**TECHNICAL SPECIFICATIONS**

1. **Exploitation conditions.**

The measuring transformers are for indoor mounting, in distribution installations MV /middle voltage/. The star center of the middle voltage network is compensated.

The environment conditions are classified according to IEC 60694, as follows:

* Maximum ambient temperature +40°C
* Minimum ambient temperature -5°C
* Maximum relative humidity of the air /per month/ ≤90%
* Maximum above sea level up to 1000 m
* Coefficient of seismic resistance 0,3g

1. **Standards and norms**

The current transformers must be manufactured and tested according to the requirements of the outlined and other equivalent standards, as well as all applicable standards and norms, relevant to them.

* BDS EN 61869-1:2009 – Measuring transformers. Part 1: General requirements (IEC 61869-1:2007 with changes).
* IEC 61869-2:2012 – Measuring transformers. Part 2: Additional requirements for current transformers.

1. **Technical requirements.**

The current transformers must have technical characteristics not worse than the ones, outlined in Table No.6.1.

* They should have two secondary cores /according to table No.6.1./
* The secondary cores must have nominal current 5A
* The nominal power of the cores for measurements, should guarantee the required accuracy class.
* The primary connection of the CTs should be bolt for flat bus bar.
* The inner and outer connections of the primary and secondary windings must be displacement resistant when influenced by vibration and short circuit current.
* The CTs should correspond to the requirements for thermal and dynamic durability.
* Must have an earthing terminal /clamp/.
* All terminals must be marked according to the requirements of IEC.
* Exploitation life - more than 20 years.

1. **Special requirements.**

* The CTs should have the option for sealing the terminal box of the secondary windings.
* There must be a proof for patent purity.

1. **Necessary technical documentation, presented along with the offer.**

The participant is obligated to present the following technical documentation.

* Technical data, according to Table No. 6.1.
* Protocols for type tests (on CD), according to the requirements of BDS EN 61869-1:2009 and BDS EN 61869-2:2012 or equivalent, performed in a licensed laboratory.
* Volt-ampere characteristic in a table or graphical format.
* Declaration for conformity for all standards and norms, applied with the manufacturing and testing of the CTs.
* Original prospects /catalogues/for the offered equipment.
* Instruction for installation and exploitation.

1. **Minimal technical requirements.**

Current transformers for nominal voltage 20 kV and 2 pcs secondary windings.

***Table No.6.1.***

|  |  |  |  |
| --- | --- | --- | --- |
| № | Technical characteristics | Unit | Minimal requirements by the Consignor |
| **I** | **Basic data** | | |
| 1. | Manufacturer |  |  |
| 2. | Standard |  | BDS EN 61869-1:2009, BDS EN 61869-2:2012 or equivalent |
| 3. | Type |  |  |
| 4. | Operational temperature | °C | -5÷+40 |
| 5. | Above sea level | m | <1000 |
| **II** | **Parameters of the system and exploitation conditions** | | |
| 1. | Nominal voltage | kV | 20 |
| 2. | Nominal frequency | Hz | 50 |
| 3. | Exploitation regime of the star center of the system |  | Compensated star center |
| **III** | **Technical parameters** | | |
| 1. | Maximum operational voltage /Um/ | kV | 24 |
| 2. | Nominal operational voltage /Un/ | kV | 20 |
| 3. | Nominal primary current / In/ | A | 200 |
| 4. | Construction |  | For indoor mounting, standing type |
| 5. | Test voltages of the primary winding |  |  |
| 5.1. | - with industrial frequency 1 min. | kV/eff | 50 |
| 5.2. | - with standard impulse wave 1,2/50μs | kV/peak | 125 |
| 6. | Partial discharge |  |  |
| 6.1. | - with test voltage 1,2 Um | pC | ≤50 |
| 6.2 | - with test voltage 1,2Um/√3 | pC | ≤20 |
| 7. | Test voltage for the secondary windings | kV | 3 |
| 8. | Continuous overloading on current | A | ≥1,2.In |
| 9. | Current of thermal durability for 1 sec /Ith/ | kA rms | ≥20 |
| 10. | Current of dynamic durability /Idyn/ | kApeak | 2,5 Ith |
| 11. | Coefficient of seismic resistance |  | ≥ 0,3 g |
| 12. | Quantity of secondary cores | pcs | 2 |
| 13. | First core /for measurement/ |  |  |
| 13.1 | - nominal secondary current | A | 5 |
| 13.2 | - accuracy class |  | 0.5 |
| 13.3 | - nominal power | VA | ≥15 |
| 13.4 | - nominal safety coefficient |  | 5 |
| 14. | Second core /for protection/ |  |  |
| 14.1 | - nominal secondary current | A | 5 |
|  | - accuracy class |  | 5P20 |
|  | - nominal power | VA | ≥15 |
| 15. | Volt-ampere characteristic |  | In a graphic or table |
| 16. | Terminal box for the secondary windings with possibility for sealing |  | YES |
| 17. | Marking |  | According to BDS EN 61869-1:2009, BDS EN 61869-2:2012 |
| 18. | The clamps of the secondary winding must be copper of copper alloy, with dimensions not less than M5/Ф5 and height not less than 20 mm |  |  |
| 19. | Primary connection |  | Bolt. Through flat bus bar |
| 20. | Dimensions |  |  |
| 20.1 | - height | mm |  |
| 20.2. | - width: a x b | mm |  |
| 21. | weight | kg |  |
| 22. | Exploitation life | years | ≥20 |
| 23. | warranty | months | ≥36 |

Note: the participant should fill in all the rows of the “Participant’s offer” column.

1. **Packing, transportation and storage.**

The Contractor is responsible for the loading, transport, and delivery and unloading of the equipment, from the manufacturing plant to the place of delivery.

The Contractor must ensure proper packing for the current transformers, against damage or destruction during the transport.

The Contractor must give instructions for the proper storage of the equipment till their mounting.