MEDIUM VOLTAGE PRODUCT

TPU 4x.xx
Indoor supporting current transformers
**Parameters**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest voltage for equipment</td>
<td>3.6 - 12 kV</td>
</tr>
<tr>
<td>Power frequency test voltage, 1 min.</td>
<td>10 - 42 kV</td>
</tr>
<tr>
<td>Lighting impulse test voltage</td>
<td>40 - 95 kV</td>
</tr>
<tr>
<td>Rated primary current</td>
<td>10 - 3 200 A</td>
</tr>
<tr>
<td>Rated short-time thermal current</td>
<td>2 - 100 kA/ 1s</td>
</tr>
<tr>
<td>Reconnectable (primary till 400-800 A)</td>
<td></td>
</tr>
</tbody>
</table>

**Description**

The TPU 4x.xx transformers are cast in epoxy resin and designed for insulation voltages up to 12 kV. The 3.6 kV and 7.2 kV versions have the same dimensions as the 12 kV. For certain types of panels there is a need for extra long creepage distance on the transformers. For this purpose you can order current transformers with „ribs on the top”. The transformers are manufactured in conformity with dimensions stated hereunder. The TPU 4x.xx transformers are designed as single-turn or multi-turn versions, with one transformer ratio or with double ratio having the possibility to be reconnectable on the primary or on the secondary side. The number of secondary windings (from 1 to 6 – max. 12 secondary terminals - 2 rows), depends on the combination of the technical parameters (such as the accuracy class, burden, short-circuit current, overcurrent factor…) and the transformer dimensions size.

When agreed between the manufacturer and the customer the TPU transformers can be provided with the voltage indication system. For this purpose, however, it is necessary to know in what insulation level the transformers shall operate. The secondary windings are used for measurement or protection purposes, or for special use (testing winding, „X” class windings). One terminal of each secondary winding used and one terminal of short-circuited and not used winding have to be earthed during the transformer operation. The secondary windings are lead out into a cast-type secondary terminal box with plastic cover. The terminal cover is sealable. The terminals are provided with M5 screws for the termination and with throughgoing holes for direct earting (first row of secondary terminals).

**Technical data**

The transformer can be mounted in any position. The transformer body is fixed by using four screws. Earth clamp M8 is on the transformer base plate.

**Rated primary voltages**

- 3.6 kV; 7.2 kV; 12 kV

**Rated primary currents**

- 10; 15; 20; 25; 30; 40; 50; 60; 75; 100; 150; 200; 300; 400; 500; 600; 750; 1 000; 1 250; 1 500; 2 000; 2 500; 3 000 and 3 200 A; primary reconnectable modification max till 400-800 A. Other primary currents can also be agreed upon with the customer.

**Rated secondary currents**

- 5 A; 1 A, others on request (possibility to combine different values in one transformer)

**Accuracy classes**

- 0.2; 0.2S; 0.5; 0.5S; 1; 3; 5; 5P10; 5P15; 5P20; 10P10; 10P15; 10P20; others on request.

**Rated frequency**

- 50 Hz or 60 Hz, others on request

The transformers are designed and manufactured in conformity with the following standards and recommendations: IEC, VDE, ANSI, BS, GOST and CSN, others on request.

**Cantilever strength**

- 5 kN

**Permissible torques for screw connections**

<table>
<thead>
<tr>
<th>Screws</th>
<th>Max. Nm</th>
<th>Min. Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>3.5</td>
<td>2.8</td>
</tr>
<tr>
<td>M8</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>M12</td>
<td>70</td>
<td>56</td>
</tr>
</tbody>
</table>
Marking of current transformer outlets - example

- Single-core design
- Double-core design
- Three-core design
- Single-core design, reconnectable on the secondary side
- Double-core design, reconnectable on the secondary side
- Double-core design, reconnectable on the primary side

1 Secondary terminal box (3 secondaries and voltage indicator)

2 Secondary terminal box (2 secondaries and grounding screw)

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**Code designation - TPU current transformers**

<table>
<thead>
<tr>
<th>voltage</th>
<th>current</th>
<th>dimension</th>
<th>primary terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>4…up to 12 kV</td>
<td>0…to 600 A multiturn</td>
<td>1..short 148 mm, DIN</td>
<td>1..no pr.rec., no ribs /40x80mm, 80x80mm/</td>
</tr>
<tr>
<td></td>
<td>1..to 1 250 A, combi multiturn, singleturn*</td>
<td>2..long 148 mm, DIN</td>
<td>2..prim. rec., no ribs /40x80mm, 80x80mm/</td>
</tr>
<tr>
<td></td>
<td>3..to 1 250 A singleturn</td>
<td>3..short, wide.. 184 mm</td>
<td>3..no pr.rec., with ribs /60x68mm, 80x80mm/</td>
</tr>
<tr>
<td></td>
<td>4..to 1 500 A singleturn</td>
<td>4..long, wide.. 184 mm</td>
<td>4..prim. rec., with ribs /40x80mm, 80x80mm/</td>
</tr>
<tr>
<td></td>
<td>5..to 2 000 A singleturn</td>
<td>5..middle 148 mm, DIN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6..to 2 500 A singleturn</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7..to 3 000 A singleturn</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8..to 3 200 A singleturn</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* TPU 41.41 and TPU 41.43 only

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**Standardized insulation levels of TPU 4x.xx transformers**

- 3.6 / 21 / 45 kV
- 3.6 / 10 / 40 kV
- 7.2 / 27 / 60 kV
- 7.2 / 20 / 60 kV
- 12 / 28 / 75 kV
- 12 / 35 / 75 kV
- 12 / 42 / 95 kV

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01

02

03
Dimensional Drawings

TPU 40.11
TPU 40.12
TPU 40.13
TPU 40.14

Weight: 20-24kg
Creepage distance: mm

Weight: 19-25kg
Creepage distance: 215 mm

Weight: 20-24kg
Creepage distance: 214mm

Weight: 19-25kg
Creepage distance: 201 mm

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<table>
<thead>
<tr>
<th>Drawing n.</th>
<th>Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>44614000</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44614010</td>
<td>P2 to secondary terminal</td>
</tr>
<tr>
<td>44614020</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44614030</td>
<td>P2 to secondary terminal</td>
</tr>
<tr>
<td>44614040</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44614050</td>
<td>P2 to secondary terminal</td>
</tr>
<tr>
<td>44614060</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44614070</td>
<td>P2 to secondary terminal</td>
</tr>
</tbody>
</table>
**TPU 40.21**
**TPU 43.21**

Weight: 29-37kg
Creepage distance: 201mm

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**TPU 40.22**
**TPU 43.22**

Weight: 29-37kg
Creepage distance: 215mm

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**TPU 40.23**
**TPU 43.23**

Weight: 29-37kg
Creepage distance: 214mm

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**TPU 40.24**
**TPU 43.24**

Weight: 29-37kg
Creepage distance: 215mm

---

<table>
<thead>
<tr>
<th>Drawing n.</th>
<th>Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>44614080</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44614090</td>
<td>P2 to secondary terminal</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Drawing n.</th>
<th>Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>44614100</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44614110</td>
<td>P2 to secondary terminal</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Drawing n.</th>
<th>Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>44614120</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44614130</td>
<td>P2 to secondary terminal</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Drawing n.</th>
<th>Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>44614140</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44614150</td>
<td>P2 to secondary terminal</td>
</tr>
</tbody>
</table>
### TPU 40.53
- **Weight:** 28kg
- **Creepage distance:** 214mm

### TPU 43.53

### TPU 44.11
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 45.11
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 46.11
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 47.11
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 48.11
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 44.13
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 45.13
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 46.13
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 47.13
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 48.13
- **Weight:** 25-31kg
- **Creepage distance:** 201mm

### TPU 44.21
- **Weight:** 40-45kg
- **Creepage distance:** 201mm

### TPU 45.21
- **Weight:** 40-45kg
- **Creepage distance:** 201mm

### TPU 46.21
- **Weight:** 40-45kg
- **Creepage distance:** 201mm

### TPU 47.21
- **Weight:** 40-45kg
- **Creepage distance:** 201mm

### TPU 48.21
- **Weight:** 40-45kg
- **Creepage distance:** 201mm
TPU 44.43
TPU 45.43
TPU 46.43
TPU 47.43
TPU 48.43

Weight: 46-58kg
Creepage distance: 210mm

<table>
<thead>
<tr>
<th>Drawing n.</th>
<th>Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>44654380</td>
<td>P1 to secondary terminal</td>
</tr>
<tr>
<td>44654390</td>
<td>P2 to secondary terminal</td>
</tr>
</tbody>
</table>
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