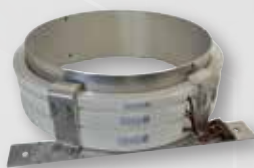




## CABLE TYPE AND BUSHING TYPE CURRENT TRANSFORMERS







**CABLE TYPE  
CURRENT TRANSFORMERS**

| <b>CABLE TYPE &amp; BUSHING CURRENT TRANSFORMERS</b>     |             |
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### CABLE TYPE CURRENT TRANSFORMERS

**Instrument Transformers:** An instrument transformer is a piece of electrical equipment which converts primary electrical values current or voltage-into comparable secondary values which are suitable for the devices to which it is connected. They are defined in two kinds;

Current transformers convert primary rated current to a proper current level (1A...5A) which can be used by metering or protection devices. They can have several secondary windings with magnetically separated cores of the same or different characteristics.

#### Extended Current Rating;

It is the value that Current Transformer can withstand at defined current value while remaining in the limits of current error. As described in IEC 61869-2, Standard values of rated primary current 120%, 150% and 200% of primary current.

#### Limits of current error and phase displacement for measuring current transformers

As described IEC 61869-2;

For classes 0.1 – 0.2 – 0.5 and 1, the current error and phase displacement at rated frequency shall not exceed the values given in table when the secondary burden is any value from 25 % to 100 % of the rated burden.

For classes 0,2 S and 0,5 S the current error and phase displacement at the rated frequency shall not exceed the values given in table when the secondary burden is any value from 25 % and 100 % of the rated burden.

Limits of current error and phase displacement according to IEC 61869-2

| Accuracy Class                         | ± percentage of current error at percentage of rated current |      |      |     |     | ± phase displacement in minutes at percentage of rated current |     |    |     |     |
|--|--|------|------|-----|-----|--|-----|----|-----|-----|
|  | 1  | 5    | 20   | 100 | 120 | 1  | 5   | 20 | 100 | 120 |
| <b>Measuring Current Transformers</b>  |  |      |      |     |     |  |     |    |     |     |
| 0,1                                    | -  | 0,4  | 0,2  | 0,1 | 0,1 | -  | 15  | 8  | 5   | 5   |
| 0,2S                                   | 0,75   | 0,35 | 0,2  | 0,2 | 0,2 | 30   | 15  | 10 | 10  | 10  |
| 0,2                                    | -  | 0,75 | 0,35 | 0,2 | 0,2 | -  | 30  | 15 | 10  | 10  |
| 0,5S                                   | 1,5  | 0,75 | 0,5  | 0,5 | 0,5 | 90   | 45  | 30 | 30  | 30  |
| 0,5                                    | -  | 1,5  | 0,75 | 0,5 | 0,5 | -  | 90  | 45 | 30  | 30  |
| 1                                      | -  | 3    | 1,5  | 1   | 1   | -  | 180 | 90 | 60  | 60  |
| <b>Protective Current Transformers</b> |  |      |      |     |     |  |     |    |     |     |
| 5P                                     | -  | -    | -    | 1   | -   | -  | -   | -  | 60  | -   |
| 10P                                    | -  | -    | -    | 3   | -   | -  | -   | -  | -   | -   |

# APPLICATIONS

KAT, KATK, HKA and SAA cable type transformers;

Are used for metering and protection purposes. Max. operating voltage is 0.72 kV.

They can be used with fully insulated cables on all voltage level. Those are maintenance free products on the operation. Cable type transformers have two different kind of base plate that allows mounting in any position.

KAT, KATK and SAA types are proper to indoor; HKA type is proper to outdoor applications.

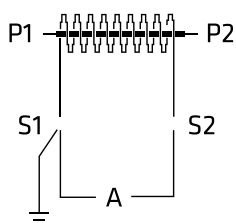
## Secondary terminals

One of the secondary terminals should be earthed for safety.

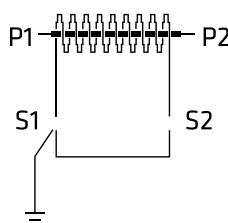
Secondary winding of a current transformer must not be operated with an open circuit. It should be connected measuring devices before application of primary connection as seen in **FIGURE-1**.

The secondary winding of current transformer which will not be used must always be short-circuited and earthed as seen in **FIGURE-2**.

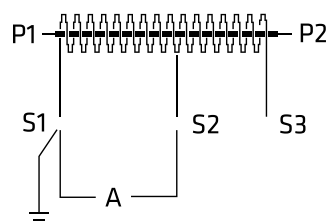
For the transformer with reconnectable and/or tapped secondaries, unused terminals must be left open as seen in **FIGURE-3**.



**FIGURE-1**

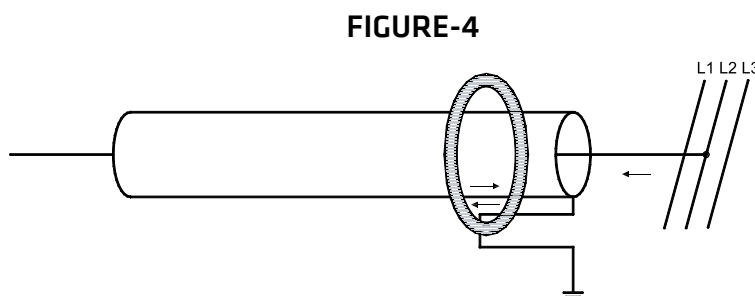


**FIGURE-2**



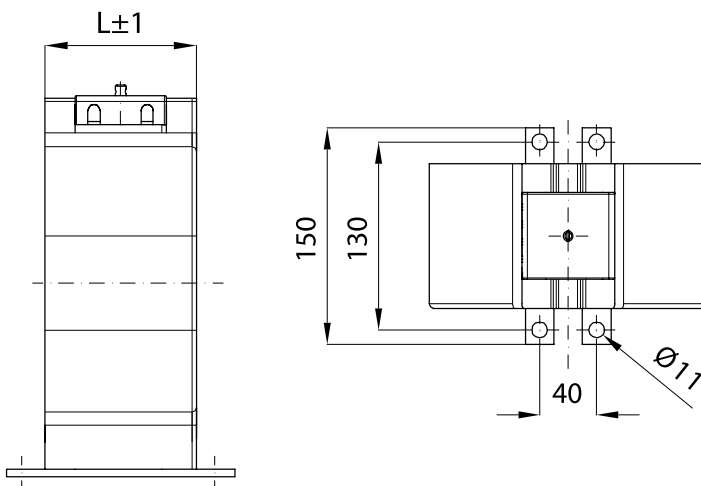
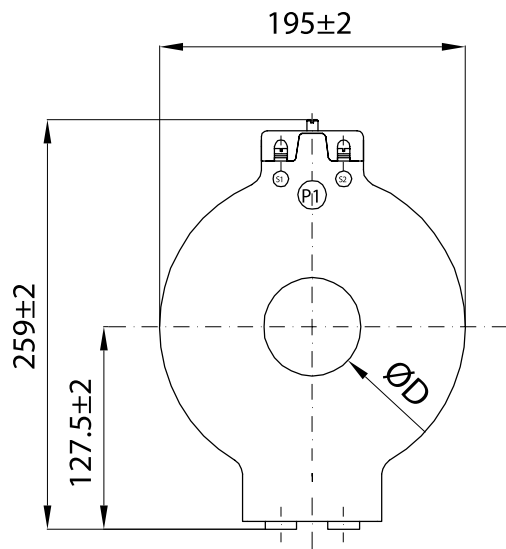
**FIGURE-3**

If cable type current transformers will be assembled on to isolated HV cable, shielded cable should be earthed as seen on **FIGURE-4** to be able to prevent effects caused by the possible leakage current flow on measuring systems.



**FIGURE-4**

KAT-60/80

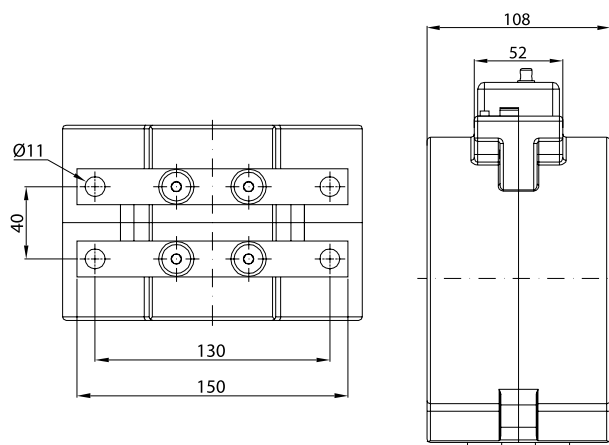
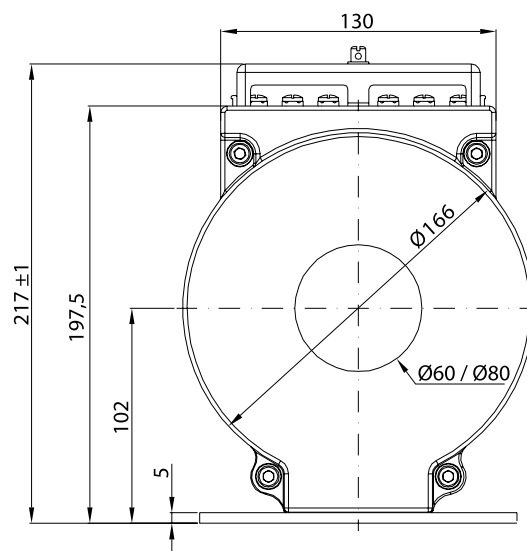


| TYPE           | ØD | L   |
|----------------|----|-----|
| KAT-60/195-60  | 60 | 60  |
| KAT-60/195-100 | 60 | 100 |
| KAT-80/195-60  | 80 | 60  |
| KAT-80/195-100 | 80 | 100 |
| KAT-80/195-120 | 80 | 120 |
| KAT-80/195-150 | 80 | 150 |

TECHNICAL DATA

|  |                 |                                     |
|--|-----------------|-------------------------------------|
| Rated primary current I <sub>pr</sub>  | A               | 40.....8000A                        |
| Rated secondary current I <sub>s</sub> | A               | 1A, 5A                              |
| Rated frequency                        | Hz              | 50Hz, 60Hz                          |
| Class rated burden                     | VA              | Acc. to customer requirement        |
| Accuracy class                         |                 | Acc. to customer requirement        |
| Insulation level                       |                 | 0,72 / 3 / - kV                     |
| Rated short time thermal current       | I <sub>th</sub> | min. 100*I <sub>pr</sub>            |
| Insulation class                       |                 | E                                   |
| Standart                               |                 | IEC, VDE, ANSI, AS, CAN, GOST, etc. |

## KATK-60/80

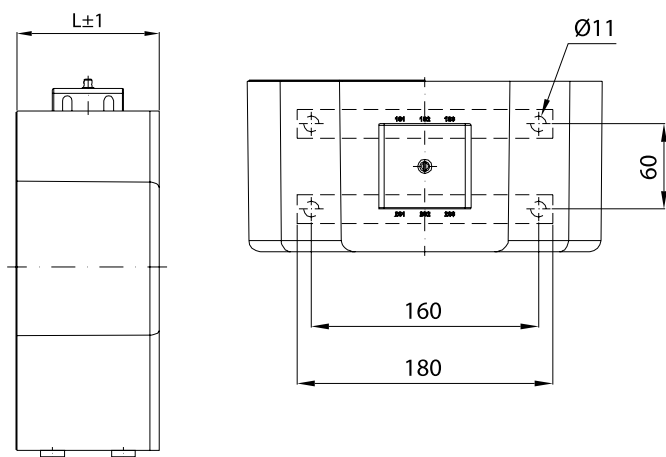
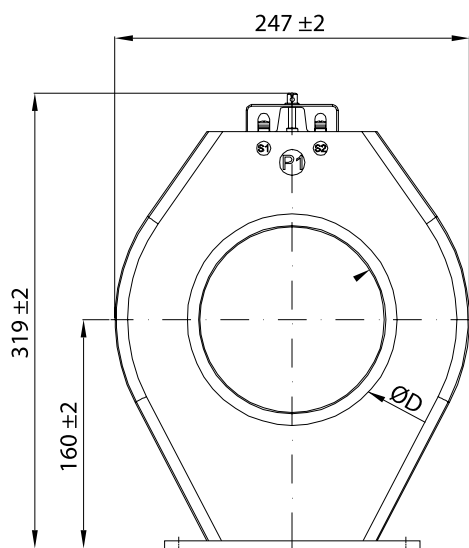


### TECHNICAL DATA

|                                  |     |                                     |
|----------------------------------|-----|-------------------------------------|
| Rated primary current $I_{pr}$   | A   | 40-8000A                            |
| Rated secondary current $I_s$    | A   | 1A, 5A                              |
| Rated frequency                  | Hz  | 50Hz, 60Hz                          |
| Class rated burden               | VA  | Acc. to customer requirement        |
| Accuracy class                   |     | Acc. to customer requirement        |
| Insulation level                 |     | 0,72 / 3 / - kV                     |
| Rated short time thermal current | lth | min. 100* $I_{pr}$                  |
| Insulation class                 |     | E                                   |
| Standart                         |     | IEC, VDE, ANSI, AS, CAN, GOST, etc. |



## KAT-60/130 / 180

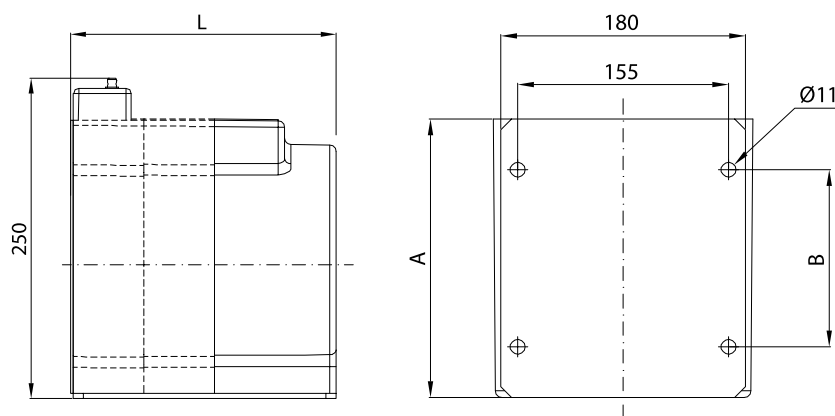
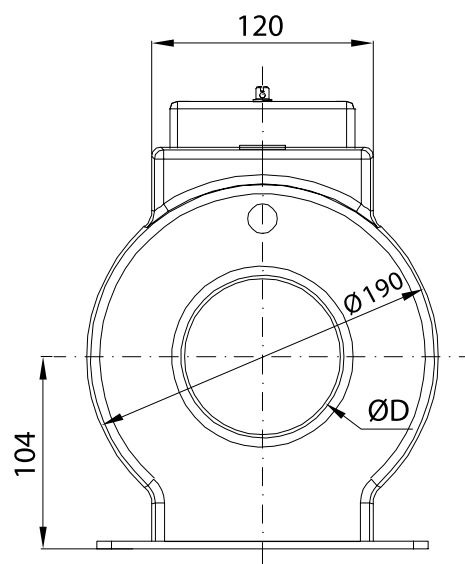


| TYPE            | ØD  | L   |
|-----------------|-----|-----|
| KAT-60/250-120  | 60  | 120 |
| KAT-130/250-60  | 130 | 60  |
| KAT-130/250-120 | 130 | 120 |
| KAT-180/250-60  | 180 | 60  |
| KAT-180/250-120 | 180 | 120 |

### TECHNICAL DATA

|                                  |     |                                     |
|----------------------------------|-----|-------------------------------------|
| Rated primary current $I_{pr}$   | A   | 40.....8000A                        |
| Rated secondary current $I_s$    | A   | 1A, 5A                              |
| Rated frequency                  | Hz  | 50Hz, 60Hz                          |
| Class rated burden               | VA  | Acc. to customer requirement        |
| Accuracy class                   |     | Acc. to customer requirement        |
| Insulation level                 |     | 0,72 / 3 / - kV                     |
| Rated short time thermal current | lth | min. 100* $I_{pr}$                  |
| Insulation class                 |     | E                                   |
| Standart                         |     | IEC, VDE, ANSI, AS, CAN, GOST, etc. |

## KAT-85/98

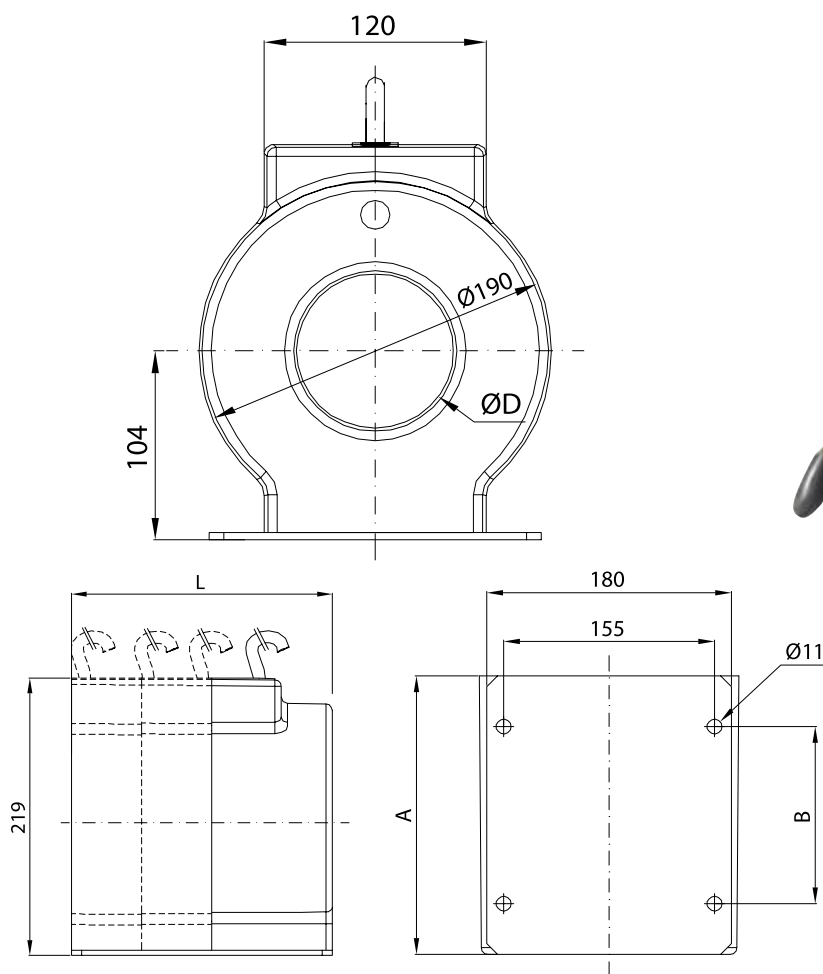


| TYPE           | ØD | L   | A   | B   |
|----------------|----|-----|-----|-----|
| KAT-85/190-95  | 85 | 95  | 95  | 50  |
| KAT-85/190-150 | 85 | 150 | 150 | 75  |
| KAT-85/190-205 | 85 | 205 | 205 | 130 |
| KAT-98/190-95  | 98 | 95  | 95  | 50  |
| KAT-98/190-150 | 98 | 150 | 150 | 75  |
| KAT-98/190-205 | 98 | 205 | 205 | 130 |

### TECHNICAL DATA

|                                  |     |                                     |
|----------------------------------|-----|-------------------------------------|
| Rated primary current $I_{pr}$   | A   | 40.....8000A                        |
| Rated secondary current $I_s$    | A   | 1A, 5A                              |
| Rated frequency                  | Hz  | 50Hz, 60Hz                          |
| Class rated burden               | VA  | Acc. to customer requirement        |
| Accuracy class                   |     | Acc. to customer requirement        |
| Insulation level                 |     | 0,72 / 3 / - kV                     |
| Rated short time thermal current | lth | min. $100 \cdot I_{pr}$             |
| Insulation class                 |     | E                                   |
| Standart                         |     | IEC, VDE, ANSI, AS, CAN, GOST, etc. |

## KATK-85/98



|                           | 1A  | 5A  |
|---------------------------|---|---|
| 1 Primary and 1 Secondary | 2x2,5 mm <sup>2</sup><br>S1-Black, S2-Brown   | 2x4 mm <sup>2</sup><br>S1-Black, S2-Brown   |
| 2 Primary and 1 Secondary | 3x2,5 mm <sup>2</sup><br>S1-Black, S2-Brown, S3-Grey  | 2x4 mm <sup>2</sup><br>S1-Black, S2-Brown, S3-Grey  |
| 1 Primary and 2 Secondary | 2x(2x2,5 mm) <sup>2</sup><br>1S1-Black, 1S2-Brown<br>2S1-Black, 2S2-Brown   | 2x(2x4 mm) <sup>2</sup><br>1S1-Black, 1S2-Brown<br>2S1-Black, 2S2-Brown   |
| 2 Primary and 2 Secondary | 2x(3x2,5 mm) <sup>2</sup><br>1S1-Black, 1S2-Brown, 1S3-Grey<br>2S1-Black, 2S2-Brown, 2S3-Grey                                   | 2x(3x4 mm) <sup>2</sup><br>1S1-Black, 1S2-Brown, 1S3-Grey<br>2S1-Black, 2S2-Brown, 2S3-Grey                                   |
| 2 Primary and 3 Secondary | 3x(3x2,5 mm) <sup>2</sup><br>1S1-Black, 1S2-Brown, 1S3-Grey<br>2S1-Black, 2S2-Brown, 2S3-Grey<br>3S1-Black, 3S2-Brown, 3S3-Grey | 3x(3x4 mm) <sup>2</sup><br>1S1-Black, 1S2-Brown, 1S3-Grey<br>2S1-Black, 2S2-Brown, 2S3-Grey<br>3S1-Black, 3S2-Brown, 3S3-Grey |

| TYPE            | ØD | L   | A   | B   |
|-----------------|----|-----|-----|-----|
| KATK-85/190-95  | 85 | 95  | 95  | 50  |
| KATK-85/190-150 | 85 | 150 | 150 | 75  |
| KATK-85/190-205 | 85 | 205 | 205 | 130 |
| KATK-98/190-95  | 98 | 95  | 95  | 50  |
| KATK-98/190-150 | 98 | 150 | 150 | 75  |
| KATK-98/190-205 | 98 | 205 | 205 | 130 |

### TECHNICAL DATA

|  |                 |                                     |
|--|-----------------|-------------------------------------|
| Rated primary current I <sub>pr</sub>  | A               | 40.....8000A                        |
| Rated secondary current I <sub>s</sub> | A               | 1A, 5A                              |
| Rated frequency                        | Hz              | 50Hz, 60Hz                          |
| Class rated burden                     | VA              | Acc. to customer requirement        |
| Accuracy class                         |                 | Acc. to customer requirement        |
| Insulation level                       |                 | 0,72 / 3 / - kV                     |
| Rated short time thermal current       | I <sub>th</sub> | min. 100*I <sub>pr</sub>            |
| Insulation class                       |                 | E                                   |
| Standart                               |                 | IEC, VDE, ANSI, AS, CAN, GOST, etc. |

# TECHNICAL INFORMATION FOR SAA SPLIT CORE CURRENT TRANSFORMERS

## ASSEMBLY

Split Core Current Transformers have a magnetic circuit which is splitted two parts and its max. operating vorage is 0.72 kV with non-insulated busbars. However they can be used with fully insulated cables on all voltage level. These transformers can be assembled to the system without any power interruption and without the need of demounting any conductor.

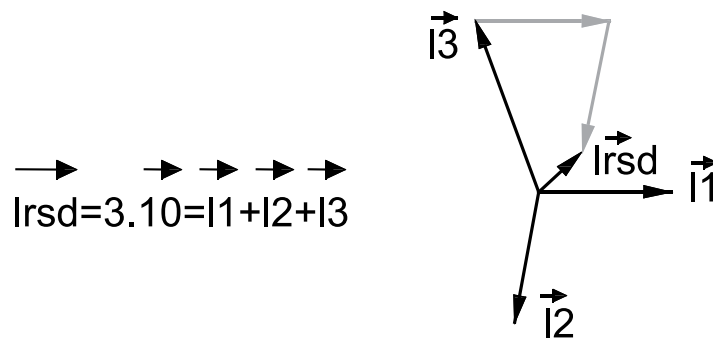
These transformers are used for measuring and protection.

Moreover; they are used for special applications such as measurement of leakage current with precision cores which have high magnetic permeability.

### SAA For Measuring Earth Leakage

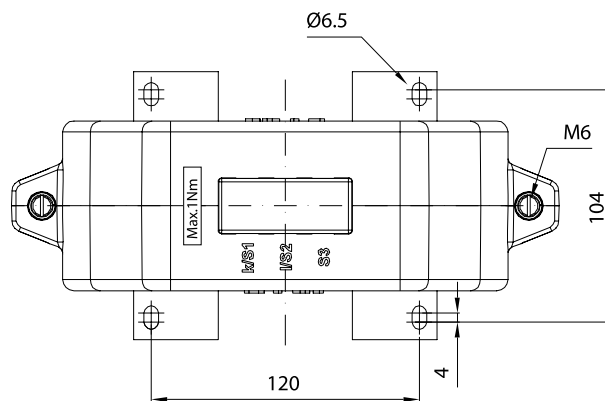
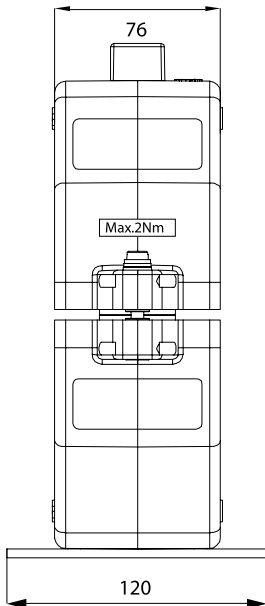
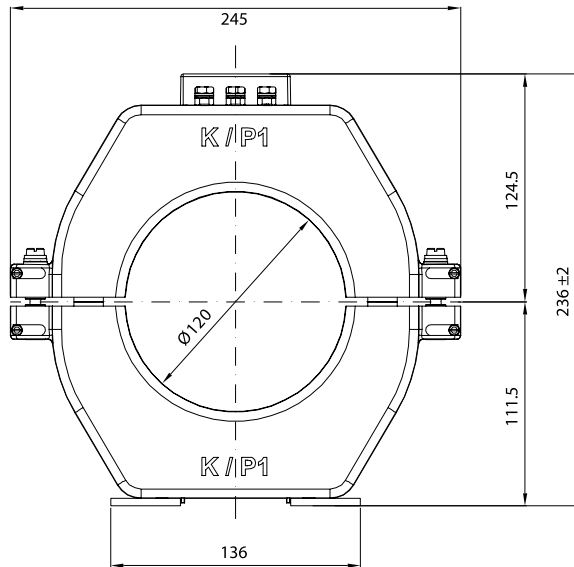
Nominal Current 50A - 100A.

SAA For Measuring Earth Leakage transformers have high permeability cores. They are suitable for measuring earth leakage current at three phase networks. At well designed three phase network, any of three phase current's vectorial sum is zero.



In case of an earth leakage the balance of the current in cable is disrupted and the resultant earth leakage current excites the transformer. Depending on the measurement procedure of the earth fault currents, either a secondary current or a voltage transformer simply actuates earth fault detectors and/or relays.

SAA-120

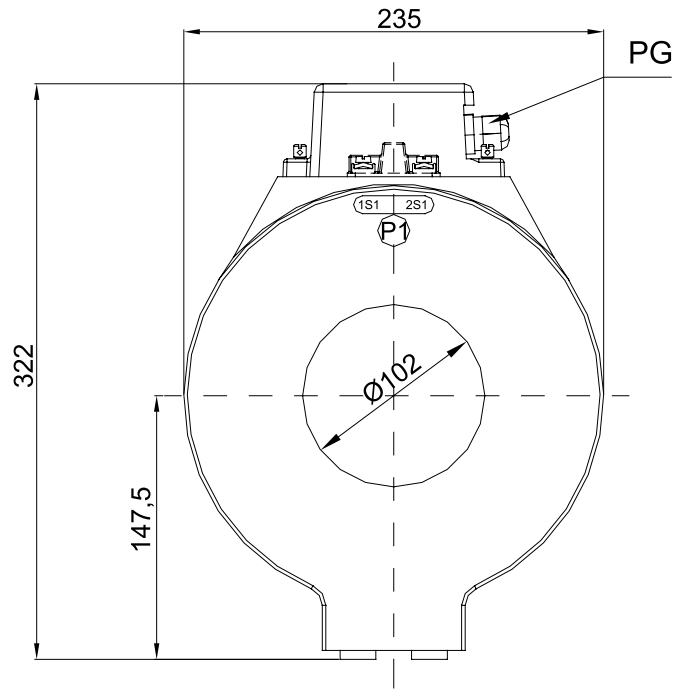


TECHNICAL DATA

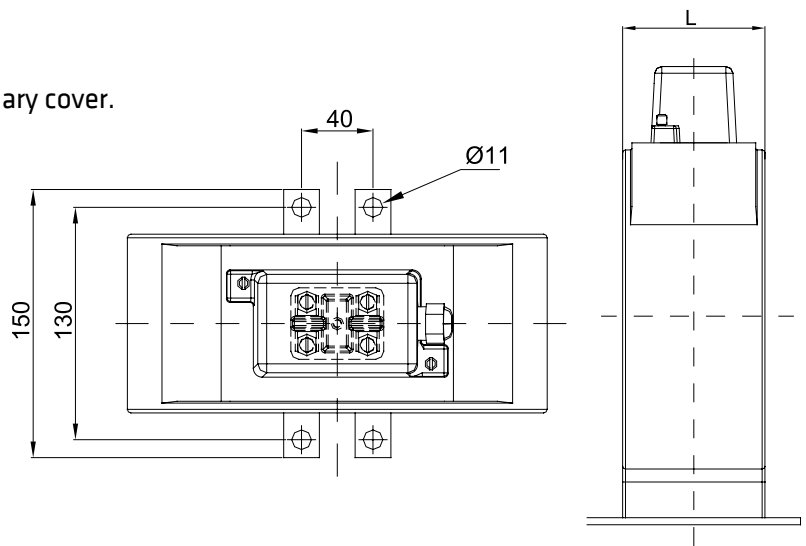
|  |                 |                                     |
|--|-----------------|-------------------------------------|
| Rated primary current I <sub>pr</sub>  | A               | 50.....2500A                        |
| Rated secondary current I <sub>s</sub> | A               | 1A, 5A                              |
| Rated frequency                        | Hz              | 50Hz, 60Hz                          |
| Class rated burden                     | VA              | Acc. to customer requirement        |
| Accuracy class                         |                 | Acc. to customer requirement        |
| Insulation level                       |                 | 0,72 / 3 / - kV                     |
| Rated short time thermal current       | I <sub>th</sub> | min. 100*I <sub>pr</sub>            |
| Insulation class                       |                 | E                                   |
| Standart                               |                 | IEC, VDE, ANSI, AS, CAN, GOST, etc. |

# OUTDOOR CABLE TYPE CURRENT TRANSFORMERS

## HKA-100



- Suitable for outdoor application
- IP66 protection class with aluminium secondary cover.

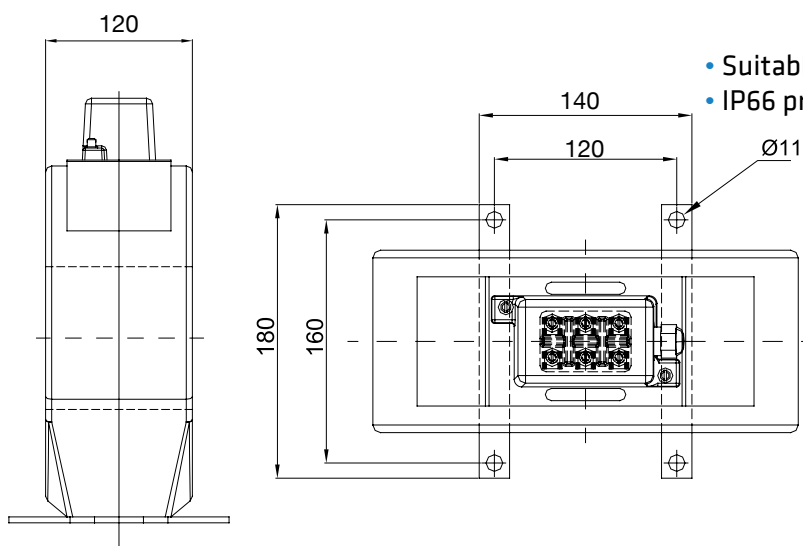
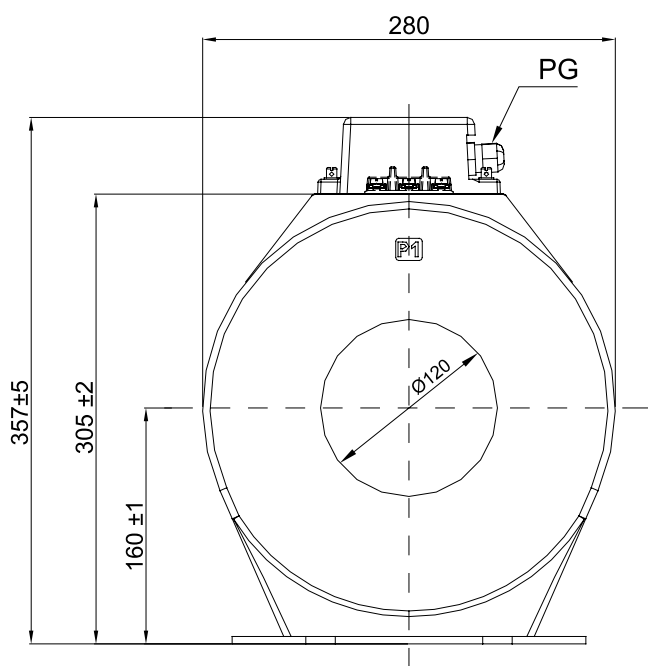


| TYPE            | ØX  | L   |
|-----------------|-----|-----|
| HKA-100/235-80  | 100 | 80  |
| HKA-100/235-100 | 100 | 100 |

### TECHNICAL DATA

|                                  |          |                                     |
|----------------------------------|----------|-------------------------------------|
| Rated primary current $I_{pr}$   | A        | 50.....8000A                        |
| Rated secondary current $I_s$    | A        | 1A, 5A                              |
| Rated frequency                  | Hz       | 50Hz, 60Hz                          |
| Class rated burden               | VA       | Acc. to customer requirement        |
| Accuracy class                   |          | Acc. to customer requirement        |
| Insulation level                 |          | 0,72 / 3 / - kV                     |
| Rated short time thermal current | $I_{th}$ | min. $100 \cdot I_{pr}$             |
| Insulation class                 |          | E                                   |
| Standart                         |          | IEC, VDE, ANSI, AS, CAN, GOST, etc. |

## HKA-120



- Suitable for outdoor application
- IP66 protection class with aluminium secondary cover.

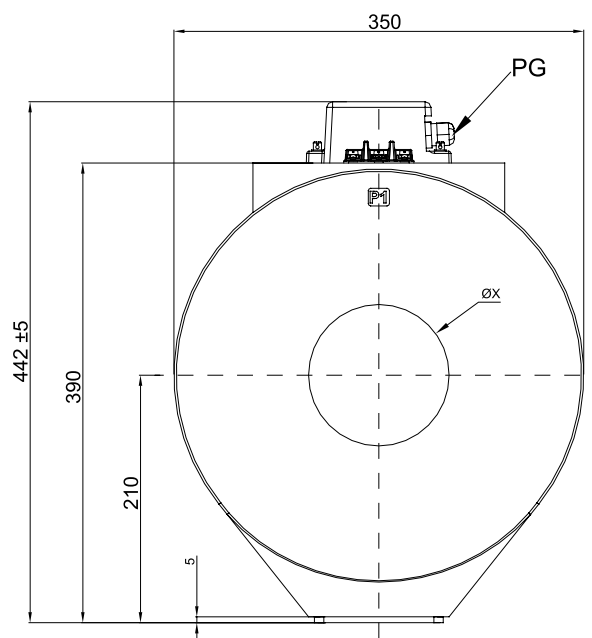
| TYPE            | ØX  | L   |
|-----------------|-----|-----|
| HKA-120/280-120 | 120 | 120 |

### TECHNICAL DATA

|  |                 |                                     |
|--|-----------------|-------------------------------------|
| Rated primary current I <sub>pr</sub>  | A               | 50.....8000A                        |
| Rated secondary current I <sub>s</sub> | A               | 1A, 5A                              |
| Rated frequency                        | Hz              | 50Hz, 60Hz                          |
| Class rated burden                     | VA              | Acc. to customer requirement        |
| Accuracy class                         |                 | Acc. to customer requirement        |
| Insulation level                       |                 | 0,72 / 3 / - kV                     |
| Rated short time thermal current       | I <sub>th</sub> | min. 100*I <sub>pr</sub>            |
| Insulation class                       |                 | E                                   |
| Standart                               |                 | IEC, VDE, ANSI, AS, CAN, GOST, etc. |

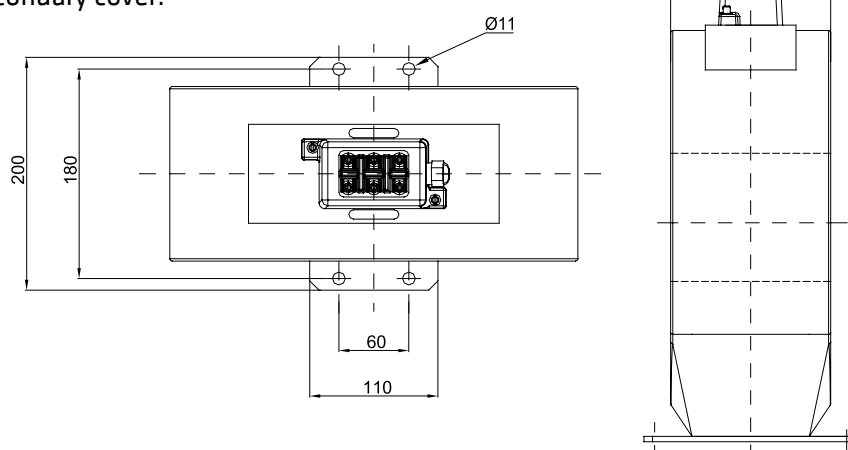
# OUTDOOR CABLE TYPE CURRENT TRANSFORMERS

## HKA-120/150/180/200/270



- Suitable for outdoor application
- IP66 protection class with aluminium secondary cover.

| TYPE            | ØX  |
|-----------------|-----|
| HKA-120/350-150 | 120 |
| HKA-150/350-150 | 150 |
| HKA-180/350-150 | 180 |
| HKA-200/350-150 | 200 |
| HKA-270/350-150 | 270 |



### TECHNICAL DATA

|  |                 |                                     |
|--|-----------------|-------------------------------------|
| Rated primary current I <sub>pr</sub>  | A               | 50.....8000A                        |
| Rated secondary current I <sub>s</sub> | A               | 1A, 5A                              |
| Rated frequency                        | Hz              | 50Hz, 60Hz                          |
| Class rated burden                     | VA              | Acc. to customer requirement        |
| Accuracy class                         |                 | Acc. to customer requirement        |
| Insulation level                       |                 | 0,72 / 3 / - kV                     |
| Rated short time thermal current       | I <sub>th</sub> | min. 100*I <sub>pr</sub>            |
| Insulation class                       |                 | E                                   |
| Standart                               |                 | IEC, VDE, ANSI, AS, CAN, GOST, etc. |





## BUSHING TYPE CURRENT TRANSFORMERS

# SINGLE CORE ASSEMBLED BUSHING CURRENT TRANSFORMERS

## APPLICATIONS

Bushing current transformers are designed and used in oil type power and distribution transformers, high voltage gas insulated systems, medium voltage air-insulated panels and generators for measuring and protection purposes between 40A and 30.000A primary currents.

According to the application area, woven polyester and polyester film, or their combination are used for their insulation. Transformers can be produced as a single unit or as a set by bringing together more than one unit. Production feasibilities based on dimension are as follows;

- Inner diameter > 50mm
- Outside diameter < 1800mm
- Height < 500mm
- Weight < 750kg



Each Bushing current transformer is 100% routine tested in accordance to the standard which defined on its label and are reported to our clients. Transformers can be produced as a single unit or as a set by bringing together more than one unit.

The advantages of assembly set;

1. Easy assembly,
2. All the materials are anti-magnetic
3. Different identification application for secondary (color codes, plastic labels, etc.)
4. They can be used for all measuring and protection applications.

### TECHNICAL DATA

|                                  |     |                                     |
|----------------------------------|-----|-------------------------------------|
| Rated primary current $I_{pr}$   | A   | 40...30.000A                        |
| Rated secondary current $I_s$    | A   | 1A, 5A                              |
| Rated frequency                  | Hz  | 50Hz, 60Hz                          |
| Class rated burden               | VA  | Acc. To customer requirement        |
| Accuracy class                   |     | Acc. To customer requirement        |
| Insulation level                 |     | 0,72 / 3 / - kV                     |
| Rated short time thermal current | lth | min. 100* $I_{pr}$                  |
| Insulation class                 |     | E or F                              |
| Standart                         |     | IEC, VDE, ANSI, AS, CAN, GOST, etc. |





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