Instrument Transformers
Energizing the World since 1979
Sustainability
Table of content

Our Philosophy 4
Product Overview 5
CEI - UNEL CT 6
Brick Type CT 10
DIN CT 12
Ring Current CT 15
CEI - UNEL Phase to Phase VT 16
CEI - UNEL Phase to Ground VT 18
DIN Phase to Phase VT 20
DIN Phase to Ground VT 22
Fuse - Holder Phase to Ground VT 24
Our Philosophy

Tesar transforms the Wind, the Sun and the Water in renewable Energy.

Tesar, in order to improve its redditivity and competitiveness, has in force a Quality Operating System UNI EN ISO 9001. In this way, all the activities related to the proper execution of the jobs, are carried out in the full respect of the wealth safeguard as well as of the ambient.
Product Overview

CEI-UNEL CT

DIN CT

Brick Type CT

CEI-UNEL Phase to Ground VT

Ring Current CT

DIN Phase to Phase VT / Phase to Ground VT

CEI-UNEL Phase to Phase VT

Fuse-Holder Phase to Ground VT
**CEI-UNEL CT**

**General Characteristics**

- Dimensions according to CEI-UNEL 21009 std
- Manufactured and tested acc. to IEC 61869-1/2
- Rated Insulation level up to 36 kV
- Frequency 50 or 60 Hz
- Rated primary current (Ipr)
  - Single primary current from 5 to 2500 A
  - Double primary current
    - Up to 2 x 300 A change on prim. winding
    - Up to 2 x 1250 A change on sec. winding
- Rated secondary current (Isr) 5 A
- Short-time current (Ith) up to 40 kA x 1s
- Rated dynamic current (Idyn) 2.5 x Ith
- Number of secondary 1 or 2
- Security factor ≤ 5 or ≤ 10
- Indoor installation
- Accuracy class for measure: 0,5 - 0,5s - 0,2 - 0,2s
- Accuracy class for protection: 5P10 - 5P20 - 5P30

**On request**

- Third secondary
- Rated secondary current 1A
- Sealable terminal cover
- Capacitive tap

**Primary Terminals**

- single primary current from 5 to 2500 A
- double primary current
  - up to 2 x 300 A change on prim. winding
  - up to 2 x 1250 A change on sec. winding
- rated secondary current (Isr) 5 A
- short-time current (Ith) up to 40 kA x 1s
- rated dynamic current (Idyn) 2.5 x Ith

**Double Primary Current**

- For single primary current from 5 to 2500 A
- For double primary current up to 2 x 1250 A

**Minimum suggested assembly distances**

<table>
<thead>
<tr>
<th>12 kV</th>
<th>24 kV</th>
<th>36 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>A [mm]</td>
<td>120</td>
<td>220</td>
</tr>
<tr>
<td>B [mm]</td>
<td>120</td>
<td>220</td>
</tr>
</tbody>
</table>

According to IEC / CEI EN 6007-1
### 12 kV Overall Dimensions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A   B   C   D   E   F</td>
<td></td>
</tr>
<tr>
<td>AA11</td>
<td>600</td>
<td>1</td>
<td>250 180 200 145 105 28</td>
<td>~14</td>
</tr>
<tr>
<td>AA12</td>
<td>600</td>
<td>2</td>
<td>250 180 200 175 105 28</td>
<td>~16</td>
</tr>
<tr>
<td>AA13</td>
<td>1200</td>
<td>2</td>
<td>300 190 220 190 130 50</td>
<td>~23</td>
</tr>
<tr>
<td>AA14</td>
<td>2500</td>
<td>3</td>
<td>300 190 240 190 130 50</td>
<td>~25</td>
</tr>
</tbody>
</table>
## 24 kV
### Overall Dimensions

![Diagram of 24 kV Overall Dimensions](image)

<table>
<thead>
<tr>
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<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>AB11</td>
<td>600</td>
<td>1</td>
<td>300 200 200 150</td>
<td>130 17.5</td>
</tr>
<tr>
<td>AB12</td>
<td>600</td>
<td>2</td>
<td>300 200 200 175</td>
<td>130 17.5</td>
</tr>
<tr>
<td>AB13</td>
<td>1000</td>
<td>2</td>
<td>300 200 220 200</td>
<td>130 17.5</td>
</tr>
<tr>
<td>AB16</td>
<td>2500</td>
<td>3</td>
<td>300 200 240 200</td>
<td>130 17.5</td>
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</tbody>
</table>
36 kV
Overall Dimensions

<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>AC10</td>
<td>600</td>
<td>2</td>
<td>280</td>
<td>210</td>
</tr>
<tr>
<td>AC12</td>
<td>2500</td>
<td>3</td>
<td>330</td>
<td>250</td>
</tr>
</tbody>
</table>
BRICK Type CT
General Characteristics

- Compact type suitable for METAL - CLAD switchboards
- Manufactured and tested acc. to IEC 61869-1/2
- Rated Insulation level up to 24 kV
- Frequency 50 or 60 Hz
- Rated primary current (Ipr)
  - Single primary current from 5 to 1250 A
  - Double primary current
    - Up to 2 x 300 A change on prim. winding
    - Up to 2 x 600 A change on sec. winding
- Rated secondary current (Isr) 5 A
- Short-time current (Ith) up to 40 kA x 1s
- Rated dynamic current (Idyn) 2.5 x Ith
- Number of secondary 1 or 2
- Security factor ≤ 5 or ≤ 10
- Indoor installation
- Accuracy class for measure: 0,5 - 0,5s - 0,2 - 0,2s
- Accuracy class for protection: 5P10 - 5P20 - 5P30

On Request
- Third secondary
- Rated secondary current 1A
- Sealable terminal cover
- Capacitive tap

Primary Terminals

Double Primary Current

Minimum suggested assembly distances

According to IEC / CEI EN 6007-1
12 kV / 24 kV
Overall Dimensions

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AM11</td>
<td>1250</td>
<td>3</td>
<td>A: 148 B: 120</td>
<td>~18</td>
</tr>
<tr>
<td>AM22</td>
<td>1250</td>
<td>3</td>
<td>A: 198 B: 160</td>
<td>~15</td>
</tr>
</tbody>
</table>
### DIN CT

#### General Characteristics

- Dimensions according to DIN 42600-8 std.
- Manufactured and tested acc. to IEC 61869-1/2
- Rated Insulation level up to 24 kV
- Frequency 50 or 60 Hz
- Rated primary current (I_{pr})
  - Single primary current from 5 to 2500 A
  - Double primary current
    - Up to 2 x 300 A change on prim. winding
    - Up to 2 x 1250 A change on sec. winding
- Rated secondary current (I_{sr}) 5 A
- Short-time current (I_{th}) up to 40 kA x 1s
- Rated dynamic current (I_{dyn}) 2.5 x I_{th}
- Number of secondary 1 or 2
- Security factor ≤ 5 or ≤ 10
- Indoor installation
- Sec. terminal board acc. to DIN
- Accuracy class for measure: 0.5 - 0.5s - 0.2 - 0.2s
- Accuracy class for protection: 5P10 - 5P20 - 5P30

#### On Request

- Third secondary
- Rated secondary current 1A
- Capacitive tap
- Execution with wings
- Standard sec. terminal board

#### Primary Terminals

![Diagram showing primary terminals](image)

**S - 1500 A**

**S - 2500 A**

#### Double Primary Current

![Diagram showing double primary current](image)

**S - 600 A / 12 kV**

**S - 600 A / 24 kV**

**Low Ratio**

**High Ratio**

#### Minimum suggested assembly distances

<table>
<thead>
<tr>
<th></th>
<th>12 kV</th>
<th>24 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>A [mm]</td>
<td>120</td>
<td>220</td>
</tr>
<tr>
<td>B [mm]</td>
<td>120</td>
<td>220</td>
</tr>
</tbody>
</table>

According to IEC / CEI EN 6007-1
12 kV
Overall Dimensions

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AD01</td>
<td>2500</td>
<td>3</td>
<td>A: 250, B: 148</td>
<td>~18</td>
</tr>
</tbody>
</table>
24 kV
Overall Dimensions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>AD11</td>
<td>2500</td>
<td>3</td>
<td>270 178</td>
<td>~25</td>
</tr>
</tbody>
</table>
Ring Current CT
General Characteristics

- Manufactured and tested acc. to IEC 61869-1/2
- Rated Insulation level 0,72 kV
- Frequency 50 or 60 Hz
- Rated primary current (Ipr)
  - Single primary current from 50 to 20,000 A
- Rated secondary current (Isr) 5 A
- Short-time current (Ith) up to 40 kA x 1s
- Rated dynamic current (Idyn) 2.5 x Ith
- Number of secondary 1
- Security factor ≤ 5 or ≤ 10
- Indoor installation
- Accuracy class for measure: 0,5 - 0,5s - 0,2 - 0,2s
- Accuracy class for protection: 5P10 - 5P20 - 5P30

On Request

- Second secondary
- Rated secondary current 1A
- Terminal cover
- outdoor installation
- ATEX certification

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions [mm]</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>R055</td>
<td>200</td>
</tr>
<tr>
<td>R100</td>
<td>250</td>
</tr>
<tr>
<td>R105</td>
<td>190</td>
</tr>
<tr>
<td>R106</td>
<td>270</td>
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<td>R107</td>
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<td>R140</td>
<td>240</td>
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<tr>
<td>R141</td>
<td>300</td>
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<tr>
<td>R142</td>
<td>300</td>
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<td>R180</td>
<td>400</td>
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<td>R181</td>
<td>400</td>
</tr>
<tr>
<td>R182</td>
<td>400</td>
</tr>
<tr>
<td>R183</td>
<td>400</td>
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<tr>
<td>R320</td>
<td>640</td>
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<tr>
<td>R322</td>
<td>500</td>
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<td>R323</td>
<td>500</td>
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<tr>
<td>R350</td>
<td>635</td>
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<tr>
<td>R351</td>
<td>620</td>
</tr>
<tr>
<td>R400</td>
<td>590</td>
</tr>
</tbody>
</table>
CEI - UNEL Phase to Phase VT
General Characteristics

General Characteristics
• Dimensions according to CEI-UNEL 21008 std.
• Manufactured and tested acc. to IEC 61869-1/3
• Rated Insulation level up to 36 kV
• Frequency 50 or 60 Hz
• Rated voltage factor 1,2 continuous
• Number of secondary 1
• Rated secondary voltage 100 V
• Indoor installation
• Accuracy class for measure: 0,5 - 0,2
• Accuracy class for protection: 3P-6P

On Request
• Second secondary
• Double primary ratio
• Sealable terminal cover
• Rated secondary voltage 110 V

Primary Terminals

Double Primary Voltage

Low Ratio

High Ratio
12 kV / 24 kV / 36 kV
Overall Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Upr [kV]</th>
<th>Max. N° sec.</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
</tr>
</thead>
</table>
CEI - UNEL Phase to Ground VT
General Characteristics

- Dimensions according to CEI-UNEL 21007 std.
- Manufactured and tested acc. to IEC 61869-1/3
- Rated Insulation level up to 36 kV
- Frequency 50 or 60 Hz
- Rated voltage factor 1,2 continuous and 1,9/8h
- Number of secondaries 2
- Rated secondary voltage:
  - Measuring or protective winding: 100:\sqrt{3} V
  - Residual voltage winding: 100:3 V
- Indoor installation
- Accuracy class for measure: 0,5 - 0,2
- Accuracy class for protection: 3P-6P

On Request
- Third secondary
- Double primary ratio
- Sealable terminal cover
- Rated secondary voltage: 110:V3 V - 110:3 V

Primary Terminals

Double Primary Voltage

<table>
<thead>
<tr>
<th>Sec 1</th>
<th>Sec 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a1</td>
<td>a2</td>
</tr>
<tr>
<td>h</td>
<td>h</td>
</tr>
</tbody>
</table>

Low Ratio

<table>
<thead>
<tr>
<th>Sec 1</th>
<th>Sec 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a1</td>
<td>a2</td>
</tr>
<tr>
<td>h</td>
<td>h</td>
</tr>
</tbody>
</table>

High Ratio

Minimum suggested assembly

<table>
<thead>
<tr>
<th></th>
<th>12 kV</th>
<th>24 kV</th>
<th>36 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>A [mm]</td>
<td>120</td>
<td>220</td>
<td>320</td>
</tr>
<tr>
<td>B [mm]</td>
<td>120</td>
<td>220</td>
<td>320</td>
</tr>
</tbody>
</table>

According to IEC / CEI EN 6007-1
12 kV / 24 kV / 36 kV
Overall Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Upr [kV]</th>
<th>Max. N° sec.</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A  B  C  D  E  F  G  H  I  L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FA11</td>
<td>≤12 : √3</td>
<td>3  305 180 240 180 145 150 130 155 155</td>
<td>67.5 ~22</td>
<td>~22</td>
</tr>
<tr>
<td>FB11</td>
<td>≤24 : √3</td>
<td>3  340 200 300 200 160 170 140 225 175</td>
<td>47.5 ~30</td>
<td>~30</td>
</tr>
<tr>
<td>FC11</td>
<td>≤36 : √3</td>
<td>3  400 250 390 240 155 175 155 300 225 15</td>
<td>15 ~40</td>
<td>~40</td>
</tr>
</tbody>
</table>
DIN Phase to Phase VT
General Characteristics

- Dimensions according to DIN 42600-9 std.
- Manufactured and tested acc. to IEC 61869-1/3
- Rated Insulation level up to 24 kV
- Frequency 50 or 60 Hz
- Rated voltage factor 1,2 continuous
- Number of secondary 1
- Rated secondary voltage 100 V
- Indoor installation
- Sec. terminal board acc. to DIN
- Accuracy class for measure: 0,5 - 0,2
- Accuracy class for protection: 3P-6P

On Request
- Second secondary
- Double primary ratio
- Standard sec. terminal board
- Rated secondary voltage 110 V

Primary Terminals

Double Primary Voltage

Low Ratio

High Ratio
# 12 kV / 24 kV Overall Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Upr [kV]</th>
<th>Max. N° sec.</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
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<tbody>
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<td></td>
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<td>A</td>
<td>B</td>
</tr>
<tr>
<td>CD01</td>
<td>≤12</td>
<td>2</td>
<td>350</td>
<td>148</td>
</tr>
<tr>
<td>CD11</td>
<td>≤24</td>
<td>2</td>
<td>365</td>
<td>178</td>
</tr>
</tbody>
</table>
DIN Phase to Ground VT
General Characteristics

- Dimensions according to DIN 42600-9 std.
- Manufactured and tested acc. to IEC 61869-1/3
- Rated Insulation level up to 24 kV
- Frequency 50 or 60 Hz
- Rated voltage factor 1,2 continuous and 1,9/8h
- Number of secondary 2
- Rated secondary voltage:
  - Measuring or protective winding: 100:√3 V
  - Residual voltage winding: 100:3 V
- Indoor installation
- Sec. terminal board acc. to DIN
- Accuracy class for measure: 0,5 - 0,2
- Accuracy class for protection: 3P-6P

On Request
- Second secondary
- Double primary ratio
- Standard sec. terminal board
- Rated secondary voltage: 110:√3 V - 110:3 V

Primary Terminals

Double Primary Voltage

Minimum suggested assembly distances

<table>
<thead>
<tr>
<th></th>
<th>12 kV</th>
<th>24 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>A [mm]</td>
<td>120</td>
<td>220</td>
</tr>
<tr>
<td>B [mm]</td>
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<td>220</td>
</tr>
</tbody>
</table>
12 kV / 24 kV
Overall Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Upr [kV]</th>
<th>Max. N° sec.</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>A   B   C   D   E   F  G   H</td>
<td></td>
</tr>
<tr>
<td>FD01</td>
<td>≤12 : √3</td>
<td>2</td>
<td>350 148 220 250 150 177.5 270 125</td>
<td>~22</td>
</tr>
<tr>
<td>FD11</td>
<td>≤24 : √3</td>
<td>2</td>
<td>365 178 280 270 155 187.5 280 150</td>
<td>~30</td>
</tr>
</tbody>
</table>
Fuse-Holder Phase to Ground VT
General Characteristics

General Characteristics
- Manufactured and tested acc. to IEC 61869-1/3
- Rated Insulation level up to 36 kV
- Frequency 50 or 60 Hz
- Rated voltage factor 1,2 continuous and 1,9/8h
- Number of secondary 2
- Rated secondary voltage:
  - Measuring or protective winding: 100:V3 V
  - Residual voltage winding: 100:3 V
- Indoor installation
- Accuracy class for measure: 0,5 - 0,2
- Accuracy class for protection: 3P-6P

On Request
- Third secondary
- Double primary ratio
- Sealable terminal cover
- Rated secondary voltage: 110:V3 V - 110:3 V

Primary Terminals

Double Primary Voltage

Minimum suggested assembly Distances

<table>
<thead>
<tr>
<th></th>
<th>12 kV</th>
<th>24 kV</th>
<th>36 kV</th>
</tr>
</thead>
<tbody>
<tr>
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<td>320</td>
</tr>
<tr>
<td>B [mm]</td>
<td>120</td>
<td>220</td>
<td>320</td>
</tr>
</tbody>
</table>

According to IEC / CEI EN 6007-1
# 12 kV / 24 kV / 36 kV

## Overall Dimensions

### FTS1 - FBS1

<table>
<thead>
<tr>
<th>Type</th>
<th>Upr [kV]</th>
<th>Max. N° sec.</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤17.5 : √3</td>
<td>3</td>
<td>A 225, B 150, C 303, D 160, E 112.5, F 405, G 265, H 275, I 76, L 195, M 130, N 15</td>
<td>~20</td>
</tr>
<tr>
<td></td>
<td>≤24 : √3</td>
<td>3</td>
<td>A 225, B 150, C 338, D 180, E 112.5, F 517, G 300, H 309, I 76, L 195, M 130, N 15</td>
<td>~28</td>
</tr>
<tr>
<td></td>
<td>≤36 : √3</td>
<td>3</td>
<td>A 400, B 250, C 680, D 240, E 163, F 240, G - , H - , I - , L 105, M 300, N 225,</td>
<td>~40</td>
</tr>
</tbody>
</table>

### FCS1

<table>
<thead>
<tr>
<th>Type</th>
<th>Upr [kV]</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤17.5 : √3</td>
<td>A 225, B 150, C 303, D 160, E 112.5, F 405, G 265, H 275, I 76, L 195, M 130, N 15</td>
<td>~20</td>
</tr>
<tr>
<td></td>
<td>≤24 : √3</td>
<td>A 225, B 150, C 338, D 180, E 112.5, F 517, G 300, H 309, I 76, L 195, M 130, N 15</td>
<td>~28</td>
</tr>
<tr>
<td></td>
<td>≤36 : √3</td>
<td>A 400, B 250, C 680, D 240, E 163, F 240, G - , H - , I - , L 105, M 300, N 225,</td>
<td>~40</td>
</tr>
</tbody>
</table>
Companies of R&S

R&S International Holding
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www.the-rsgroup.com

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