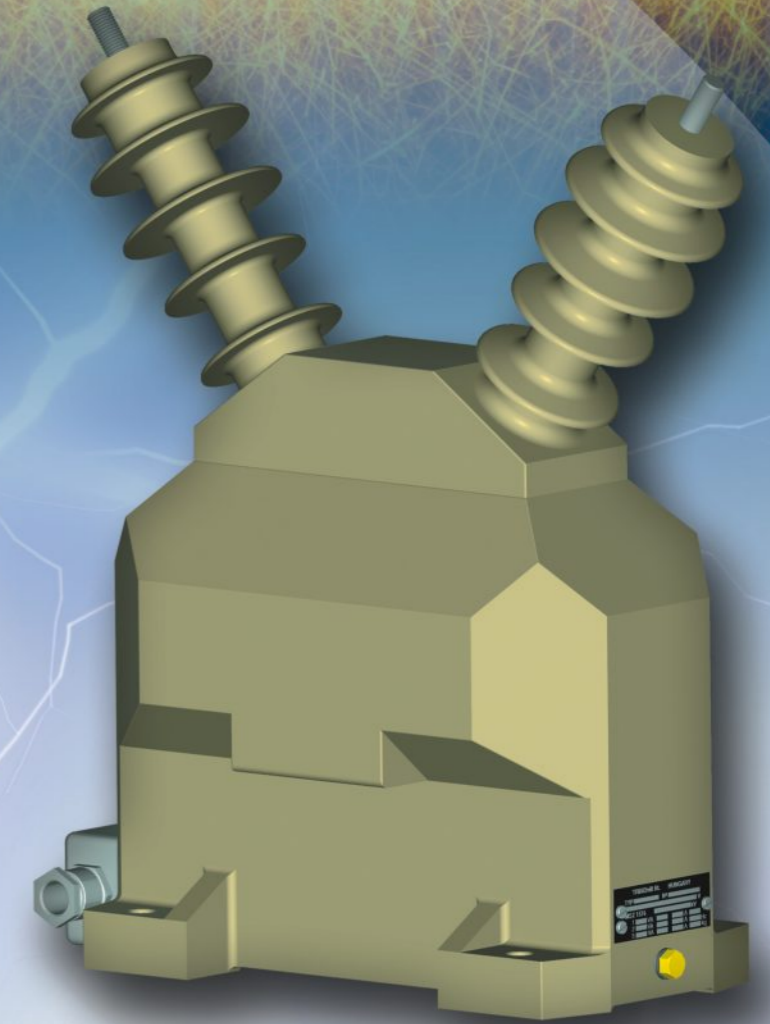




# Transz vill Zrt.



## FM-24/Ksz

Synthetic resin insulated,  
outdoor voltage transformer  
for 12 kV and 24 kV  
highest voltage for  
equipment

**Transz vill Instrument Transformer  
Manufacturing and Marketing closed Co. Ltd.**

Postal address:

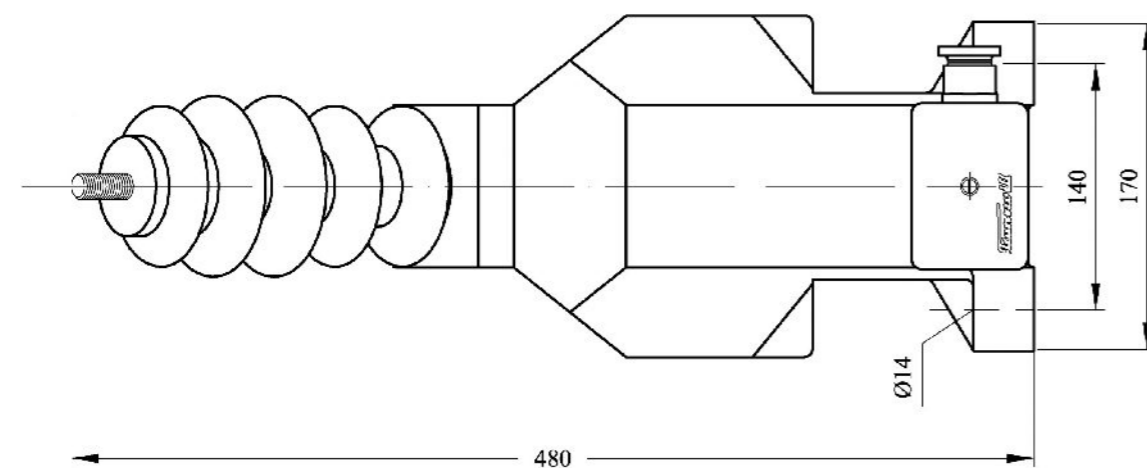
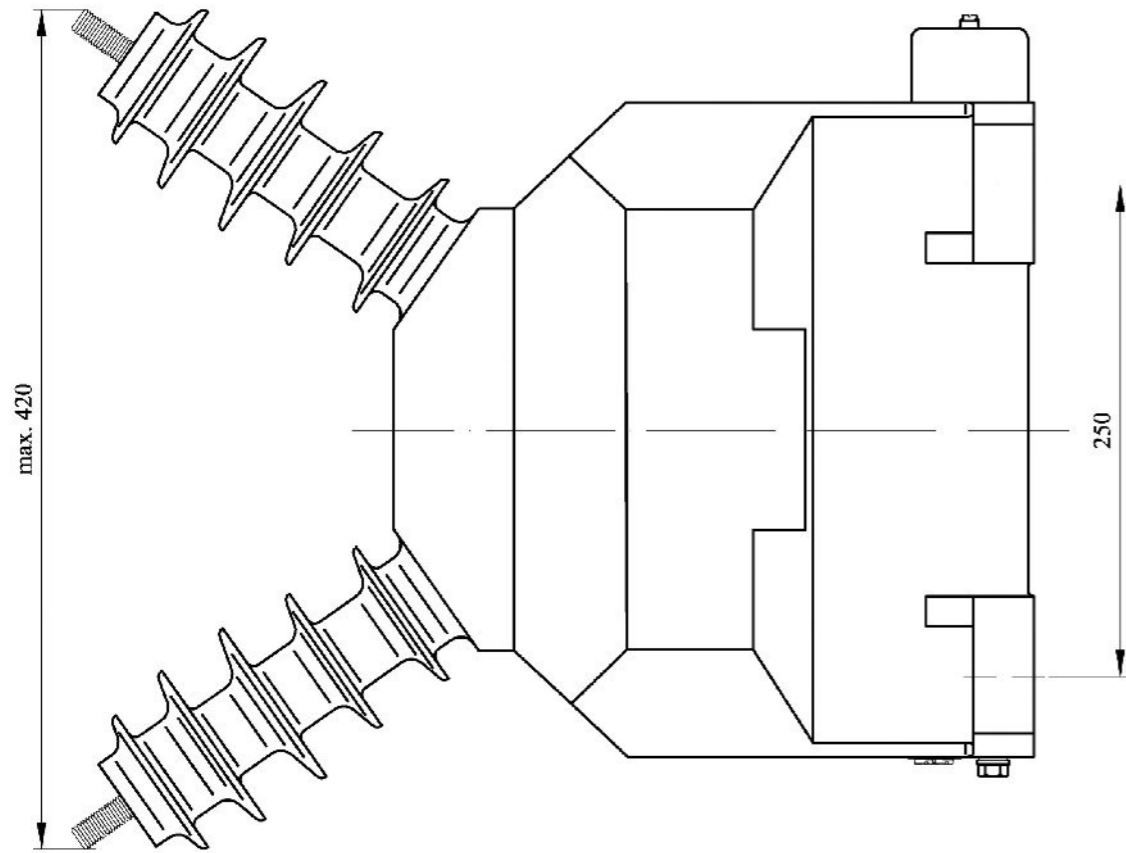
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## TYPE MARKING

The letters and numerals applied in type marking have the following meanings:

F	Voltage transformer
M	Synthetic resin insulated
K	Special (Single or double pole insulated)
Sz	For outdoor use
24	Highest voltage for equipment

## GENERAL DESCRIPTION

The voltage transformer is composed of primary (medium voltage) and secondary (low voltage) windings, wound concentrically on a „C” type cut core made of cold rolled electrical steel, embedded entirely in weatherproof, outdoor synthetic resin insulation. The material of the windings is cooper.

Applicable as an outdoor instrument transformer for measuring or protective purposes or as a supply transformer (e. g.: to battery chargers) in a system having highest voltage for equipment 12-24 kV. It is suitable to provide supply voltage to operate pole mounted switches, or signaling earth faults. Furthermore it can also be applied to accomplish security tasks of the systems as signaling theft, unauthorized switching.

It is developed of earthed or unearthed design with one or two secondary windings. These can be for measuring or protective purpose, or combinations of the two. The accuracy class for measuring can be 0.5, 1 or 3 for protection 3P with an output of 15-100 VA. In addition on an earthed voltage transformer an additional winding can be placed intended to produce a residual voltage (Earth fault signaling).

The voltage transformer complies with the specifications of MSZ EN 60044-2 and EN 60044-2 standards. It is also possible to produce according to other standards differing from the afore-mentioned.

## PACKING, DELIVERY

The voltage transformer is delivered in a finish suitable for use under normal climatic conditions, packed in wooden racks. Upon agreement, the delivery will be made in finish and packing, suitable for the required climatic zone.

## STORAGE

In case of a long-term storage, it is practical, to keep the voltage transformer, in a covered, well ventilated place.

## INSTALLATION, PUTTING INTO OPERATION, OPERATION

Before installation the voltage transformer has to be checked in order to discover on the surface, or on the terminals any possible damages occurred during the transportation or the storage. In case of any damages further investigation is necessary. Generally the voltage transformer has to be mounted in upright position. The fastening to the supporting structure can be accomplished by the help of legs shaped on the bottom of the device. When fixing, it is adviceable to put under the legs a frost-proof rubber or a rubbercork plate, in order to equalize the accidental unevennesses. Before connection, any contamination, occurred during the transportation and storage has to be removed, the terminals cleaned and smeared with weatherproof contact vaseline. The proper connection can be achieved paying attention to the markings on the primary (A, B) and on the secondary (a b) side. On a voltage transformer of earthed design the markings are A, N on the primary, a, n on the secondary side and da, dn on a winding for residual voltage if provided. Application an overvoltage protection for the voltage transformer suggested. Operation is possible keeping the prescriptions of the relevant security-, labour- and property-protection directives. Any faults and breakdowns emerging in the customer's sphere of interest due to breaching, disobeying the afore-mentioned, exempt the manufacturer from the warranty and guarantee liabilities.

## MAINTENANCE

The maintenance consists of works to be done according to the general rules for outdoor instruments and discontinuing of the accidental irregularities. These are:

- periodical inspection of the contamination and cleaning, depending on the degree of impurity,
- inspection of the surfaces,
- tightening of the bolts of the primary and secondary connections,
- tightening of the fastening bolts.

## STATE VERIFICATION

The secondary windings of the voltage transformers in class 0.5 are manufactured in finish suitable for verification. The verification will be made only on special request, in this case it will be accomplished and documented by an official seal or an affixed verification stamp, by the State Office for Measurement.

## DATA TO BE SUBMITTED WITH THE ORDER

- type (e.g. FM-24/ksz),
- rated insulation level (e.g. 24/50/125 kV),
- rated primary and secondary voltages (e.g. 20000/100 V),
- number, accuracy class, output of the secondary windings. (e.g. class 0.5, 30 VA),
- voltage factor,
- quantity,
- requested term of delivery

## OTHER OR SPECIAL REQUIREMENTS

- climatic zone of use other than normal,
- language of the rating plate,
- packing,
- number of pieces and sort of the documentation to be attached

## WARRANTY PERIOD, GUARANTEE

The warranty period is 12 months and otherwise it can also be established upon the mutual agreement of the parties respectively.

## TECHNICAL DATA

Type	Unearthed	Earthed
Highest voltage for equipment	12 kV, 24 kV	12/ $\sqrt{3}$ kV, 24/ $\sqrt{3}$ kV
Rated secondary voltage	100 V, 110 V	100/ $\sqrt{3}$ V, 110/ $\sqrt{3}$ V
Power frequency withstand voltage (r.m.s)	28 kV, 50 kV	
Rated lightning impulse withstand voltage (peak)	75 kV, 125 kV	
Rated frequency	50 Hz	
Voltage factor	1,2 x U <sub>n</sub>	1,9 x U <sub>n</sub> (8 hours)
Accuracy class, Output	According to table	
Class of insulation	B	
Climatic zone of use	Upon agreement	
Mass	35 kg	
Creepage distance	630 mm	
Dimensions	According to drawing	

\* When used as battery charger the secondary voltage may extend from 18V up to 220V.  
Thermal limit output: max. 250VA

## ACCURACY CLASS

one secondary winding				
Output [VA]	30	50	100	150
Accuracy class	0,2	0,5	1	3

two secondary windings				
1. sec. winding	Output [VA]			
	15	30	50	75
2. sec. winding	0,2	0,5	0,5	0,5
Output [VA]	15	0,2	0,5	0,5
	30	0,5	0,5	0,5
	50	0,5	0,5	1
	75	0,5	0,5	1
	1	1	1	1