MEDIUM VOLTAGE PRODUCT

BD 00 A1, BD 00 A2 Current Instrument Transformers
Instructions for installation, use and maintenance
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Instructions for installation, use and maintenance for current instrument transformers

These installation, use and maintenance instructions apply for current instrument transformers intended for indoor operation. The instructions refer to: Current instrument transformers for indoor use, of the following types: BD 00 A1, BD 00 A2.

1. Service conditions

The transformers need to be installed in dry and indoor conditions where the ambient air is not significantly polluted by dust, smoke, corrosive gases, vapours or salts. The transformers are designed for standard ambient temperatures between -5°C and +50°C and altitudes below 1000 m above sea level. The transformers can also be operated at higher or lower ambient air temperatures and higher installation altitudes if such are agreed with the manufacturer.

2. Technical details

Technical details and specifications of each of the transformers are shown on a rating plate fixed to the transformer body. It is not allowed to operate the transformer at values exceeding the name-plate data.

Dimensional drawings of the transformers are shown in Appendix 1. Dimensions are solid and cannot be changed.
3. Instructions for installation

**General information**

Instrument transformer is an electrical equipment and the electrical installation of the instrument transformer can be done by skilled personnel, only. The level of experience, age and eligibility criteria for persons working with, on or near electric installations is governed by national legislation. If no such eligibility legislation is available the corresponding requirements can be found in EN 50110-1 standard.

**Safety instructions**

1. Always consider the transformer as a part of electric circuit which it is connected to.

2. Ground always the metallic base of the instrument transformer.

3. Connect always one terminal of each secondary winding of the transformer to the earth. When the secondary of transformer is interconnected, there should be only one grounded point to prevent accidental paralleling with system grounding wire.

4. Always short-circuit the secondary of the current transformer, which is not currently in use, to prevent secondary voltages, which may be hazardous to personnel or damaging to the transformer’s secondary. The secondary like this must be additionally grounded.

**Mounting**

The BD 00 A1 and BD 00 A2 types are designed for low voltages of 0.72/3 kV, without built-in primary conductor. Their use at higher voltage levels needs always the transformers to have combined with primary conductor provided with its own insulation. The primary conductor is not a part of transformer delivery. Therefore, the current transformers are mounted and placed at the option of the customer, based on the application chosen and the insulated conductor used on the primary side.

The plastic cover of the both types of transformers has two or four holes of ø 8.5 mm for M8 screws to fix the transformer (maximal torque for installation = 3-4 Nm).

Examples of fixing these transformers are shown in Fig. 2-5.
5. Connection of transformer primary side

The BD 00 A1 and BD 00 A2 current transformers don’t have their own primary conductor. The primary conductor is designed as a bushing with its own insulation, or insulated cable.

5. Connection of transformer secondary side

BD 00 A1 and BD 00 A2 current transformers are equipped with a secondary terminal board, covered with plastic cover and intended for indoor use, which may be provided with a lead seal. The terminals are equipped with M5 screws to connect transformer secondary outlets. The terminal box has the IP 20 degree of protection.

Highest and lowest allowed torque values for secondary screw connections

<table>
<thead>
<tr>
<th>Screw</th>
<th>Highest torque (Nm)</th>
<th>Lowest torque (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>3.5</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Highest diameter of cable or conductor connected to one secondary terminal: 2x2.5 mm

4. Instructions for use

Current instrument transformers are used:

- to convert large currents in the primary circuit to an appropriate level for secondary circuit equipment (relays and meters);
- to insulate primary and secondary circuit from each other to protect the secondary equipment from the harmful effects of large current appearing during the operation (short circuits).

The use of current transformer for other purpose then described above is forbidden if not agreed with the producer.

Routine test report

The routine test report of a current instrument transformer includes:

a) verification of terminal markings;

b) inter-turn overvoltage test;

c) determination of errors.

There are two rating plates available for the transformer (one glued on the transformer body, the other in the by-pack kit).

On customer request the following information can be provided free of charge:

- theoretical current/voltage error and phase displacement values;
- theoretical excitation (magnetization) curves.

5. Instructions for maintenance

Excessive dust sediments or any other type of contamination is to be removed from the transformer using a soft brush, in a way not to damage the insulation or cables taken out from the transformer.

6. Transport & Storage

Permitted temperature for transport and storage ranges from -40°C to +70°C. During transport and storage the transformers have to be protected from direct impact of solar radiation. The transformers are delivered in wooden crates or fixed on transport pallets.

7. Disposal

Materials used in instrument transformers are considered as materials without environmental impact and materials are not toxic. Instrument transformers have to be disposed of in accordance with national legislation relevant to domestic waste disposal.
8. Handling

The BD transformers weigh less than 25 kg and, consequently, they can be handled manually.

**ATTENTION:** The process of transformer handling has to comply the occupational health and safety rules. All transformers has to be carried carefully to prevent any damage to the transformer.

9. Normative references

IEC 61869-1 and IEC 61869-2 Current instrument transformers
IEC 60529 Degrees of protection provided by enclosures
ISO 12100 Machine safety – basic concepts, general principles of design
EN 50110-1 Operation of electrical installations

Current instrument transformers are designed, tested and manufactured in accordance with international or national standards, the customer requirements, based on an agreement between the customer and the manufacturer. The specific standard is always mentioned on the transformer nameplate.

As an example the following standards can be mentioned:

IEC 60044-1; IEC 60044-6
AS 60044-1; AS 1243-1982;
ČSN 351301; ČSN 351361
ČSN EN 60044-1; ČSN EN 60044-6
IEEE Std C57.13.6-2005
ANSI C57.13-1978
CSA Std CAN3-C13-M83
GOST 1516.3-96; GOST 7746-2001
BS 3939:1973 ; BS EN 60044-1

When agreed transformers made in accordance with other standards can also be supplied, or in accordance with other release version of the above standards.
Appendix 1
Dimensional Drawings

BD 00 A1

[Diagram of BD 00 A1 dimensions]

BD 00 A2

[Diagram of BD 00 A2 dimensions]