

## Quickstart-guide

# CURRENT TRANSFORMER FOR GROWND FAULT RELAY C311CT35/C311CT60



**EATON**

*Powering Business Worldwide*



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EN (US)  
Safety  
instructions

This equipment must be installed, operated, and serviced by qualified electrical personnel only.

Read and understand all equipment and safety instructions prior to beginning installation or service on the equipment!

**DANGER:** Hazard of electric shock, explosion, or arc flash!

- Turn OFF all sources of electric power before performing any inspections, tests, or service on this equipment.
- Apply appropriate personal protective equipment (PPE) and follow all safe practices for operating electrical equipment. Refer to NFPA 70E or CSA Z462.
- Observe all local, state, and national codes, standards and regulations when installing or servicing the equipment.
- Always use properly rated voltage sensing equipment when performing tests on the system or equipment. Failure to follow these instructions will result in death or severe injury.

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**CAUTION**

- Do not modify the equipment.
- Use accessories with this equipment only supplied by or recommended by Bender.

Failure to follow these instructions may result in injury or equipment damage.

## General instructions

### How to use this manual

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 **WARNING**

**This manual is intended for qualified personnel working in electrical engineering and electronics!**

**Part of the device documentation, in addition to this manual, is the enclosed "Safety instructions for Bender products".**

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 **IMPORTANT**

Read the manual before installing, connecting and commissioning the device. Always keep the manual within easy reach for future reference.

### Indication of important instructions and information

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 **CAUTION**

Danger! Indicates a high risk of danger that will result in death or serious injury if not avoided.

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 **IMPORTANT**

Information can help to optimise the use of the product.

### Inspection, transport and storage

Check the shipping and device packaging for transport damage and scope of delivery. The following must be observed when storing the devices:



## Warranty and liability

Warranty and liability claims in the event of injury to persons or damage to property are excluded in case of:

- Improper use of the device.
- Incorrect mounting, commissioning, operation and maintenance of the device.
- Failure to observe the instructions in this operating manual regarding transport, commissioning, operation and maintenance of the device.
- Unauthorised changes to the device made by parties other than the manufacturer.
- Non-observance of technical data.
- Repairs carried out incorrectly.
- Use of accessories and spare parts not recommended by Eaton.
- Catastrophes caused by external influences and force majeure.
- Mounting and installation with device combinations not recommended by the manufacturer.

This operating manual and the enclosed safety instructions must be observed by all persons working with the device. Furthermore, the rules and regulations that apply for accident prevention at the place of use must be observed.

## Safety

If the device is used outside the Federal Republic of Germany, the applicable local standards and regulations must be complied with. In Europe, the European standard EN 50110 applies.

# Quickstart-guide

## WARNING

**Danger! Danger of fatal injury due to electric shock! Touching live parts of the system carries the risk of:**

- A fatal 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. The rules for working on electrical systems must be observed.**

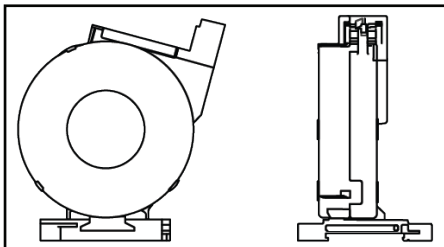
### Intended use

The highly sensitive C311CT series measuring current transformers in combination with D64RP410 convert AC currents into an evaluable measurement signal.

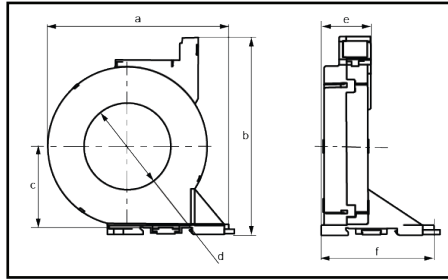
The connection to the devices is made via a two-wire cable. Any other use than that described in this document is regarded as improper. Safety

If the device is used outside the Federal Republic of Germany, the applicable local standards and regulations must be complied with. In Europe, the European standard EN 50110 applies.

### Dimension diagrams



C311CT35

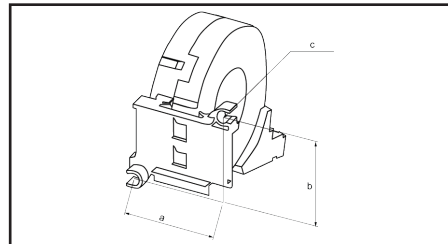


C311CT60

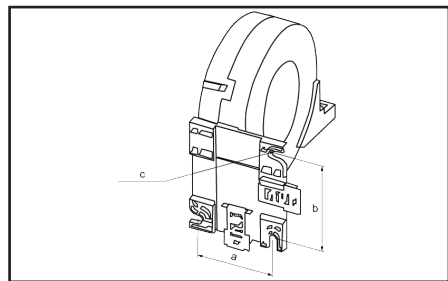
Dimensions (mm), tolerance:  $\pm 0.5$  mm

CTAC	A	B	C	D	E	F	Weight in g
C311CT35	94	100	47	$\varnothing 35$	30	61	220
C311CT60	126	137	57	$\varnothing 60$	33	78	460

### Mountings (in mm)



C311CT35



C311CT60

Dimensions (mm)			
Type	A	B	C
C311CT35	49.8	49	2 x $\varnothing 5.5$
C311CT60	56	66	3 x $\varnothing 6.5$

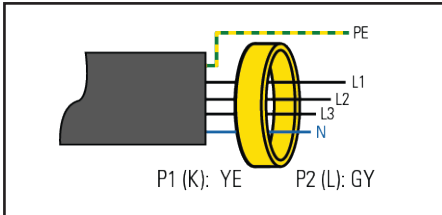
### Installation instructions

**! IMPORTANT**

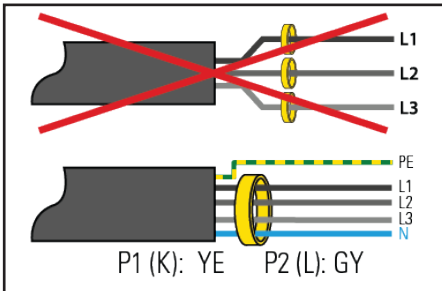
Do not route any shielded cables through the measuring current transformer.

**! IMPORTANT**

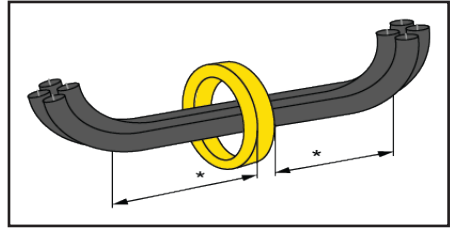
If the installation instructions are not followed, the tolerances and normative requirements of the connected monitoring devices may not be fulfilled.



**Figure 1. Never route an existing protective conductor through the measuring current transformer.**

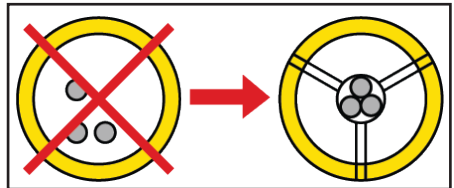


**Figure 2. All current-carrying cables must be routed together through the measuring current transformer.**

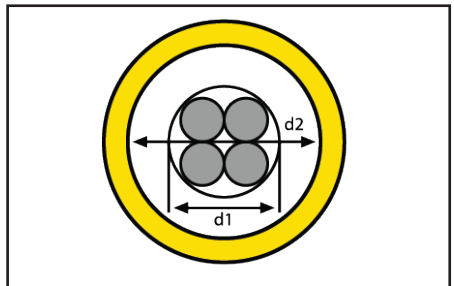


**Figure 3. The primary conductors should only be bent from the specified minimum distance. The minimum bending radius specified by the manufacturers must be observed.**

\* Distance to 90° angle = 2 x external diameter

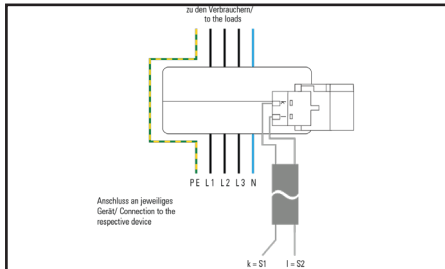


**Figure 4. The cables must be centred in the measuring current transformer.**



**Figure 5. Internal diameter of the measuring current transformer  $d2 \geq 2 \times d1$  (cable diameter)**

## Wiring diagram



DE Anschlussbild / EN Wiring diagram

### **WARNING**

**Danger! Danger of fatal injury due to electric shock!**

**C311CT... measuring current transformers must not be operated as an open circuit! If no evaluator is connected, the outputs S1 (k) and S2 (l) must be short-circuited!**

### **IMPORTANT**

The measuring current transformer also has two holders for cable ties to fix the connecting cable.

### **IMPORTANT**

\* For UL applications: Only use copper lines (ambient temperature at least 60°/75°C)!

### **IMPORTANT**

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.

## Technical data

### Insulation coordination according to IEC 60664-1

Rated voltage.....800 V  
 Overvoltage category..... III  
 Rated impulse voltage/  
 pollution degree..... 8 kV/3

### Measuring current transformer circuit ... .....C311CT...#

Rated transformation ratio  $K_r$ ..... 600/1  
 Rated continuous thermal current\*  $I_{cth}$ ...  
 .....125 A  
 Frequency range.....15 Hz...100 kHz  
 Thermal rated short-time current\*  $I_{th}$ .....  
 .....2.4 kA/1s  
 Rated dynamic current\*  $I_{dyn}$  .....  
 .....6.0 kA/40 ms

### Rated current $I_n$

C311CT35 bei/at  $I_{\Delta n} \geq 30$  mA.....125 A  
 C311CT35 bei/at  $I_{\Delta n} \geq 300$  mA.....160 A  
 C311CT60 bei/at  $I_{\Delta n} \geq 30$  mA..... 200 A  
 C311CT60 bei/at  $I_{\Delta n} \geq 300$  mA..... 400 A

### Measuring current transformer circuit ... .....C311CT....

Rated transformation ratio  $K_r$ .....8000/1  
 Rated continuous thermal current\*  $I_{cth}$ ...  
 .....6 A  
 Thermal rated short-time current\*  $I_{th}$ .....  
 .....0,36 kA/1s  
 Rated dynamic current\*  $I_{dyn}$ .....  
 .....0,9 kA/40 ms

### Rated current $I_n$

CTAC35/01 bei/at  $I_{\Delta n} \geq 30$  mA.....125 A  
 CTAC35/01 bei/at  $I_{\Delta n} \geq 300$  mA.....160 A

## Environment

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

## Classification of climatic conditions acc. to IEC 60721 (related to temperature and rel. humidity)

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

B781100xxMIL devices.....3M12

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

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

## Connection

Terminal type.....MSTB 2,5/ 2-ST-5,08

For B781100xxMIL devices.....  
.....FKC 2,5/2-ST-5,08

Manufacturer.....Phoenix Contact

Connection type.....  
.....Screw type terminal

For B781100xxMIL devi.....  
.....Federklemme/Push-wire terminal

The connection conditions of the manufacturer apply.

Corresponding PCB connectors are included in the scope of delivery.

Connection properties

Rigid.....0.2...2.5 mm<sup>2</sup> (AWG24...12)

Flexible.....0.2...2.5 mm<sup>2</sup> (AWG 24...12)

Stripping length.....7 mm

## Connection D64RP410 measuring current transformers

Single wire  $\geq 0.75$  mm<sup>2</sup>.....0...1m

Single wire, twisted  $\geq 0.75$  mm<sup>2</sup>.....  
.....0...10m

Shielded cable  $\geq 0.75$  mm<sup>2</sup>.....0...40m

Shielded cable.....  
.....recommended: J-Y(St)Y min. 2x0.8

RCM: Shield connected to L conductor, must not be earthed.

EDS: Shield on one side connected to PE.

## Mounting

### Screw Type

C311CT35...60.....DIN EN ISO7045-M5x

### Washer type

C311CT35...60.....  
.....DIN EN ISO 7089/7090 - 5

### Tightening torque

C311TC35.....0.6 Nm

C311TC60.....1 Nm

## Other

Degree of protection, internal components (DIN EN 60529)..... IP40

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

Flammability class.....UL94 V-0

## Bestellangaben / Ordering details

<b>Befestigung / Mounting</b>	<b>Innendurchmesser/ Internal diameter</b>	<b>Typ / Type</b>	<b>Handbuch Nr. / Manual No.</b>
Schraub- efestigung / Hutschiene	35 mm	C311CT35	IL54013
Screw mounting / DIN rail	60 mm	C311CT60	

### **Eaton**

EU: Eaton Industries GmbH, Hein-  
Moeller-Straße 7-11, 53115, Germany  
UK: Eaton Electric Ltd., P.O. Box  
554, Abbey Park, Southampton Road,  
Titchfield, PO14 4QA, United Kingdom  
Eaton.eu

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