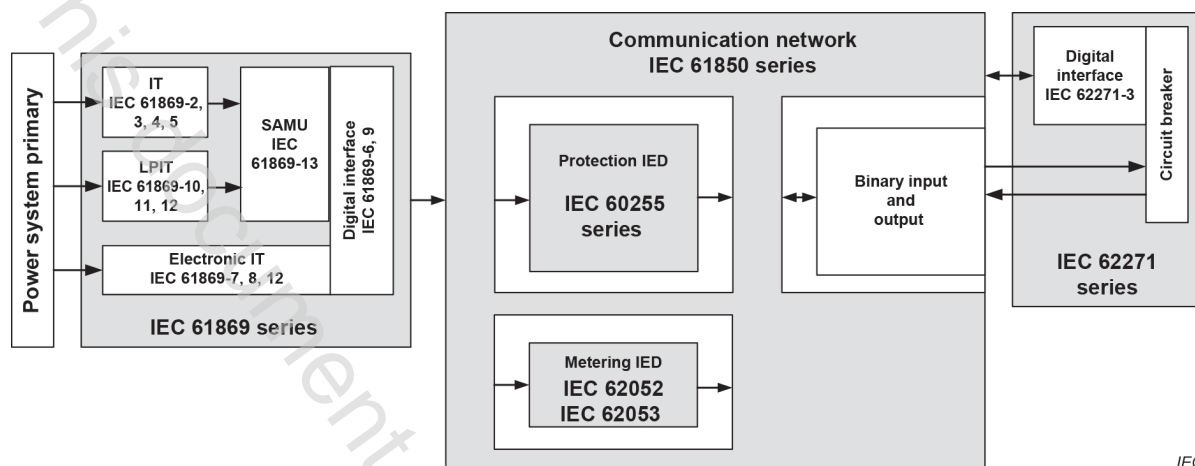


Figure 1303 – Illustration of the SAMU position in relation to other devices and standards in the functional chain

Position of this document in relation to IEC 61850 (all parts) of TC 57

IEC 61850 (all parts) is a series used to define various aspects of power utility communications. Its applicability to this document is inherited through IEC 61869-9 which defines applicable sample rates and a digital interface in accordance with IEC 61850-9-2 and related standards.

Position of this document in relation to IEC 60255 (all parts) of TC 95

IEC 60255 (all parts) standardizes the design and performance aspects applicable to measuring relays and protection equipment used in the various fields of electrical engineering. Since the SAMU is an integral part of the digital substation-based protection system, its EMC performance and environmental aspects are considered for harmonization with IEC 60255-1, IEC 60255-26 and safety aspects defined in IEC 60255-27. SAMU outputs are inputs for protection functions covered by the IEC 60255-1xx series.

Position of this document in relation to IEC 62052 (all parts) and IEC 62053 (all parts) of TC 13

IEC 62052 (all parts) and IEC 62053 (all parts) provide standardization in the field of AC and DC electrical energy measurement and control. Since the SAMU digital output may be used as input to energy measurement devices, its accuracy and EMC performance aspects should be considered.

Position of this document in relation to IEC 62271 (all parts) of TC 17

IEC 62271 (all parts) applies to AC switchgear and controlgear designed for indoor and/or outdoor installation and for operation at service frequencies up to and including 60 Hz on systems having rated voltages above 1 000 V. Similar to IEC 62271-3 which defines the switchgear interface based on IEC 61850, this document defines the SAMU which may be installed inside the same switchgear cabinet and is therefore subject to the same environmental stress.