



IEC/TC OR SC: <b>TC38</b>	SECRETARIAT: <b>Italy</b>	DATE: <b>2018-11-16</b>
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Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

### A. STATE TITLE AND SCOPE OF TC

Are there any new or emerging trends in technology that will impact the scope and work activities of the TC? Please describe briefly.

Do you need to update your scope to reflect new and emerging technologies? If yes, will these changes impact another TC's scope or work activities?

If yes, describe how these will impact another TC(s) and list the TC(s) it would impact

#### IEC TC38 – Instrument Transformers

**Scope: Standardisation in the field of AC and/or DC current and/or voltage instrument transformers, including their subparts like (but not limited to) sensing devices, signal treatment, data conversion and analog or digital interfacing.**

This scope has been updated during the Madrid meeting in 2009, in order to cover all the emerging technologies. This has led to a tighter coordination with TC13, TC57, TC85 and TC95 as these new technologies open new scenarios for equipment with integrated functions crossing the traditional TC boundaries of responsibility.

### B. MANAGEMENT STRUCTURE OF THE TC

Describe the management structure of the TC (use of an organizational chart is acceptable) (should be integrated by CO automatically) and, if relevant (for example an unusual structure is used), provide the rationale as to why this structure is used.

Note: Check if the information on the IEC website is complete.

When was the last time the TC reviewed its management structure? Describe any changes made. When does the TC intend to review its current management structure? In the future, will the TC change the current structure, for example due to new and emerging technologies, product withdrawal, change in regulations etc. Please describe.

Make sure the overview includes:

- any joint working groups with other committees,
- any special groups like advisory groups, editing groups, etc.

#### The current management structure of TC38 is the following:

**Chairman:** Mr. Volker Leitloff (FR), replacing Pascal Tantin (FR)

**Vice-Chair for Terminology:** Olga Petrova (RU)

**Secretary:** Mr. Filippo Frugoni (IT)

**CAG:** was established in 2009, is composed by the officers and the WG/MT/PT/AHG Leaders

**WG37:** Leader: Veselin Skendzic (US)

This WG covers all projects related to new technology Instrument Transformers and is divided

into different Project Teams:

**PT61869 -7** Leader: Guillaume Valembois

**PT61869 -8** Leader: Lorenzo Peretto

**PT61869 -13, -16** Leader: Veselin Skendzic

**PT61869-12** Leader: Joachim Schmid

**MT39:** Revision of IEC clause 321. Leader: Olga Petrova

**WG45:** Standard Mathematical Models for Instrument Transformers. Leader: Lorenzo Peretto

**WG47:** Evolution of Instrument Transformer requirements for the modern market. Leader: Paolo Mazza

**MT48:** Revision of IEC 61869-1: Instrument Transformers – General Requirements. Leader: Pierre-André Monfils

**WG49:** Instrument Transformers for low voltage applications. Leader: Benoit Leprettre

**JWG52:** Safety of Instrument Transformers for low voltage applications (with TC66). Leader: Benoit Leprettre

**WG54:** Instrument Transformers integrated with other functions. Leader: Flavio Mauri

**WG55:** Uncertainty evaluation in the calibration of Instrument Transformers. Leader: Lorenzo Peretto

**(future) JWG56:** SSVT. Leader: Ross McTaggart

#### C. BUSINESS ENVIRONMENT

Provide the rationale for the market relevance of the future standards being produced in the TC.

If readily available, provide an indication of global or regional sales of products or services related to the TC/SC work and state the source of the data.

Specify if standards will be significantly effective for assessing regulatory compliance.

Instrument transformers are essential items in the operation, monitoring and protection of generating plants, transmission and distribution systems. Instrument Transformers, which are covered by International Standards issued by TC38, are widely used at all voltage levels, ranging from low voltage up to EHV substations.

The importance of the standards produced by TC 38 is due to the fact that control, protection and measuring systems are supplied through Instrument Transformers.

#### D. MARKET DEMAND

Provide a list of likely customers of the standards (suppliers, specifiers, testing bodies, regulators, installers, other TC/SC's etc.). Do not specify company names, only categories of customers.

##### Market

The main market and application of TC 38 standards is in the system integration of instrument transformers, circuit breakers, metering and protection relays. These are used by manufacturers and users in conjunction with other standards from other IEC Technical Committees.

IEC standards for Instrument Transformers are widely used throughout the world. There is only one important country where different standards are used - the U.S.A. and countries directly influenced by the U.S.A., where IEEE standards are applied. Harmonization with the US standards is therefore aimed.

### Users of TC 38 standards

TC 38 standards are used by utilities and contractors for the specification of new installations (e.g. substations and power plants) as well as renewal or refurbish of old plant and equipment. Manufacturers of Instrument Transformers also use TC 38 standards. The specifications and performances of various kinds of protection relays, meters and controls are also based on TC 38 standards.

### Participation in TC 38 work

In developing the wide range of standards, TC38 relies mainly on its working groups. Main participants in the working group activities are members coming from manufacturers of Instrument Transformers and, to a lesser degree, from utility companies. Larger representation of manufacturers of relays and meters as well as utilities would be desirable.

## **E. TRENDS IN TECHNOLOGY AND IN THE MARKET**

If any, indicate the current or expected trends in the technology or in the market covered by the products of your TC/SC.

### **Trends in technology**

After decades of supporting manufacture and use of inductive instrument transformers and capacitive voltage transformers, TC 38 now has to consider new technologies, electronic and optical systems.

As with the development of Capacitive Voltage Transformers (CVTs), the introduction of new products in the market place results in larger number of manufacturers with less expensive products. Now the market is facing a similar situation with the new technologies like electronic transformers, low-power instrument transformers and digital communication.

The advent of new manufacturers and new products is welcomed by the deregulated market because of the associated cost reduction.

This creates a need for clear standardization to avoid loss of quality of service and incompatibility between equipments from different manufacturers.

The application of horizontal Standards is also needed, such as EMC Standards and Safety Standards.

### **Market trends**

We believe that the introduction of new technology Instrument Transformers (e.g. Low Power Instrument Transformers in Medium Voltage and Electronic Instrument transformers with digital interface in the Very High Voltage field, AC and/or DC) will be fostered by the introduction of Digital Substation Automation Systems using process bus and by the wider use of IEC 61850. This requires a close collaboration with the concerned Technical Committees covering the subscribing functions, in particular TC13 (metering), and TC95 (protection).

This will cause a possible change in the competition among manufacturers due to the possible introduction of new players due to the new technology. This may affect also average price levels.

One important tendency in the Very High Voltage networks is the introduction of DC High Voltage lines. For this reason TC38 after Prague meeting in 2011 has started a Project Team with the scope to issue product standards for DC Instrument Transformers within IEC 61869 series. The first edition of these standards have been published in 2018.

Additionally during the past few years TC38 recorded an increasing interest in the application of low power instrument transformers to be used with power meters in the low voltage range. This application is generally associated with a special attention to cost reduction. Two working groups have been created to elaborate the standards for low power IT.

It can also be observed that a growing number of protection applications use Travelling Waves. This holds for fault locators, fast AC protections and protections for the future DC grids. This makes Travelling Wave based protections relevant for the Global Energy Interconnection (GEI). This aspect should be taken into account in the standards for Instrument Transformers, which convey the information of Travelling Waves from the primary side to the aforementioned functions.

### **Ecological environment**

Ecological issues are not generally a major concern, since the lifetime of equipment is very long and, in addition, all the materials used are recyclable or environmentally friendly. However, some problems would be faced concerning: Disposal of oil, SF6 and other organic materials and the risk of explosion when fire occurs inside the instrument transformers. Globally, it is expected that the use of Low Power Instrument Transformers (LPIT) will facilitate the management of environmental issues related to Instrument Transformers.

**F. SYSTEMS APPROACH ASPECTS (REFERENCE - AC/33/2013)**

Does your TC/SC have a need for a systems approach?

If so:

- Will the Systems work be in a single TC or in multiple TCs?
- Will a Systems Evaluation Group (SEG), Systems Committee (SyC), or Systems Resource Group be required?
- Is your TC/SC work of relevance to ISO?
- Is or are there fora or consortia working in parallel to IEC? Is there a chance to integrate this work in your TC/SC?

This should not only be restricted to the customer/supplier relationships with other TC/SCs indicating types of co-operation (e.g. liaisons, joint working groups) but be of a more generic nature.

If there is no need for a systems approach as outlined in AC/33/2013, is it intended a TC would not be requested to report on general systems approach considerations such as customer/supplier relationships, liaisons, joint WGs, etc. as referenced in the system approach matrix illustrated in slide 14 of the presentation attached to AC/37/2006?

Component Committees (IEC TC38 as a customer)	IEC TC10	Fluids for electrotechnical applications
	IEC TC15	Solid electrical insulating materials
	IEC TC33	Power capacitors and their applications
	IEC TC36	Insulators
Other system Committees (IEC TC38 as a supplier)	IEC TC13	Electrical energy measurement, tariff and load control
	IEC SC17C	High Voltage Switchgear and controlgear assemblies
	IEC TC85	Measuring equipment for electrical and electromagnetic quantities
	IEC TC95	Measuring relays and protection equipment
	IEC TC115	High Voltage Direct Current (HVDC) transmission for DC voltages above 100 kV
Other committees		
	IEC TC66	Safety of measuring, control and laboratory equipment
	IEC TC57	Power systems management and associated information exchange
	IEC TC99	Insulation coordination and system engineering
	IEC TC109	Insulation coordination for low voltage equipments
	IEC TC112	Evaluation and qualification of electrical insulating materials and systems

The following liaisons are active:

- IEC TC1 (Ms. Olga Petrova – RU)
- IEC TC10 (Mr. Flavio Mauri – IT)
- IEC TC13 (Mr. Paolo Maza – IT)
- IEC SC17/C (Mr. Ivano Gentilini - IT)
- IEC TC33 (Mr. Joachim Schmid – CH)

- IEC TC36 (Mr. Pierre-André Monfils - BE)
- IEC TC57 (Mr. Roman Graf- CH)
- IEC SC77/A (Mr. Paolo Mazza – IT)
- IEC TC85 (Mr. Benoit Leprettre – FR)
- SC 86C Fibre optic systems and active devices (Mr. Farnoosh Rahmatian – CA)
- IEC TC95 (Mr. Philippe Alibert – FR)
- IEC TC99 (Mr. Pierre-André Monfils - BE)
- IEC TC115 (Mr. Pierre-André Monfils – BE)
- CIGRE/ SC A3 (Mr. Farnoosh Rahmatian – CA)
- CIGRE/ SC B5 (Mr. Volker Leitloff – FR)
- IEEE- Instrumentation and Measurement Society (IMS) -TC39: Measurements in Power Systems (Mr. Lorenzo Peretto – IT)

#### G. CONFORMITY ASSESSMENT

With reference to clause 6.7 of Part 2 of the ISO/IEC directives, are all your publications in line with the requirements related to conformity assessment aspects?

Will the TC/SC publications be used for IEC Conformity Assessment Systems (IECEE, IECEx, IECQ, IECRE)?

Will any of your standards include test specifications, reproducible test requirements, and test methods?

Are there likely to be special conformity assessment requirements generated by any standards projects? If yes, list which projects.

Standards issued by TC38 are currently included in the IECEE conformity assessment system

#### H. 3-5 YEAR PROJECTED STRATEGIC OBJECTIVES, ACTIONS, TARGET DATES

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
Complete migration from the IEC 60044-X to the IEC 61869-XX. This will be not only an editorial process, but also a technical update.	All necessary PWIs and PTs have been established. The progress of works is serialized according to the available resources	Publication dates: 61869-7: 2021 61869-8: 2021 61869-12: 2022 61869-13: 2020
Development of Standard Mathematical models for Instrument Transformers	PWI has been started	TR:2020 IS:2023
Issue a group of standards dedicated to instrument transformers for low voltage applications	Two WGs are active	IS:2020
Complete the TC38 Standards coverage of all emerging technologies	A WG dedicated to identify long term standardization needs has been launched	
To cover safety aspects of Instrument Transformers	NP for low voltage has been issued.	IS in 2020
To cover the issue of the uncertainty in the measurement of errors	New WG has been launched	TR in 2020
To cover the emerging topic of SSVT devices	New WG will be launched in 2019	IS in 2022

Note: The progress on the actions should be reported in the RSMB.