*Technical information*

# Definitions

**Transformer:**

A transformer is an apparatus with two or more windings which transforms an alternating voltage and current into another alternating voltage and current with the same frequency by means of electromagnetic induction. Its purpose is to transmit electrical energy.

**Autotransformer:**

A transformer with a common winding in which primary and secondary are not galvanically/electrically separated.

**Separating transformer:**

A separating transformer is a transformer in which the primary and secondary windings are galvanically/electrically separated with basic insulation.

**Isolating transformer:**

A separating transformer with a protective partition (i.e High Insulating material) between the primary and secondary windings.

**Safety isolating transformer:**

An isolating transformer which is designed to supply an SELV or PELV circuit.

**Instrument transformers:**

Instrument transformers are intended to transform high currents or high voltages to available values for standard electrical measuring instruments and electrical protective devices.

**ELV: [extra-low voltage]**

A voltage which does not exceed 50 VAC or 120 V ripple-free DC between conductors OR between each conductor & Earth. ("Ripple-free" normally means a RMS ripple voltage with not more than 10% of the DC component. )

**SELV: [safety extra-low voltage]**

ELV which is isolated from the line voltage by a isolating transformer.

**SELV circuit:**

A circuit with SELV which have

1. No provision for Eathing the Circuit.
2. No Exposed conductive parts.

**PELV circuit:**

An ELV circuit which must have an earth connection for functional reasons.

**FELV circuit:**

An ELV circuit which does not meet SELV or PELV requirements for functional reasons.

**Class I transformer**

A class I transformer is a transformer which protects against electric shock not only by means of basic insulation, but also by using an extra safety device such as an earthing terminal, i.e. in the event of a fault in the basic insulation, the exposed parts will not become dangerously live.

**Class II transformer**

A class II transformer is a transformer which protects against electric shock, not only by means of basic insulation but also using an extra safety device such as double or reinforced insulation. The transformer does not have to be equipped with a protective earth connection.

**Class III transformer**

A class III transformer is a transformer which protects against electric shock by means of a SELV power supply, with no voltages higher than SELV be- ing generated (max. 50 VAC in and max. 50 VAC out). - The transformer does not have to be equipped with a protective earth connection.

- Class i cation I, II or III has nothing to do with the insulation between the primary and secondary windings.