BEFORE COMMENCING ANY WORK ON CURRENT TRANSFORMERS, DISCONNECT BOTH THE PRIMARY AND SECONDARY VOLTAGES OF THE POWER INSTALLATION.

MAINTENANCE AND OPERATION

These transformers do not require regular maintenance. Periodically, it is necessary to check that all terminals are properly tightened and to ensure that the transformer never operates with open secondary terminals. The reason is that, in the case of an open secondary circuit, no current flows through the secondary winding, and the entire primary current is used for core magnetization. This results in a significant increase in magnetic flux density in the core, leading to increased core losses and a rise in voltage at the secondary terminals. These increased losses cause heating of the core, which under unfavorable conditions may lead to insulation failure and such a change in the magnetic properties of the core material that the transformer loses its accuracy class. The voltage at the secondary terminals of a current transformer may increase to a level that poses a hazard to personnel handling the equipment. The induced voltage, and thus the voltage at the secondary terminals, is given by:

$$u_2 = N_2 \cdot S_{Fe} \cdot \left(\frac{dB}{dt}\right)$$

From this expression, it can be seen that the value of this voltage directly depends on the number of secondary turns, meaning it increases as the rated secondary current decreases.In the event of faults in the installation, it is necessary to verify whether the transformers remain in proper operating condition.

DISPOSAL OF END-OF-LIFE TRANSFORMERS

The materials used in instrument transformers are considered environmentally safe and non-toxic. Disposal of end-of-life instrument transformers must be carried out in accordance with national waste regulations.

WARRANTY

The warranty period is 24 months from the date of delivery.The warranty does not cover failures resulting from improper storage or transportation, failure to follow these installation instructions, or improper selection of the transformer.

LOW-VOLTAGE CURRENT TRANSFORMERS

OPERATING AND MAINTENANCE INSTRUCTIONS

"FMT DOO" Zaječar, Stražilovska 57
19000 Zaječar Srbija
Tel. +381 19 3413 122, lok.102 Fax. +381 19 3413 266
www.fmt.rs e-mail:office@fmt.rs

DESCRIPTION

The technical characteristics of low-voltage current transformers comply with the requirements of the SRPS EN 61869-2 standard. The Measuring Transformer Factory Zaječar manufactures low-voltage current transformers of the window type (STN, ST081*, STEN), except for the STEM-081 transformers, which are equipped with a wound primary.

The ST 081 transformer type can also be designed with multiple cores, as well as with multiple secondary windings that can be interconnected, resulting in versions designated as ST 082, ST 083, and ST 084.

The transformer cores are wound from cold-rolled grain-oriented electrical steel. Secondary windings are designed for rated currents of 5 A (or 1 A). Active parts of the transformer are encapsulated in epoxy resin or housed in an appropriate polycarbonate enclosure, ensuring excellent electrical insulation properties, as well as protection of the windings against moisture and damage caused by electrical arcing in the secondary circuit.

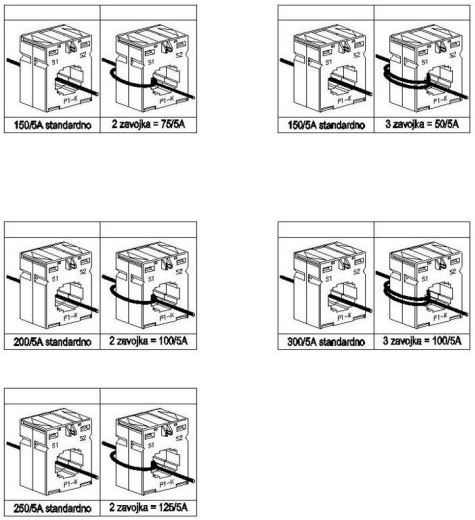
The secondary terminals are covered with a transparent polyethylene cover and can be sealed. In transformers with a polycarbonate enclosure, the enclosure halves are ultrasonically welded and cannot be disassembled without damaging the transformer.

APPLICATION

These transformers are intended for indoor installation in electrical distribution systems with voltages up to 1 kV. They are used to transform measured currents to a value suitable for supplying current circuits of measuring and protection devices, as well as to provide isolation between measuring/protection equipment and high voltage. They can operate continuously with an overload of 20% while maintaining the required accuracy class.

IMPROVEMENT OF ACCURACY CLASS OF WINDOW-TYPE CURRENT TRANSFORMERS (0.72 kV)

If a higher accuracy class is required from a window-type current transformer, which typically occurs at low primary currents, this can be achieved by passing the primary conductor multiple times through the transformer opening. **Example:** A current transformer rated 200/5 A can be used as a 100/5 A transformer by passing the primary conductor twice through the opening. In this case, the transformer characteristics remain unchanged. Transformers intended for this mode of operation are specially marked at the factory. Some examples of such applications are shown in the following diagrams.



INSTALLATION

Window-type current transformers can be mounted in any position on rectangular busbars or on round conductors. Mounting on specially designed supports is also possible. When connecting measuring devices to the transformer secondary, all connections must be firmly tightened to prevent overheating. One terminal of the secondary winding must be grounded (usually the “s1” terminal – formerly designated as “k”). Ensure that the cables connecting the transformer secondary to measuring devices have an adequate cross-section, especially for longer distances, so that the losses in the cables, together with the consumption of measuring devices, do not exceed the rated burden of the transformer. If, during installation, no measuring devices are connected to the secondary terminals and there is a possibility that the transformer may be energized, the secondary terminals must be short-circuited.

CURRENT TRANSFORMERS MAY ONLY BE HANDLED AND SERVICED BY QUALIFIED PERSONNEL.

For the **STEM-081** transformer, special attention must be paid to ensure that the connection between its primary terminals and the busbars or cables in operation is electrically and mechanically secure.