SANDIAN

SANDIAN ELECTRIC

MV INSTRUMENT TRANSFORMERS

Epoxy Resin Cast Type









HUNAN ELECTRIC POWER INSULATOR & APPARATUS FACTORY

http://www.sandian-electric.com

60 Years Since-1950

Medium voltage instrument transformers

Electric values(currents and voltages) in power supply systems are extensive. This is why it is necessary to match the respective currents and voltages to those values which shall be appropriate to the connected measuring, protection and control instrument.

1.1.1 MV Instrument transformers are used for:

current and voltage measurements
insulation level from 3.6 kV to 40.5kV
both indoor and outdoor use
The transformers comply with IEC, ANSI, DIN, BS, GOST, AS and other standards or with customer specific requirements.

1.1.2 MV Instrument transformers according to IEC standards

IEC 60044-1...Current transformers
IEC 60044-2...Inductive voltage transformers
IEC60044-3...Combined transformers
IEC60044-5...Capacitor voltage transformers
IEC60044-6...Protective current transformers
for transient performance
IEC60044-7...Electronic voltage transformers
IEC60044-8...Electronic current transformers
IEC TC 38 discussion to change structure of ITs norms

1.1.3 Service condition

1. For using outdoors or indoors
2. Ambient temperature ranging from -40℃ to +40℃
3. Altitude: below 2000m
4. Frequency: 50Hz or 60Hz
5. Earthquake strength: below 7
6. Max. wind velocity is lower than 35m/s.

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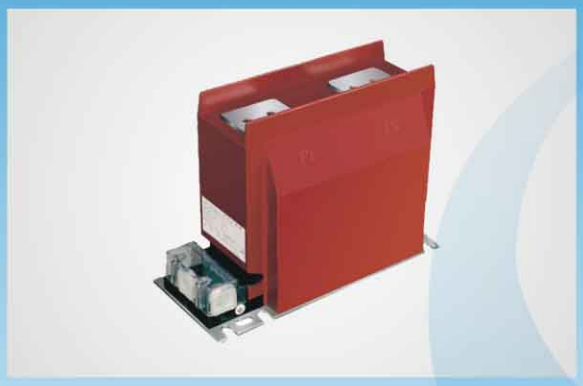
1.2 Design

SANDIAN MV instrument transformers can be diffenrentiated into different designs through their specification and application. The following basic designs exit:

- Supporting types according to DIN 42600 (only for indoor use) or designed according to customer requirement for indoor and outdoor application.
- Bus type for indoor and outdoor application.
- Bushing types for indoor and outdoor application.
- Voltage transformer, single or double pole insulated, for indoor and outdoor application.



Supporting type current transformer for indoor application

Single pole voltage transformer for indoor applications

High current bus type current transformer (upto 8000A)

Double pole voltage transformer for outdoor applications

Bushing type current transformer

Single pole voltage transformer with fuse protection

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1.3 MV Current transformer

Current transformers are transformers which convert high currents into measurable and standardized currents proportional and in-phase to the primary signal.

A current transformer can be equipped with one or more independent ferromagnetic cores made of silicon or nickel iron steel.

The secondary winding is symmetrically wound around the iron core. This causes a very intensive magnetic coupling of the primary to the secondary winding. The ratio between the primary and the secondary rated current. The iron core(s) and the secondary winding must be grounded.

Depending on the primary rated current and the short time current(Ith),the primary winding consists of one solid winding(Primary conductor)or a number of turns.

The primary winding is designed for the full rated current and has the same potential as the busbar.

The highest system voltage (phase to phase voltage)has to be considered for the design of the transformer with respect to its insulation between the primary and the secondary winding.

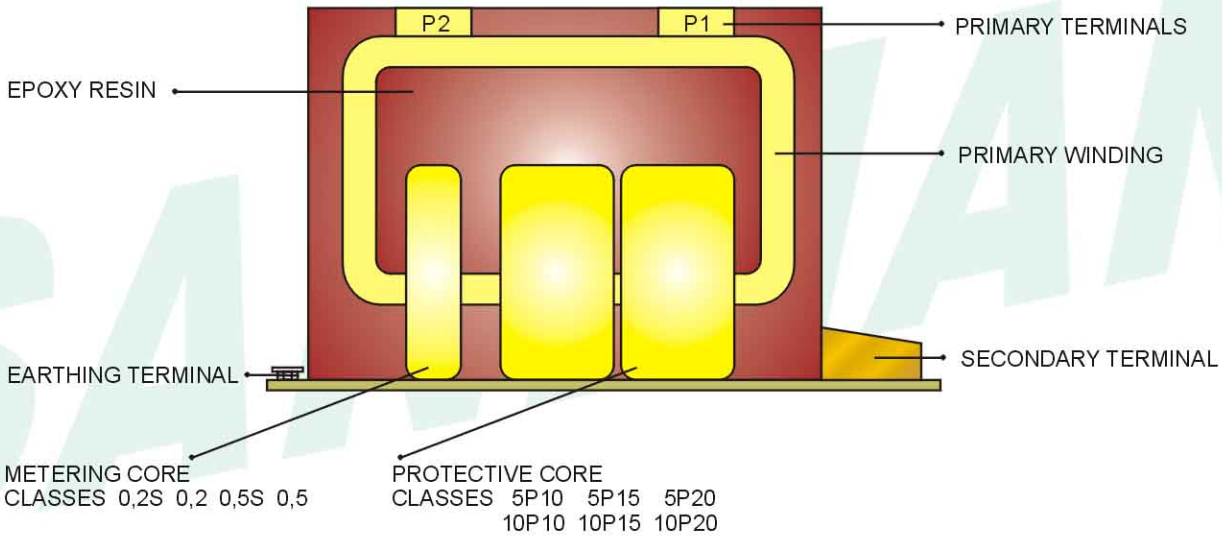
The windings (primary & secondary) as well as the iron core(s), together with the secondary winding(s) are completely resin-embedded and casted in a single production step by using a pressure gelation casting process.

The resin body is mounted on a metal plate. The secondary terminals are embedded in the resin body and protected by a plastic box. The cover of the box is removable and can be sealse. Each secondary terminal can be separately grounded inside the secondary terminal box. The grounding screw is connected to the bottom plate. The terminal box is equipped with two or three removable cable cable plugs, which makes wiring easy.

The ends of the primary winding are provided with flat terminals ("P1/P2"), made of copper or brass alloy, and located at the top of the resin body.

The grounding screw is available on the bottom plated for grounding the current transformer. Grounding can take place directly on the frame of the switchgear or on a separate grounding bar.

Inductive Current transformer



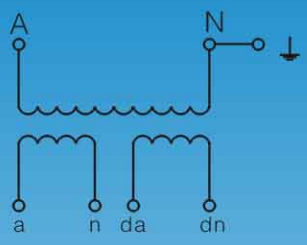
1.4 MV Voltage Transformer

Voltage transformers are transformers which convert high voltages into measurable and standardized voltages proportional and in-phase to the primary signal. Voltage transformers have only one magnetic iron core with attached secondary winding(s).

Voltage transformers can be provided either as single pole or double pole insulated designs. An additional winding can be provided for single pole insulated transformers(da-dn) if necessary for an open delta circuit.

It is extremely dangerous to short circuit a voltage transformer.

The end of the primary winding in single pole insulated transformers is grounded as "N" inside of the secondary terminal box, and must not be removed during operation.

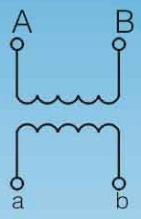


Schematic single pole insulated voltage transformer with an open delta winding.

1.4.1 General Design

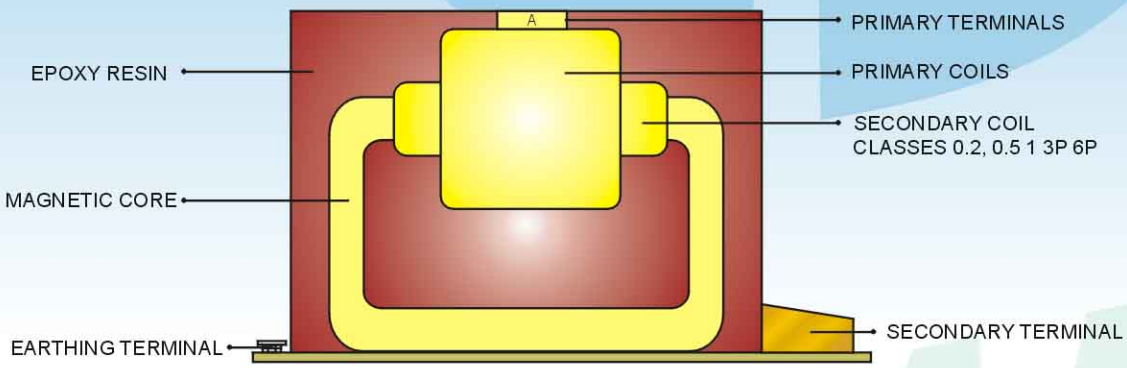
Voltage transformers have only one magnetic iron core. For single pole insulated voltage transformers the secondary winding(s) are attached directly to the grounded iron core. In single pole insulated transformers the secondary winding(s) are directly attached to the grounded iron core. In double pole insulated voltage transformers the insulation between primary and secondary winding(s) has to be designed for one half of the phase to ground voltage.

The secondary windings are designed to withstand a test voltage of 3 kV against each oter.

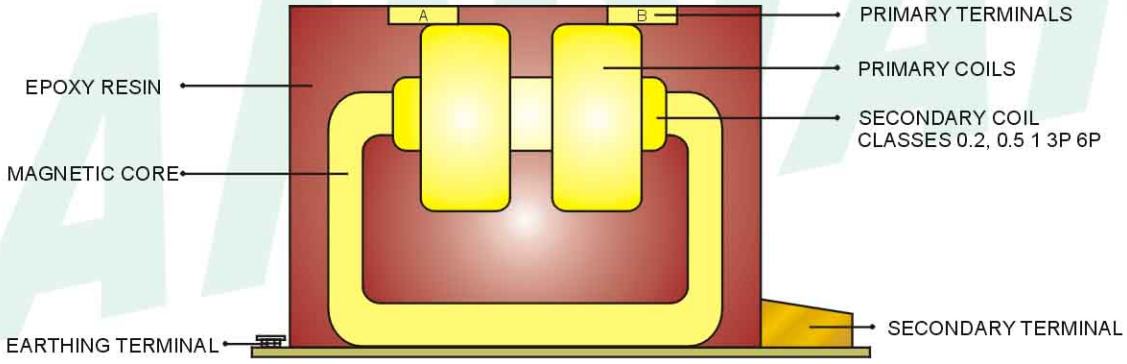


Schematic double pole insulated voltage transformer

Inductive Voltage transformer (Single Pole)



Inductive Voltage transformer (Double Pole)



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MV Instrument transformers

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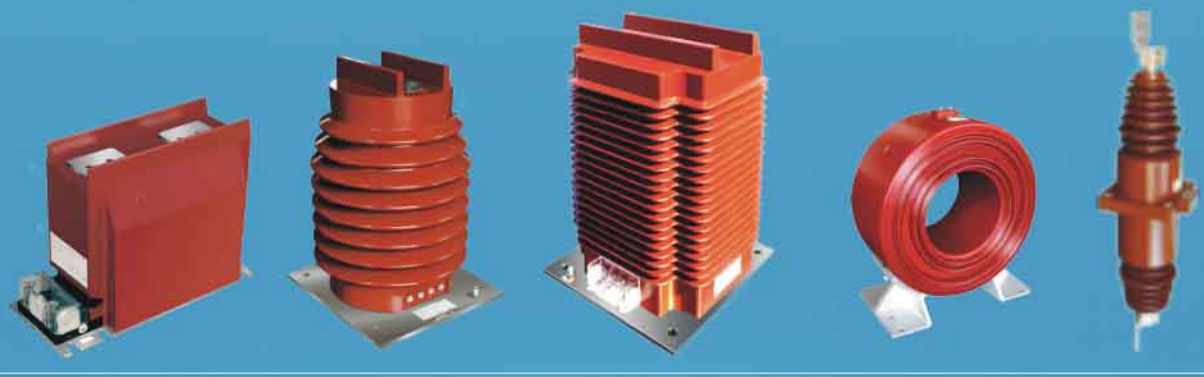
MV Instrument transformers are used for:

- Current and voltage measurements
- Insulation level from 3.6 kV to 36kV
- Both indoor and outdoor use

MV Current Transformers Outdoor 12 kV ~36kV

MV Current Transformers Intdoor 3.6kV ~36kV



MV Voltage Transformers Outdoor 12 kV ~36kV

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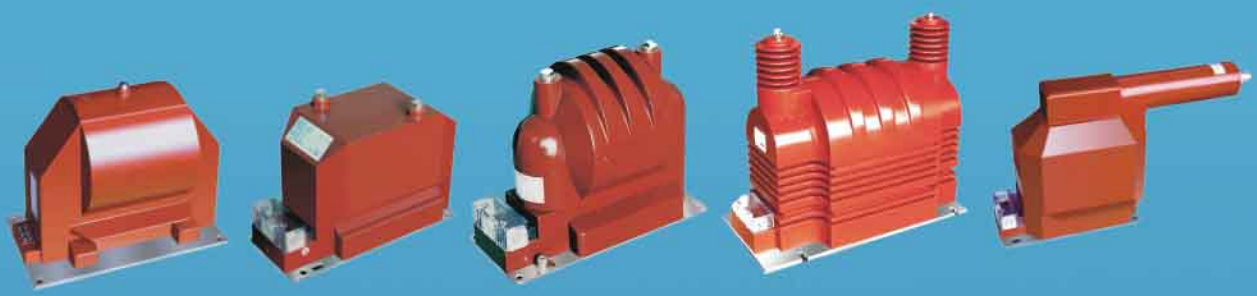
MV Instrument transformers

MV Instrument transformers according to IEC standards

- IEC 60044-1…Current transformers
- IEC 60044-2…Inductive voltage transformers
- IEC60044-6…Protective current transformers for transient performance

Epoxy Cast Resin Type

MV Voltage Transformers Intdoor 3.6 kV ~36kV



Oil -paper Insulated Type

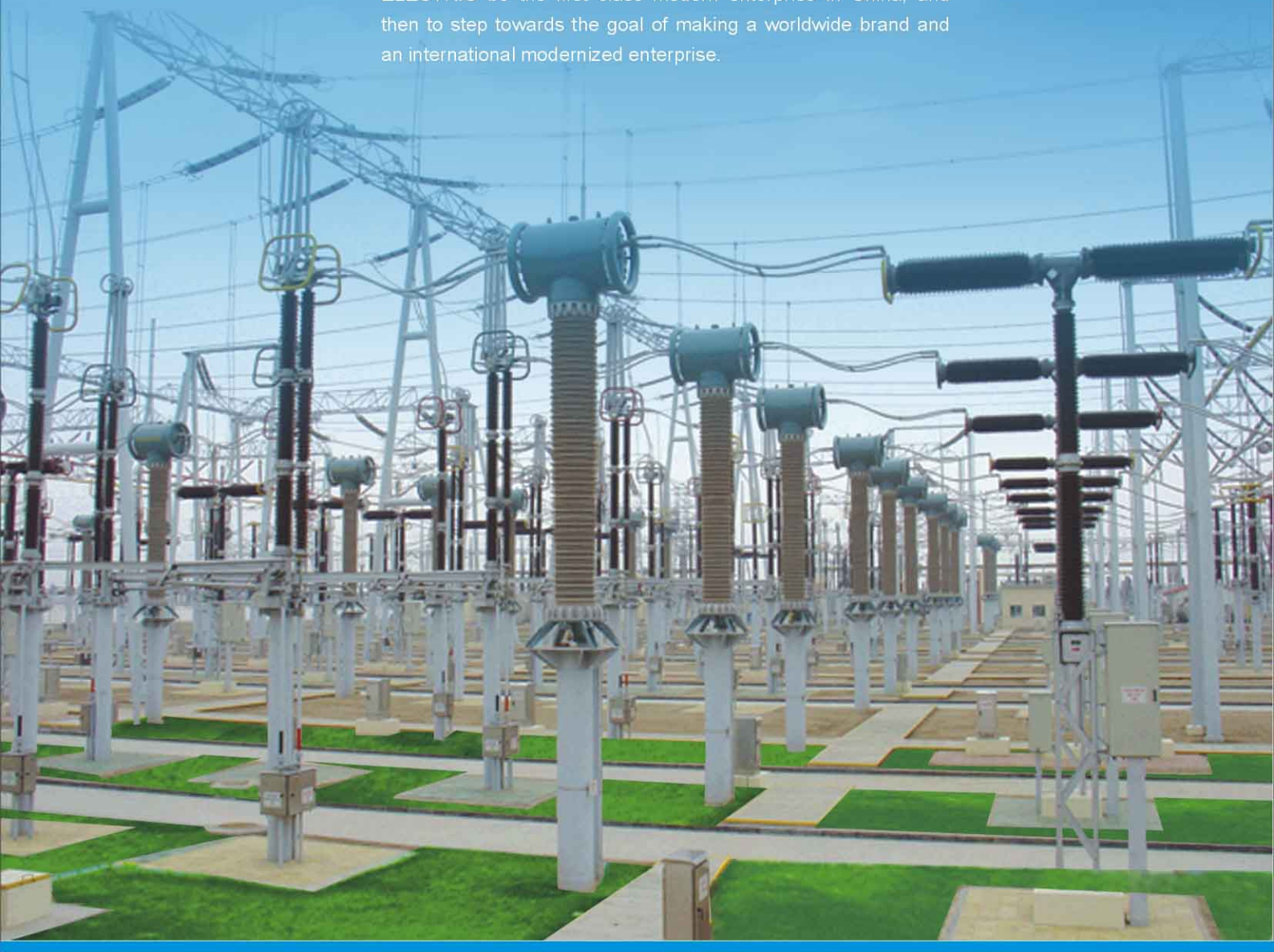
MV Oil Insulated CTs & VTs Outdoor 12 kV ~36kV

Engaged in supplying perfect products and service to the world.

SOARING TO GREAT HEIGHTS

1950-2010 60 Years

The strategy goal of SANDIAN ELECTRIC is, basing the national market, to exploit the international market actively, to realize the full level change of advancement from quntity expansion type to quality promotion as soon as possible, to make SANDIAN ELECTRIC be the first class modern enterprise in China, and then to step towards the goal of making a worldwide brand and an international modernized enterprise.



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