

APPLICATION

The combined current-voltage transformer is a combination of two measuring units in one case: the inductive voltage transformer and the current transformer. The purpose of the combined current-voltage transformer is to separate measuring and protection devices from the high voltage and currents measured, and to transform voltage and currents to the values suitable for measuring and protection equipment. The combination of two measuring units in one case is manifoldly more acceptable and economical than two separate units; it requires less space in the substation, less supporting structures, less cable channels, less joining accessories etc.

STANDARDS

The combined current-voltage transformer is designed in accordance with IEC 60044-3/80.

DESCRIPTION OF MAIN PARTS

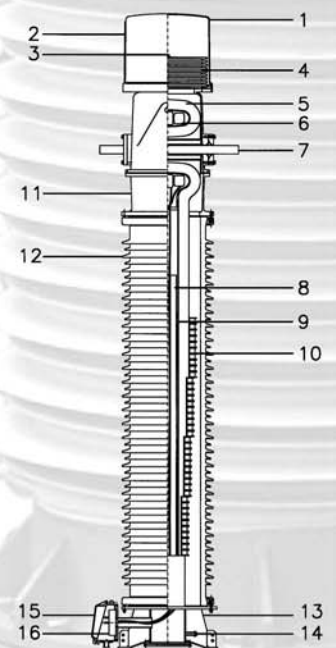
- The transformers are designed for one or two rated primary currents, without primary reconnection or with 1:2:4 primary reconnection. Reconnection is very simple by re-arrangement of links at HV terminals.
- Current transformers can also be with secondary taps, and with both primary reconnection and secondary taps.
- The insulation between the windings and the grounded parts is made of insulating paper impregnated with transformer oil under high vacuum. Conductive screens inserted into the main insulation provide a capacitor bushing that improves the resistance of CTs to atmospheric impulse voltages.
- Transformers are filled with high-quality

oil with added inhibitor, which improves its aging resistance. Degassing and dehydrating of oil are made in high vacuum up to a moisture content less than 10 microgram per gram, what ensures excellent dielectric properties. We guarantee that the transformer oil in our instrument transformers is free from any polychlorinated biphenyls and terphenyls (PCB and PCT).

- The insulator is made of high-quality porcelain, cylindrically shaped and brown-glazed (if requested, the glaze can be of some other colour). Creepage distance depends on ambient air pollution at the place of installation. Standard creepage distances are 20, 25 or 31 mm per kV of highest voltage of equipment, depending on client's request. Besides porcelain, the insulator, as the outside insulation, can be also made of composite material (GFK silicone).
- Heat dilatation of oil volume is compensated by metal bellows made of stainless steel.
- The transformer housing is made of welded steel plates. High quality anti-corrosive protection is achieved by hot dip galvanizing. The transformer head is made of casted aluminium.
- Primary terminals are made of electrolytic copper or aluminium. Copper terminals are corrosion protected by hot dip tinning or silver coating.
- Secondary terminals are inside two separated secondary terminal box, together with earthing terminal for secondary windings. They are made of M8 stainless steel screw.
- Seismic resistance of the transformer is higher than 0.3 g.

1. Bellows guard
2. Bellows position indicator
3. Vent screw
4. Expansion bellows
5. HV insulation
6. CT secondary winding
7. CT primary winding
8. VT core

9. VT secondary winding
10. VT primary winding
11. Transformer head
12. Insulator
13. Housing
14. Oil drain and filling plug
15. Secondary terminal box
16. Secondary terminals



CURRENT TRANSFORMER

- Current transformer cores are wound, made either of cold-rolled grain-oriented magnetic steel or soft magnetic material (Mumetal) depending on the required accuracy.
- The secondary winding is uniformly wound around the core, and the primary winding passes through its centre, so that this CT is of low-reactance type (IEC 60044-6/92). This enables usage of a computer programme for accurate computation of CT response in transient states in the network. Current transformers of accuracy classes TPS, TPX, TPY and TPZ meet the requirements of IEC 60044-6/92.

VOLTAGE TRANSFORMER

- The core is open-bar type, made of cold-rolled high-quality grain-oriented magnetic steel sheets.

MAIN CHARACTERISTICS

CURRENT TRANSFORMER

- Rated primary currents are for:
 - transformers without primary reconnection up to 6000 A
 - transformers with primary reconnection 1:2 up to 2 x 2000 A
 - transformers with primary reconnection 1:2:4 up to 4 x 1000 A.
- Rated secondary current can be 1,2 or 5 A.
- The number of cores, that are within the aluminium torus, rated load of each core, measuring and protection accuracy classes, safety factor and accuracy limit factor as well as the continuous thermal current are in accordance with client's requests and agreed standards.
- Rated short-time thermal current is 100 x I_n or max. 50 kA; rated dynamic current: 250 x I_{pn} or max. 125 kA.

VOLTAGE TRANSFORMER

- Rated secondary voltage: 100/√3, 100/3 or 110/√3, 110/3
- Total thermal power 2000 VA
- The number of secondary windings, rated burden of each winding, measuring and/or protection accuracy classes, rated voltage factor and rated frequency are in accordance with client's requests, and agreed standards.

The standard transformer designs are intended for ambient temperatures -25 / +40 C.

Tipo	Dimensiones (mm)					Peso kg
	a	b	c	d	e	
VAU-72.5	2615	1840	1220	4xØ20/□520	780	640
VAU-123	2615	1840	1220	4xØ20/□520	780	680
VAU-145	2810	2030	1410	4xØ20/□520	780	780
VAU-170	3280	2480	1650	4xØ20/□520	780	950
VAU-245	3780	3040	2160	4xØ20/□520	780	1250
VAU-420	5310	4450	3580	4xØ26/□650	840	1980

Note: Data given in this prospect are for informative purpose only. In constant aim to improve our products we reserve the right of change.



Transformer head



Secondary terminal boxes

