RESEARCH, DEVELOPMENT AND TESTING NATIONAL INSTITUT FOR ELECTRICAL ENGINEERING - ICMET CRAIOVA

Bulevardul Decebal 118A, 200746 CRAIOVA, Tel. 0351 404 888; 0351 404 889, Fax: 0351 404 890; 0251 415 482;
www.icmet.ro; e-mail:market@icmet.ro

UNCONVENTIONAL CURRENT TRANSFORMER

SCOPE

These transformers are used in 24 kV medium voltage networks, for taking over the function of a classical current transformer

This type of transformer is manufactured in a single basic size for a standardized rated primary current between 100 and 1000 A, specified by the customer.

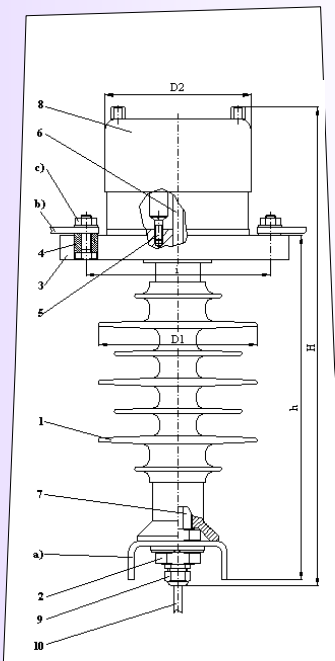
The technical characteristics are depending on:

-value of rated primary current;

-length of FO cable;

-performances of the PC used in the data decoding and recording system..

Dimensions, weight



Dimensiuni, mase

D1	D2	h	H	i	Weight kg
164	152/82	372	500	190	8,8

2. Technical characteristics

Table 1

Characteristics		
Basic structure	MU	Value
Post insulators & sensors assembly – as current transformer (CT) IEC 61869-1:2007		
Frequency	Hz	50
Withstand voltage (50Hz-1 min.-wet)	KV_{eff}	50
Impulse withstand voltage – dry	KV_{max}	125
Rated current in the line power circut	A	200
Thermal 3s /dynamic stability current	kA_{eff} kA_{max}	32/85
Post insulator SR EN 61952; IEC 61952		
Creepage distance (pollution level IV-31 mm / kV)	mm	744
Specified maximum bending breaking load SMS	kN	8
Current sensor LPCT SR EN 60044-8; IEC 60044-8		
Rated transformation ratio [1]	A/mV	200/150
Accuracy class (0.2) / Secondary power	-/VA	[2)]
Rogowski current sensor SR EN 60044-8; IEC 60044-8		
Rated transformation ratio [1]	A/mA	1200/150
Accuracy class (3p)/ Secondary power	-/VA	[2)]

[1)] Input quantities in the optoelectronic system for analog digitized signal transmission by FO to the substation building

[2)] Accuracy class and secondary power in accordance with the measuring and protection apparatus, integrated with electronic modules from substation

3. Constructive technical data

1. **Composite post insulator**
2. **Nut M30x1,5**
3. **Insulating plate of the support**
4. **Primary circuit terminal**
5. **24 kV standard composite post insulator**
6. **FO connectors to HV**
7. **FO connectors to LV**
8. **Electronic module with sensors**
9. **Gland Pg 16**
10. **Outdoor FO cable**

a. **Metallic structure support**
b. **Connections in the power circuit**
c. **Primary terminals of the CT**

PRODUCT DESCRIPTION

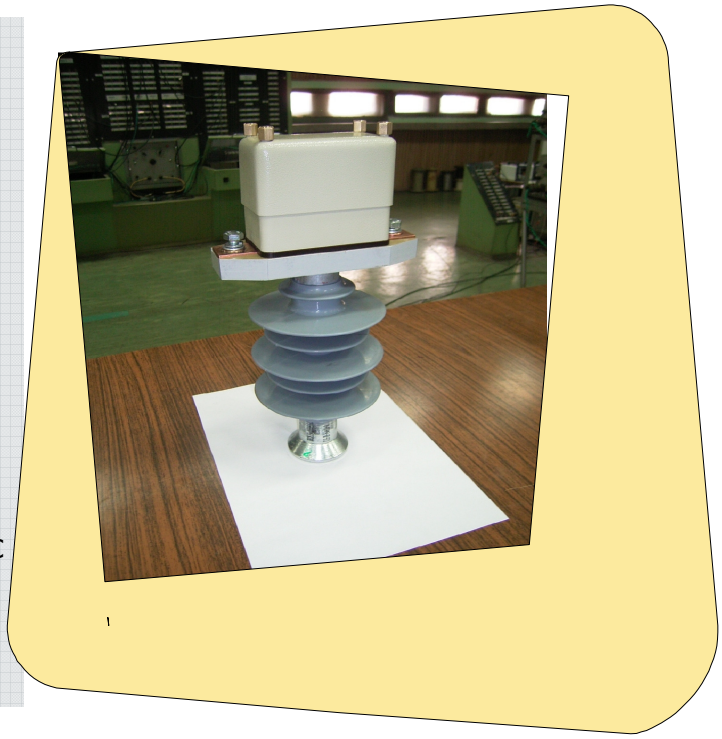
The main components are:

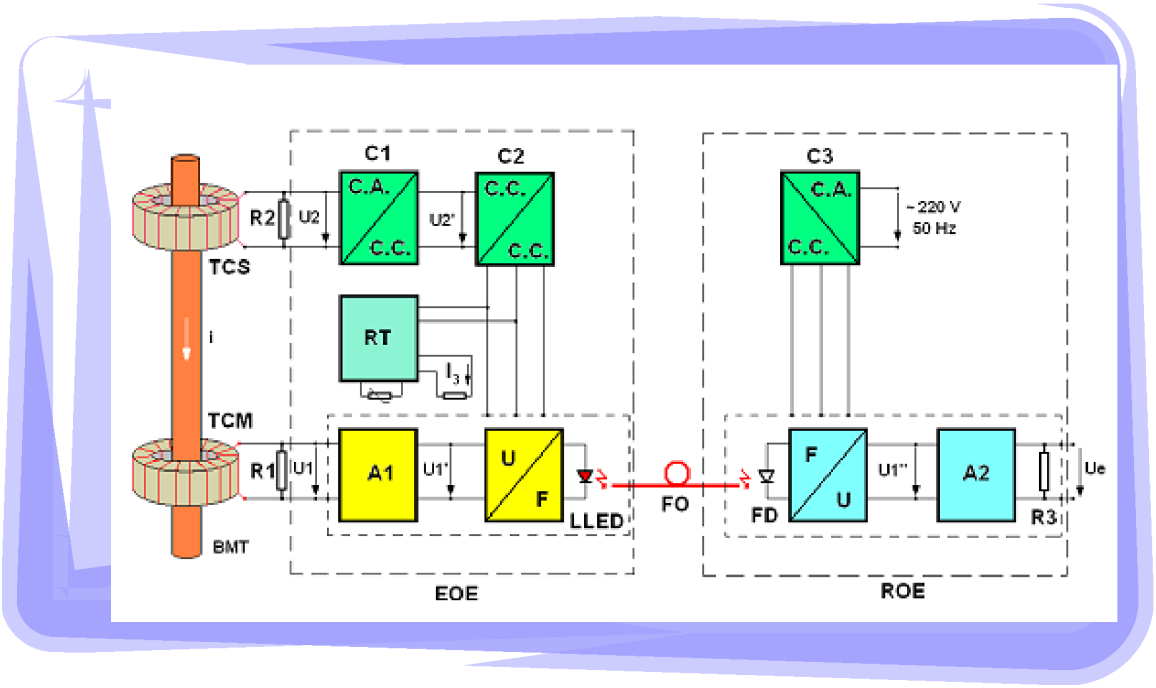
- current sensor of LPCT type and self - supplying system of the HV electronic system;

- electronic system with link for the transmission of the digitized information received from the current sensor in the HV circuit, by FO;

- 24 kV composite post insulator as insulating support;

- electronic system for decoding the information signal received by FO from HV, associated to the PC unit for its processing on the basis of the specialized software.





BLOCK DIAGRAM OF THE OPTOELECTRONIC TRANSFORMER

TCS – Saturated current transformer
TCM – Measuring current transformer
BMT- Medium voltage bar
C1 - Rectifier
C2 – Direct current converter
C3 - Rectifier

A1,A2 – Amplifiers
U/F –Voltage / frequency converter
F /U - Frequency / voltage converter
EOE – Optoelectronic emitter
ROE – Optoelectronic receiver
FO - Fibre optic

LLED- Optoelectronic LED
FD - Photodiode
I – Measured current
U1- Input voltage of optoelectronic system
U2 - Output voltage of optoelectronic system
RT- Temperature regulator