MEDIUM VOLTAGE PRODUCT

TPU 4x.xx

Indoor supporting current transformers
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>primary or secondary</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 earthing (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>Screw</th>
<th>Max.</th>
<th>Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>3.5 Nm</td>
<td>2.8 Nm</td>
</tr>
<tr>
<td>M8</td>
<td>20 Nm</td>
<td>16 Nm</td>
</tr>
<tr>
<td>M12</td>
<td>70 Nm</td>
<td>56 Nm</td>
</tr>
</tbody>
</table>
01 Marking of current transformer outlets - example
  a Single-core design
  b Single-core design, reconnectable on the secondary side
  c Double-core design
  d Double-core design, reconnectable on the secondary side
  e Three-core design
  f Double-core design, reconnectable on the primary side

02 Secondary terminal box (2 secondaries and voltage indicator)

---

### Code designation - TPU current transformers

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

* TPU 41.41 and TPU 41.43 only

---

### 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
Dimensional Drawings

**TPU 40.11**
**TPU 43.11**  
**Weight:** 20-24 kg  
**Creepage distance:** 201 mm

**TPU 40.12**
**Weight:** 19-25 kg  
**Creepage distance:** 215 mm

**TPU 40.13**
**TPU 43.13**  
**Weight:** 20-24 kg  
**Creepage distance:** 214 mm

**TPU 40.14**
**Weight:** 19-25 kg  
**Creepage distance:** 201 mm

---

**Drawing n.** | **Polarity**
--- | ---
44614000 | P1 to secondary terminal
44614010 | P2 to secondary terminal

**Drawing n.** | **Polarity**
--- | ---
44614020 | P1 to secondary terminal
44614030 | P2 to secondary terminal

**Drawing n.** | **Polarity**
--- | ---
44614040 | P1 to secondary terminal
44614050 | P2 to secondary terminal

**Drawing n.** | **Polarity**
--- | ---
44614060 | P1 to secondary terminal
44614070 | P2 to secondary terminal
**TPU 40.21**

Weight: 29-37 kg  
Creepage distance: 201 mm

---

**TPU 40.22**

Weight: 29-37 kg  
Creepage distance: 215 mm

---

**TPU 40.23**

Weight: 29-37 kg  
Creepage distance: 214 mm

---

**TPU 40.24**

Weight: 29-37 kg  
Creepage distance: 215 mm

---

<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 44.23
TPU 45.23
TPU 46.23
TPU 47.23
TPU 48.23

Weight: 40-45 kg
Creepage distance: 201 mm

Drawing n. Polarity
44614300 P1 to secondary terminal
44614310 P2 to secondary terminal

TPU 44.31
TPU 45.31
TPU 46.31
TPU 47.31
TPU 48.31

Weight: 34-42 kg
Creepage distance: 210 mm

Drawing n. Polarity
44614320 P1 to secondary terminal
44614330 P2 to secondary terminal

TPU 44.33
TPU 45.33
TPU 46.33
TPU 47.33
TPU 48.33

Weight: 34-42 kg
Creepage distance: 210 mm

Drawing n. Polarity
44614340 P1 to secondary terminal
44614350 P2 to secondary terminal

TPU 44.41
TPU 45.41
TPU 46.41
TPU 47.41
TPU 48.41

Weight: 46-58 kg
Creepage distance: 210 mm

Drawing n. Polarity
44614360 P1 to secondary terminal
44614370 P2 to secondary terminal
**TPU 44.43**  
**Weight:** 46-58 kg  
**Creepage distance:** 210 mm  

---

**Drawing n.** | **Polarity**  
--- | ---  
44614380 | P1 to secondary terminal  
44614390 | P2 to secondary terminal
NOTE
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

Copyright © 2019 ABB
All rights reserved