Features

- High secondary knee-point voltage
- Iron core with a small anti-remanence air-gap
- Highly inductive magnetising impedance
- Suitable for working with the high speed RADSS 1-phase and 3-phase
- Permissible ampere-turns in the range 554 - 1200 At
- Maximum secondary current for the three types in the range: 0.7 - 2 A
- Primary winding(s) with multiple output terminals
- Large range with multi-ratios available

Application

The above auxiliary current transformers (aux CT’s) may be used for ratio correction of the incoming CT circuits to the bus differential relay RADSS 1-phase and 3-phase. The overall turns-ratio (nO) must be the same for all feeders, independent of the actual CT ratio of each feeder. The largest aux CT, SLXE 4, may be used for the largest feeder and the SLCE 12 may be used for the smallest feeder.

The aux CT’s may also be used for isolating the primary and secondary circuits, and for limiting the transient input voltages to the relay.

The aux CT’s may be installed close to the main CT’s or close to the bus diff relay. Three aux CT’s may be mounted on one 60 C (19-inch) plate for easy installation in a relay cubicle.

Design

The aux CT’s are made up of high quality sheet steel, wound and thereafter carefully cut into a so called C-core type. The secondary winding has a fixed number of secondary turns for each type, so as to provide the required knee-point voltage. The various current ratios are therefore made by changing the number of primary turns.

Aux CT for RADSS 1-phase

There are three individual primary windings: N1, N2 and N3, and the relative number of turns is: 1-1-2. Each primary winding may have one tapped terminal so as to enable a double ratio. The given current ratios refer to the rated balanced 3-phase load.

Aux CT for RADSS 3-phase

The primary winding may be arranged with a large number of tapped terminals so as to obtain multiple-ratios. The primary circuit may also consist of several individual windings so that the total number of primary turns may be varied within a very large range. The rated secondary current may, for example, be varied in 40 steps from 25 mA to 1 A.
Auxiliary current transformers for differential relay RADSS 1-phase and 3-phase

Technical Data

Aux CT’s for RADSS 1-phase / 3-phase.

<table>
<thead>
<tr>
<th>Type of aux CT</th>
<th>SLCE 12</th>
<th>SLCE 16</th>
<th>SLXE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated secondary current (A)</td>
<td>0.7</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Secondary turns (t), 1-phase / 3-phase</td>
<td>792 / 1000</td>
<td>650 / 800</td>
<td>498 / 600</td>
</tr>
<tr>
<td>Knee-point voltage at 1.6 T (V)</td>
<td>329 / 416</td>
<td>336 / 416</td>
<td>329 / 400</td>
</tr>
<tr>
<td>Approx. secondary magnetising impedance Zm (kΩ)</td>
<td>6.2 / 9.8</td>
<td>4.3 / 6.5</td>
<td>2.5 / 3.6</td>
</tr>
<tr>
<td>Rated amp-turns (Atr)</td>
<td>554 / 700</td>
<td>650 / 800</td>
<td>996 / 1200</td>
</tr>
<tr>
<td>Total Cu-loss at rated load (W)</td>
<td>12 / 15</td>
<td>14 / 20</td>
<td>22 / 25</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>3.5</td>
<td>5.5</td>
<td>8.9</td>
</tr>
</tbody>
</table>

General

| Rated primary current (A) | 1, 2, 5 or as required |
| Rated frequency (Hz) | 50-60 |
| Overload capacity continuously for 1 second | 1.1 x rated amp-turns |
| Rated amp-turns | 55 x rated amp-turns |
| Dielectric test between primary and secondary windings | 2.5 kV, 50 Hz, 1 min |
| between windings and ground | 2.5 kV, 50 Hz, 1 min |
| Permitted ambient temperature | -20 to +55 °C |

Terminals mounted on top of aux CT

11-compression type terminals suitable for 10 mm² copper wire may be mounted at the top. The secondary terminals S1-S2 are equipped with small screw-in test devices suitable for 4 mm² banana test-plug. The S1-S2 secondary terminals may thus easily be shorted, or used to inject a test voltage.

Dimensions

![Dimensions SLCE 12](96000093)

Fig. 1 Dimensions SLCE 12
Auxiliary current transformers for differential relay RADSS 1-phase and 3-phase

SLCE 12, SLCE 16 and SLXE 4

1MRK 513 011-BEN

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Fig. 2 Dimensions SLCE 16

Fig. 3 Dimensions SLXE 4

Ordering

Specify:

- Ordering number as given below
- Current ratio
- Quantity

<table>
<thead>
<tr>
<th>Type of aux CT</th>
<th>SLCE 12</th>
<th>SLCE 16</th>
<th>SLXE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>for RADSS 1-phase</td>
<td>1MRK 002 406-AA</td>
<td>1MRK 002 407-AA</td>
<td>1MRK 002 408-AA</td>
</tr>
<tr>
<td>for RADSS 3-phase</td>
<td>1MRK 002 206-AA</td>
<td>1MRK 002 207-AA</td>
<td>1MRK 002 208-AA</td>
</tr>
</tbody>
</table>

Aux CT’s for RADSS 1-phase on mounting plate
One, two or three auxiliary CT’s may be installed on one 60 C apparatus plate.

<table>
<thead>
<tr>
<th>Ordering No.</th>
<th>Including</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>5296 052-BF</td>
<td>1, 2 or 3-SLCE 12</td>
<td>4U, 60C</td>
</tr>
<tr>
<td>5296 052-BE</td>
<td>1, 2 or 3-SLCE 16</td>
<td>4U, 60C</td>
</tr>
<tr>
<td>5296 052-BD</td>
<td>1, 2 or 3-SLXE 4</td>
<td>6U, 60C</td>
</tr>
</tbody>
</table>

Note: For each ordering number the required quantity: 1, 2 or 3 must be given.
For each aux CT the required 3-phase balanced load current ratio must be given.
A separate, special terminal board may be mounted on the 60C plate when requested.
Auxiliary current transformers for differential relay RADSS 1-phase and 3-phase

Ordering (cont’d)

Aux CT’s for RADSS 3-phase on mounting plate

Three auxiliary CT’s, suitable for one line, may be mounted on one 60 C apparatus plate.

<table>
<thead>
<tr>
<th>Ordering No.</th>
<th>Including</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>5296 052-AF</td>
<td>3-SLCE 12</td>
<td>4U, 60C</td>
</tr>
<tr>
<td>5296 052-AE</td>
<td>3-SLCE 16</td>
<td>4U, 60C</td>
</tr>
<tr>
<td>5296 052-AD</td>
<td>3-SLXE 4</td>
<td>6U, 60C</td>
</tr>
</tbody>
</table>

Note: The required current ratio must be given for each 3-phase unit. A separate, special terminal board may be mounted on the 60C plate when requested.

Examples of ordering for the following busbars:

1-feeder with CT 3000/5 A, aux CT ratio 5/2 A
2-feeder with CT 1500/5 A, aux CT ratio 5/1 A
4-feeder with CT 150/5 A, aux CT ratio 5/0.1 A

Overall ratio, \( n_O = \frac{3000}{5} \times \frac{5}{2} = \frac{1500}{5} \times \frac{5}{1} = \frac{150}{5} \times \frac{5}{0.1} = 1500 \)

1) Busbar with RADSS 1-phase

Order: 1 - 1MRK 002 408-AA, ratio 5/2 A
       2 - 1MRK 002 407-AA, ratio 5/1 A
       4 - 1MRK 002 406-AA, ratio 5/0.1 A

2) Busbar with RADSS 3-phase

Order: 3 - 1MRK 002 208-AA, ratio 5/2 A
       6 - 1MRK 002 207-AA, ratio 5/1 A
      12 - 1MRK 002 206-AA, ratio 5/0.1 A

3) Aux CT’s for RADSS 1-phase on mounting plate, maximum 3 aux. CT on 1 mounting plate.

Order: 1-5296 052-BD with 1 - 1MRK 002 408-AA, ratio 5/2 A
       1-5296 052-BE with 2 - 1MRK 002 407-AA, ratio 5/1 A
       2-5296 052-BF with 4 - 1MRK 002 406-AA, ratio 5/0.1 A

4) Aux CT’s for RADSS 3-phase on mounting plate, maximum 3 aux. CT on 1 mounting plate.

Order: 1-5296 052-AD, ratio 5/2 A
       2-5296 052-AE, ratio 5/1 A
       4-5296 052-AF, ratio 5/0.1 A

Note: If you have difficulties in selecting the most suitable aux CT (multi-) ratios, please send us a simple single line diagram and we will assist you.

References

| RADSS 1-phase | 1MRK 505 009-BEN |
| RADSS 3-phase | 1MRK 505 008-BEN |

Manufacturer

ABB Automation Products AB
Substation Automation Division
S-721 59 Västerås
Sweden
Tel: +46 21 342000
Fax: +46 21 146918