



## LINETRAXX® CTUB100 series

AC/DC sensitive measuring current transformers (type B)

### Intended use

The AC/DC sensitive measuring current transformers (type B) of the CTUB100 series convert system leakage and fault currents into an evaluable measurement signal. The devices are suitable for detecting fault currents with smooth DC components. They consist of a CTBC... measuring current transformer core and a CTUB10... electronic module, which can be combined to suit the application. The measuring current transformers can be used in DC, AC, and 3(N)AC systems. The measurement signal is evaluated using devices of the RCMA4..., RCMS4..., RCMB4... or MRCDDB4... series, respectively EDS441-LAB series, to which the measuring current transformers are connected. Any other use than that described in this manual is regarded as improper.

### General safety instructions

Part of the device documentation in addition to this manual is the enclosed "Important safety instructions for Bender products".

**Installation, connection and commissioning are to be carried out by electrically skilled persons only!**

It is essential to follow the existing safety instructions.



**DANGER!** indicates a high risk of danger that will result in death or serious injury if not avoided.



**CAUTION!** indicates a low-level risk that can result in minor or moderate injury or damage to property if not avoided.



This symbol refers to information that is designed to help you make the best use of the product.



### Device features

- Multicolour LED for operation, fault and status messages
- Electronic module can be exchanged without mechanical separation of the primary conductors
- Extension/retrofitting or modification of functionalities possible in case of changed monitoring requirements
- Insensitive to load currents due to full magnetic shield, can be used for high short-term system-related load currents (for CTBC...P only).
- Monitoring of the connection to the measuring current transformer

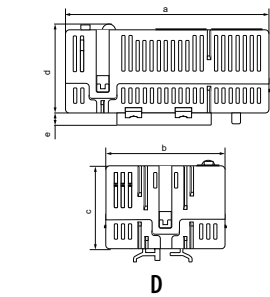
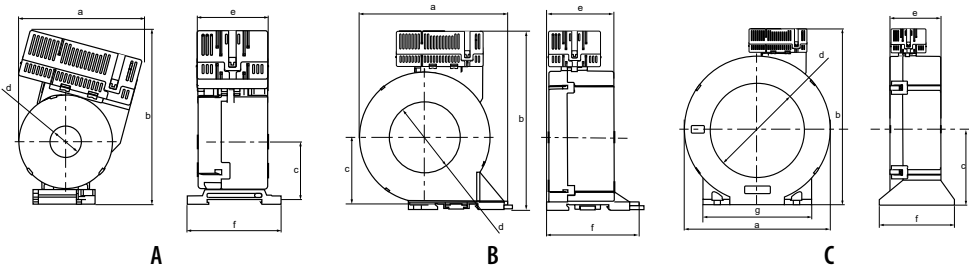
### Overview: Possible combinations of evaluator, electronic module and measuring current transformer core

| Electronic module                                        | Evaluator               | Meas. CT core      | Connecting cable      | Supply voltage                                                                    |
|----------------------------------------------------------|-------------------------|--------------------|-----------------------|-----------------------------------------------------------------------------------|
| CTUB101                                                  | RCMA420                 | CTBC20(P)...60(P)  | CTX...<br>(6 wires)   | DC $\pm 12$ V<br>The evaluator supplies the measuring current transformer.        |
|                                                          | RCMA423                 | CTBC20(P)...210(P) |                       |                                                                                   |
|                                                          | RCMS460/490*            | CTBC20(P)...210(P) | CTX...<br>(5/6 wires) | DC $\pm 12$ V<br>External power supply unit AN420                                 |
| CTUB102, CTUB105                                         | RCMS410/425<br>/460/490 | CTBC20(P)...210(P) | CTXS...<br>(4 wires)  | DC 24 V<br>External power supply unit required for measuring current transformer. |
| CTUB102<br>(Replaces CTUB104 in EDS441-LAB applications) | EDS441-LAB              | CTBC20(P)...60(P)  |                       |                                                                                   |

\* Only recommended for retrofit if an AN420 power supply unit is already available. In this case, if the ready-made connecting cable CTX... is used, the green plugs of the connecting cable (on the evaluator side) must be removed.

Afterwards, the individual conductors must be crimped and connected to the RCMS460/490 or the AN420. In this case, the conductor "T" is not used

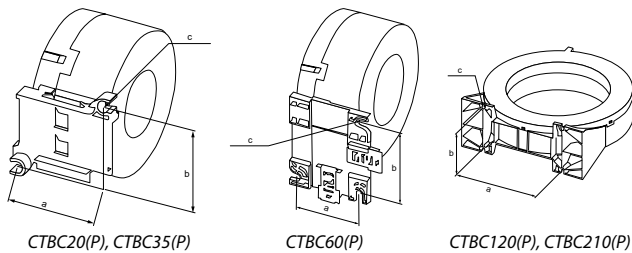
Dimension diagrams



Dimensions (mm), tolerance: ±0.5 mm

|   | Type               | a   | b   | c   | d     | e   | f    | g   |
|---|--------------------|-----|-----|-----|-------|-----|------|-----|
| A | CTUB...-CTBC20(P)  | 75  | 83  | 37  | ø 20  | 46  | 60.5 | —   |
|   | CTUB...-CTBC35(P)  | 97  | 130 | 47  | ø 35  | 46  | 61   | —   |
| B | CTUB...-CTBC60(P)  | 126 | 151 | 57  | ø 60  | 56  | 78   | —   |
| C | CTUB...-CTBC120(P) | 188 | 225 | 96  | ø 120 | 65  | 96   | 139 |
|   | CTUB...-CTBC210(P) | 302 | 339 | 153 | ø 210 | 67  | 113  | 277 |
| D | CTUB...            | 74  | 44  | 30  | 32    | 4.6 | —    | —   |

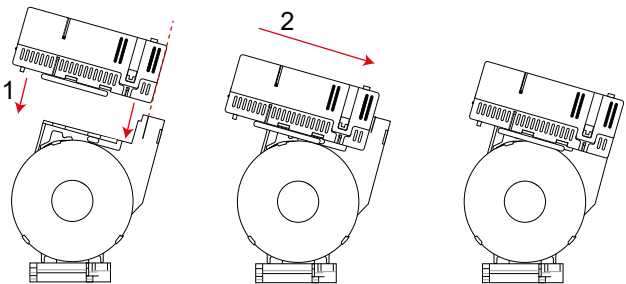
Mountings (mm)



| Type       | a    | b  | c         |
|------------|------|----|-----------|
| CTBC20(P)  | 31.4 | 49 | 2 x ø 5.5 |
| CTBC35(P)  | 49.8 | 49 | 2 x ø 5.5 |
| CTBC60(P)  | 56   | 66 | 3 x ø 6.5 |
| CTBC120(P) | 103  | 81 | 4 x ø 6.5 |
| CTBC210(P) | 180  | 98 | 4 x ø 6.5 |

Assembly

Slide the electronic module onto the plug contacts of the measuring current transformer.



**i** Avoid repeated plugging and unplugging of the electronics (10 plugging cycles).

## Device view

| No.         | CTUB101                                         |                                                 | CTUB102                        | CTUB105                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Note                                                                                 |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
|-------------|-------------------------------------------------|-------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------|--------------------------|----------------------|--|-----------------------------|------------|--|---------------------------------------------|-----------|--|--------------------------|----------|
| 1           | Terminal                                        | S1 (k)                                          |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Connection measuring current transformer core                                        |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 2           |                                                 | S2 (l)                                          |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 3           |                                                 | —                                               |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 4           |                                                 | —                                               | GND*                           | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Not in use                                                                           |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 5           |                                                 | +12 V                                           | 24 V                           | 24 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                      |             | Supply voltage $U_S$     |                      |  |                             |            |  |                                             |           |  |                          |          |
| 6           |                                                 | GND                                             |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 7           |                                                 | −12 V                                           | —                              | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                      |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 8           |                                                 | T                                               | T*                             | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Connection external test from RCMA...                                                |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 9           | Test button T                                   |                                                 |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | a) Offset calibration <sup>1</sup>   b) Internal functional test <sup>2</sup>        |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 10          | Combined LED                                    |                                                 |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | LED lights green<br>LED flashes red<br>normal operation<br>device error <sup>3</sup> |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
| 11          | Potentiometer for adjusting the measuring range | Potentiometer for adjusting the measuring range | Potentiometer without function | <table><thead><tr><th>CTUB101/102</th><th>Response value evaluator</th><th>Measuring range peak</th></tr></thead><tbody><tr><td></td><td><math>I_{DN} \leq 0.1 \text{ A}</math></td><td>0...900 mA</td></tr><tr><td></td><td><math>0.1 \text{ A} &lt; I_{DN} \leq 0.5 \text{ A}</math></td><td>0...3.5 A</td></tr><tr><td></td><td><math>I_{DN} &gt; 0.5 \text{ A}</math></td><td>0...20 A</td></tr></tbody></table> <p><b>RCM applications:</b> Select the measuring range according to the response value <math>I_{DN}</math> set on the evaluator. If a larger measuring range is selected, the accuracy will decrease.</p> <p><b>CTUB102 with EDS441-LAB:</b> Location current EDS441-LAB max. 25 mA. Adjust the measuring range on the measuring current transformer to this range.</p> <p><b>CTUB105:</b> Measuring range 3 is fixed and cannot be changed.</p> |                                                                                      | CTUB101/102 | Response value evaluator | Measuring range peak |  | $I_{DN} \leq 0.1 \text{ A}$ | 0...900 mA |  | $0.1 \text{ A} < I_{DN} \leq 0.5 \text{ A}$ | 0...3.5 A |  | $I_{DN} > 0.5 \text{ A}$ | 0...20 A |
| CTUB101/102 | Response value evaluator                        | Measuring range peak                            |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
|             | $I_{DN} \leq 0.1 \text{ A}$                     | 0...900 mA                                      |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
|             | $0.1 \text{ A} < I_{DN} \leq 0.5 \text{ A}$     | 0...3.5 A                                       |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |
|             | $I_{DN} > 0.5 \text{ A}$                        | 0...20 A                                        |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |             |                          |                      |  |                             |            |  |                                             |           |  |                          |          |

\* CTUB102 terminal 4 and 8: currently not in use

### <sup>1</sup> Test button T: Offset calibration

**i** For measuring current transformer cores with an **internal diameter  $\geq 120 \text{ mm}$** , an **offset calibration** should always be carried out before the first commissioning. Note that during the offset calibration the system is switched off and no current flows through the measuring current transformer.

#### Offset calibration sequence

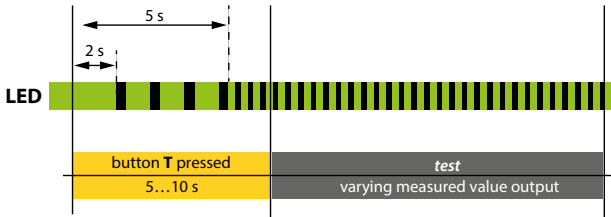
|   | Action                                                                                                                                                 | LED |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 1 | Install the measuring current transformer in the system, assemble the electronic module and the measuring current transformer core, $U_S$ disconnected | Off |
| 2 | Press and hold the "T" button                                                                                                                          | Off |

|    | Action                                                                                                                                                                                                   | LED                                                                 |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| 3a | Press and hold "T", supply the electronic module with supply voltage $U_S$                                                                                                                               | Lights red permanently (not ready for operation)                    |
| 3b |                                                                                                                                                                                                          | Flashes red <b>slowly</b> after approx. 2 s (ready for calibration) |
| 3c |                                                                                                                                                                                                          | Flashes red <b>quickly</b> after a total of 5 s (calibration mode)  |
| 4  | Start calibration: release "T" when the LED flashes red quickly                                                                                                                                          | Flashes red quickly                                                 |
| 5  | Calibration in progress                                                                                                                                                                                  | Flashes red quickly                                                 |
| 6a | Calibration successful, values are accepted                                                                                                                                                              | Lights green permanently                                            |
| 6b | Calibration not successful. Calibration value is not accepted. The device is in an error state. Either carry out another offset measurement or clear the error by switching the device off and on again. | Flashes red slowly                                                  |

**2 Test button T:**  
**Internal functional test**

Press test button “T” for 5... 10 s.  
When the LED flashes green quickly, release the button.  
Function test begins, varying measured values are output. Their amplitude depends on the setting of the detent potentiometer.

After completion of the function test, the LED lights up green.



**3 Device error**

- i** **CTUB101/102:** In the event of a fault, a high DC residual current (equal to the respective full scale value) is also output so that the fault is visible on the evaluator.
- CTUB105:** A fixed residual current is output (see technical data).

| Possible cause of error                                                                                      | Action                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection between CTUB... and CTBC... is not correct                                                        | Check connection or disconnect CTUB... and CTBC... and reconnect                                                                                                                                                   |
| Error after offset calibration (possibly system not switched off and therefore DC residual current too high) | Either carry out an offset calibration again or clear the error by switching the device off and on again. either carry out an offset calibration again or clear the error by switching the device off and on again |
| Supply voltage $U_s$ incorrect ( $\pm 12$ V or 24 V)                                                         | Apply correct supply voltage $U_s$                                                                                                                                                                                 |

| Possible cause of error                                                                          | Action                                             |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------|
| Detent potentiometer (11) is not correctly engaged in one position, but is between two positions | Engage the detent potentiometer correctly          |
| Detent potentiometer is not set correctly, evaluators display error E.01 (CT error)              | Set correct response value on detent potentiometer |

If the fault cannot be eliminated, contact Bender Service.

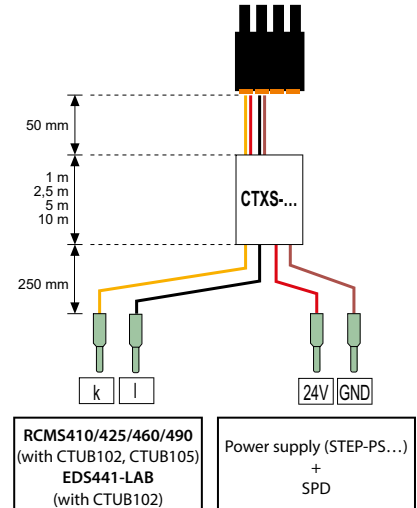
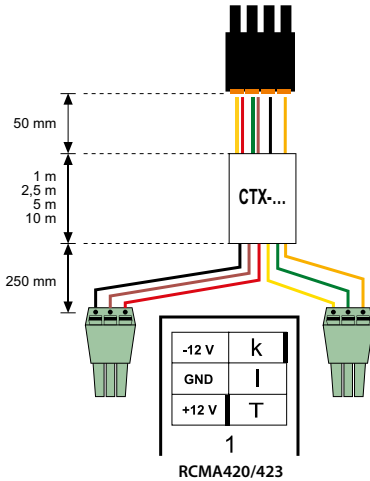
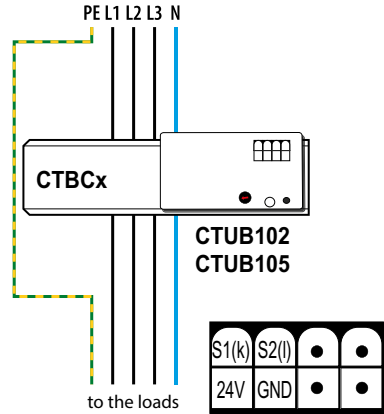
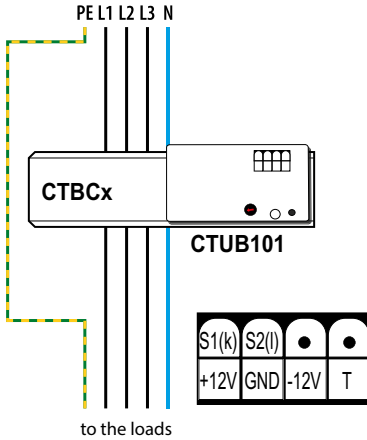
**Wiring**

-  **DANGER** of electrocution due to electric shock!  
Touching live parts of the system carries the risk of:
  - An electric shock
  - Damage to the electrical installation
  - Destruction of the device**Before installing and connecting the device, make sure that the installation has been de-energised.** Observe the rules for working on electrical installations. Observe the information on rated voltage and supply voltage specified in the technical data!

- i** Application in railway vehicles/  
DIN EN 45545-2:2016!  
If the horizontal or vertical distance to adjacent components which do not meet the requirements in table 2 of DIN EN 45545-2 is less than 20 mm or less than 200 mm respectively, they are to be regarded as grouped. Refer to DIN EN 45545-2 chapter 4.3 Grouping rules.
- i** The wires can be routed in any direction.

Connect the device according to the wiring diagram.  
Please observe the technical data.

## Wiring diagram



The use of a type 2 surge protection device (SPD) is mandatory due to possible impulse voltages and in order to comply with normative requirements. The surge protection device must be connected upstream of the power supply unit on the supply side.

Features of the surge protection device:

- Nominal discharge current  $I_n$  (8/20  $\mu$ s): 20 kA
- Response time: 25 ns
- two-stage: 1 varistor + 1 spark gap

Alternatively, the power supply unit must be connected to a CAT II supply without a surge protection device.



### CAUTION!

When using several CTUB100 measuring current transformers, the power supply (24V, GND) must not be daisy-chained from current transformer to current transformer but should be star-shaped (e.g. using a potential distributor).



### Test current

The EDS441-LAB operates exclusively with a test current of max. 25 mA. Adjust the measuring range on the measuring current transformer to this range.

Installation instructions measuring current transformer

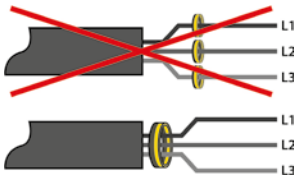
 **CAUTION!** Existing protective conductors and low-resistance conductor loops must not be routed through the measuring current transformer! Otherwise, high currents could be induced into the conductor loop due to the AC/DC sensitive measuring technology used.

 **CAUTION!** The connecting cable (supply, secondary connection etc.) must not be routed directly past the current transformer core, otherwise interference pulses may occur.

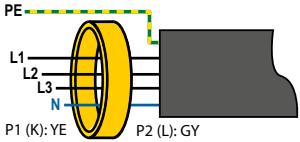
 **CAUTION!** The measuring current transformer must be connected to the corresponding evaluator before the first use and before commissioning of the monitored installation.

 Do not route any shielded cables through the measuring current transformer.

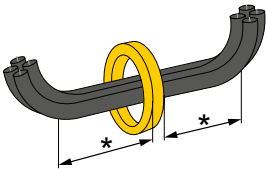
Pay attention to the following:



All current-carrying cables must be routed through the measuring current transformer.

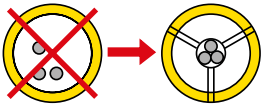


Never route an existing protective conductor through the measuring current transformer.



The primary conductors may only be bent from the specified minimum distance. The minimum bending radius specified by the manufacturers for the conductors used must be observed.

\* Distance to 90° angle = 2 x outer diameter.



The cables must be aligned with the centre of the measuring current transformer.

Technical data

Insulation coordination acc. to IEC 60664-1/IEC 60664-3

Definitions

Measuring circuit (IC1) ..... Prim. conductors routed through the CT  
Secondary (IC2) ..... Connections terminal block  
Rated voltage.....800 V  
Overvoltage category ..... III  
Area of application ..... ≤ 2000 m AMSL  
Rated impulse voltage (IC1/IC2) ..... 8 kV  
Rated insulation voltage (reinforced insulation; IC1/IC2) ..... 800 V  
Pollution degree ..... 2

Supply voltage

CTUB101

Description .....+12 V, GND, -12 V  
Supply voltage  $U_s$  .....DC ±12 V  
Operating range of  $U_s$  .....±2 %

|                                |              |
|--------------------------------|--------------|
| Ripple $U_s$ .....             | ≤ 1 %        |
| Power consumption.....         | ≤ 2.5 W      |
| CTUB102 and CTUB105            |              |
| Description .....              | 24 V, GND    |
| Supply voltage $U_s$ .....     | DC 24 V      |
| Operating range of $U_s$ ..... | ±20 %        |
| Ripple $U_s$ .....             | ≤ 1 %        |
| Power consumption.....         | ≤ 2.5 W      |
| Inrush current.....            | 1 A for 1 ms |

Measuring circuit

|                                                         |                        |
|---------------------------------------------------------|------------------------|
| Internal diameter measuring CT .....                    | see dimension diagrams |
| Rated current / .....RCM application / MRCD application |                        |
| CTBC20 at $I_{\Delta n} \geq 30$ mA.....                | 63 A / 40 A            |
| CTBC20 at $I_{\Delta n} \geq 300$ mA.....               | 80 A / 63 A            |
| CTBC20P .....                                           | 80 A / 80 A            |
| CTBC35 at $I_{\Delta n} \geq 30$ mA.....                | 125 A / 80 A           |
| CTBC35 at $I_{\Delta n} \geq 300$ mA.....               | 160 A / 125 A          |

|                                              |                 |
|----------------------------------------------|-----------------|
| CTBC35P .....                                | 160 A / 160 A   |
| CTBC60 at $I_{\Delta n} \geq 30$ mA .....    | 200 A / 160 A   |
| CTBC60 at $I_{\Delta n} \geq 300$ mA .....   | 400 A / 250 A   |
| CTBC60P .....                                | 400 A / 320 A   |
| CTBC120 at $I_{\Delta n} \geq 100$ mA .....  | 400 A / 330 A   |
| CTBC120P at $I_{\Delta n} \geq 100$ mA ..... | 630 A / 630 A   |
| CTBC210 at $I_{\Delta n} \geq 300$ mA .....  | 630 A / 630 A   |
| CTBC210P at $I_{\Delta n} \geq 100$ mA ..... | 630 A / 630 A   |
| CTBC210P at $I_{\Delta n} \geq 300$ mA ..... | 1000 A / 1000 A |

Measurement accuracy .....  $\pm 1$  % of full scale value

Test winding ..... Yes

Rated continuous thermal current <sup>1)</sup>  $I_{th}$  ..... 125 A  
at UL applications ..... 30 A

Rated short-time thermal current <sup>1)</sup>  $I_{th}$  ..... 2.4 kA/1 s

Rated dynamic current <sup>1)</sup>  $I_{dyn}$  ..... 6 kA/40 ms

..... 50 kA/50 ms

<sup>1)</sup> refers to the residual current

**i** Residual current 6...50 kA: Device defect CTUB1..., message via  
LED. There is no danger of fire or electric shock..

### Possible response values (set on the evaluator)

CTBC20, CTBC20P ..... 10...500 mA

CTBC35, CTBC35P, CTBC60, CTBC60P ..... 30 mA...10 A

CTBC120, CTBC120P, CTBC210P ..... 100 mA...10 A

CTBC210 ..... 300 mA...10 A

### Measuring ranges CTUB101, CTUB102

Measuring range 1 ( $I_{\Delta n} \leq 0.1$  A) ..... 0...900 mA (peak)

Measuring range 2 ( $0.1$  A  $< I_{\Delta n} \leq 0.5$  A) ..... 0...3.5 A (peak)

Measuring range 3 ( $I_{\Delta n} > 0.5$  A) ..... 0...20 A (peak)

### Measuring range CTUB105

Measuring range 3 ( $I_{\Delta n} > 0.5$  A) ..... 0...20 A (peak)

### Indication

Multicolour LED ..... See pages 3/4

### Output

Name ..... S1 (k), S2 (l)

Scaling ..... 400 mV/1 A

Max. voltage .....  $\pm 10$  V

Output device error

CTUB101, 102 ..... Max. full scale value

CTUB105 ..... 8 A

Max. connector length ..... 10 m

Output resistance ..... 172  $\Omega$

### Input

Name ..... T (for CTUB101 only)

Current load .....  $< 300$  mA

### Environment/EMC

EMC ..... IEC 62020-1

Operating temperature ..... -25...70 °C

### Classification of climatic conditions acc. to IEC 60721

Stationary use (IEC 60721-3-3) ..... 3K22

Transport (IEC 60721-3-2) ..... 2K11

Long-term storage (IEC 60721-3-1) ..... 1K22

### Classification of mechanical conditions acc. to IEC 60721

Stationary use (IEC 60721-3-3) ..... 3M11

Transport (IEC 60721-3-2) ..... 2M4

Long-term storage (IEC 60721-3-1) ..... 1M12

### Connection

Max. connection length ..... 10 m

Connecting cables are optionally available.

Use 60/75 °C copper lines only.

### Terminal block

Manufacturer ..... Phoenix Contact

Type ..... DPMC 1.5/4-ST-3.5 BK

The connection conditions of the manufacturer apply.

### Connection properties

rigid ..... 0.2...1.5 mm<sup>2</sup> (AWG 24...16)

flexible ..... 0.2...1.5 mm<sup>2</sup>

with ferrule ..... 0.25...0.75 mm<sup>2</sup>

### Mounting CTBC...

#### Screw type

CTBC20...60(P) ..... DIN EN ISO 7045 - M5

CTBC120...210(P) ..... DIN EN ISO 7045 - M6

#### Washer type

CTBC20...60(P) ..... DIN EN ISO 7089/7090 - 5

CTBC120...210(P) ..... DIN EN ISO 7089/7090 - 6

#### Tightening torque

CTBC20...35 (P) ..... 0.6 Nm

CTBC60...210(P) ..... 1 Nm

### Other

Operating mode ..... Continuous operation

Mounting ..... Any position

Degree of protection, built-in components (DIN EN 60529) ..... IP40

Degree of protection, terminals (DIN EN 60529) ..... IP20

Flammability class ..... UL94 V-0

Software ..... D591

#### Weight

CTUB10x-CTBC20 .....  $\leq 230$  g

CTUB10x-CTBC20P .....  $\leq 290$  g

CTUB10x-CTBC35 .....  $\leq 310$  g

CTUB10x-CTBC35P .....  $\leq 390$  g

CTUB10x-CTBC60 .....  $\leq 530$  g

CTUB10x-CTBC60P .....  $\leq 690$  g

CTUB10x-CTBC120 .....  $\leq 1460$  g

CTUB10x-CTBC120P .....  $\leq 1820$  g

CTUB10x-CTBC210 .....  $\leq 4290$  g

CTUB10x-CTBC210P .....  $\leq 4940$  g

The use of the power supply units listed at "Accessories" is recommended. The use of a surge protection device is mandatory for these power supply units.

Ordering details

| $U_s$                                     | ø CT   | Shielding        | Type             | Art. No.  |
|-------------------------------------------|--------|------------------|------------------|-----------|
| Use with RCMA420/RCMA423                  |        |                  |                  |           |
| DC<br>±12 V                               | 20 mm  | —                | CTUB101-CTBC20   | B78120010 |
|                                           |        | ■                | CTUB101-CTBC20P  | B78120020 |
|                                           | 35 mm  | —                | CTUB101-CTBC35   | B78120012 |
|                                           |        | ■                | CTUB101-CTBC35P  | B78120022 |
|                                           | 60 mm  | —                | CTUB101-CTBC60   | B78120014 |
|                                           |        | ■                | CTUB101-CTBC60P  | B78120024 |
|                                           | 120 mm | —                | CTUB101-CTBC120  | B78120016 |
|                                           |        | ■                | CTUB101-CTBC120P | B78120026 |
|                                           | 210 mm | —                | CTUB101-CTBC210  | B78120018 |
|                                           |        | ■                | CTUB101-CTBC210P | B78120028 |
| Use with RCMS410/RCMS425/ RCMS460/RCMS490 |        |                  |                  |           |
| DC<br>24 V                                | 20 mm  | —                | CTUB102-CTBC20   | B78120011 |
|                                           |        | ■                | CTUB102-CTBC20P  | B78120021 |
|                                           | 35 mm  | —                | CTUB102-CTBC35   | B78120013 |
|                                           |        | ■                | CTUB102-CTBC35P  | B78120023 |
|                                           | 60 mm  | —                | CTUB102-CTBC60   | B78120015 |
|                                           |        | ■                | CTUB102-CTBC60P  | B78120025 |
|                                           | 120 mm | —                | CTUB102-CTBC120  | B78120017 |
|                                           |        | ■                | CTUB102-CTBC120P | B78120027 |
|                                           |        | ■                | CTUB105-CTBC120P | B78120041 |
|                                           | 210 mm | —                | CTUB102-CTBC210  | B78120019 |
| ■                                         |        | CTUB102-CTBC210P | B78120029        |           |
| Use with EDS441-LAB                       |        |                  |                  |           |
| DC<br>24 V                                | 20 mm  | ■                | CTUB102-CTBC20P  | B78120021 |
|                                           | 35 mm  | ■                | CTUB102-CTBC35P  | B78120023 |
|                                           | 60 mm  | ■                | CTUB102-CTBC60P  | B78120025 |

Accessories

Voltage supply DC 24 V for CTUB102 and CTUB105

| Max. connected CTs | Type                    | Art. No.  |
|--------------------|-------------------------|-----------|
| 4                  | STEP-PS/1 AC/24 DC/0.5  | B94053110 |
| 14                 | STEP-PS/1 AC/24 DC/1.75 | B94053111 |
| 34                 | STEP-PS/1 AC/24 DC/4.2  | B94053112 |

Connecting cables

| Length (m) | Connection to          | Type      | Art. No.  |
|------------|------------------------|-----------|-----------|
| 1          | RCMA42...              | CTX-100   | B98110080 |
| 2.5        |                        | CTX-250   | B98110081 |
| 5          |                        | CTX-500   | B98110082 |
| 10         |                        | CTX-1000  | B98110083 |
| 1          | RCMS4...<br>EDS441-LAB | CTXS-100  | B98110090 |
| 2.5        |                        | CTXS-250  | B98110091 |
| 5          |                        | CTXS-500  | B98110092 |
| 10         |                        | CTXS-1000 | B98110093 |

Replacement parts

Measuring current transformer cores

| ø CT   | Type     | Art. No.  |
|--------|----------|-----------|
| 20 mm  | CTBC20   | B98120001 |
|        | CTBC20P  | B98120002 |
| 35 mm  | CTBC35   | B98120003 |
|        | CTBC35P  | B98120004 |
| 60 mm  | CTBC60   | B98120005 |
|        | CTBC60P  | B98120006 |
| 120 mm | CTBC120  | B98120007 |
|        | CTBC120P | B98120020 |
| 210 mm | CTBC210  | B98120008 |
|        | CTBC210P | B98120021 |

Electronic modules

| $U_s$    | Type    | Art. No.  |
|----------|---------|-----------|
| DC ±12 V | CTUB101 | B78120050 |
| DC 24 V  | CTUB102 | B78120051 |
| DC 24 V  | CTUB105 | B78120054 |

Required terminals or connecting cables are optionally available.

Standards

The measuring current transformers of the CTUB10x series comply with the requirements of the standard DIN EN 45545-2.



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