BENDER
The Power in Electrical Safety©

LINETRAXX® CTUB103

AC/DC sensitive measuring current transformer (Type B)

CTUB103_D00410_02_D_XXEN/10.2020

LINETRAXX® CTUB103

AC/DC sensitive measuring current transformer (Type B)

CTUB103

Product description

The AC/DC sensitive measuring current transformers of the CTUB103 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 CTUB103 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 as well as in high-resistance grounded systems for monitoring the star point. The evaluation in resistance grounded systems is carried out with devices of the NGRM… series, to which the measuring current transformers are connected.

Device features

- Multicolour LED for operation, fault and status messages
- Electronic module can be exchanged without mechanical separation of the primary conductors
- Monitoring of the connection to the measuring current transformer
- Evaluator: NGRM500, NGRM700

Certifications

Ordering information

CTUB103-Set

ø current transformers	Permissible measuring range	Set	Art. No.
35	5 A, 10 A	CTUB103-CTBC35	B78120030
60	5 A, 10 A, 25 A	CTUB103-CTBC60	B78120031
120	5 A, 10 A, 25 A	CTUB103-CTBC120	B78120032

Suitable system components

Description	max. connected current transformers	Type	Art. No.
Voltage supply	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

Ordering details for spare parts and accessories

Electronic modules

Supply voltage U_s	Type	Art. No.
DC		
24 V	CTUB103	B78120052

Required terminals or connecting cables are optionally available.

Accessories

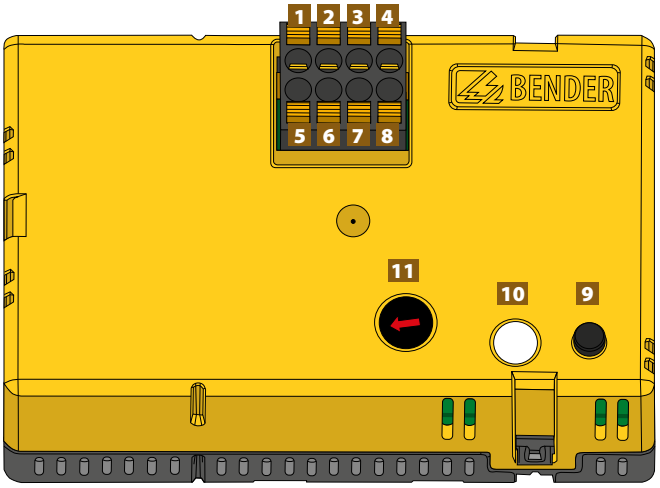
Description	Art. No.
DIN rail mounting clip for CTBC35	B91080112

Included in the scope of delivery

Measuring current transformer cores

ø current transformers	Type	Art. No.
35 mm	CTBC35	B98120003
60 mm	CTBC60	B98120005
120 mm	CTBC120	B98120007

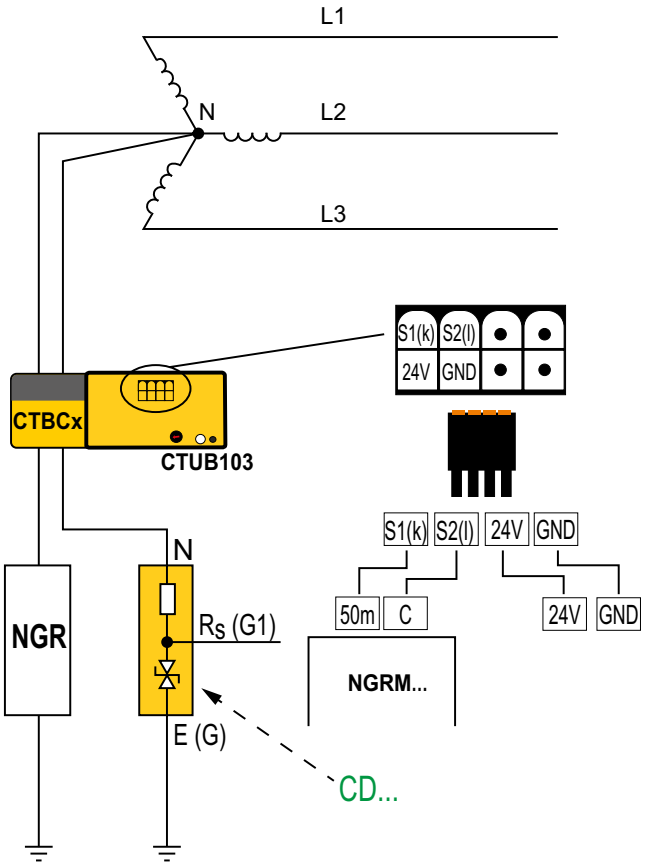
Device view



1	**S1 (k)**	Connection measuring current transformer core/NGRM…
2	**S2 (I)**	
3	–	Not in use
4	–	
5	**24 V**	Supply voltage U_s
6	**GND**	
7	–	Not in use
8	–	
9	**T button**	Offset calibration
10	**LED**	lights green: normal operation flashes red: device error; U_s is connected, no connection to CTBC…
11		Potentiometer for adjusting the measuring range

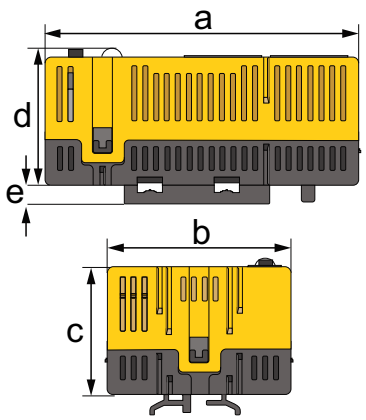
	Measuring range	Scaling	
	5 A	5 A/50 mA	100:1
	10 A	10 A/50 mA	200:1
	24 A	25 A/50 mA	500:1

Wiring diagram

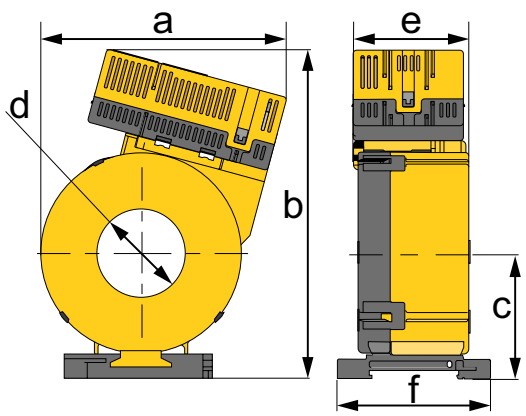


Dimension diagrams

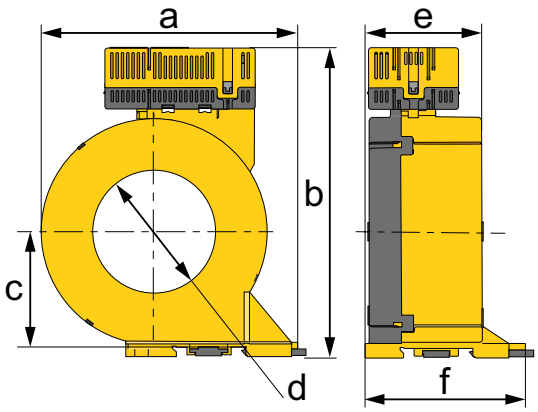
A



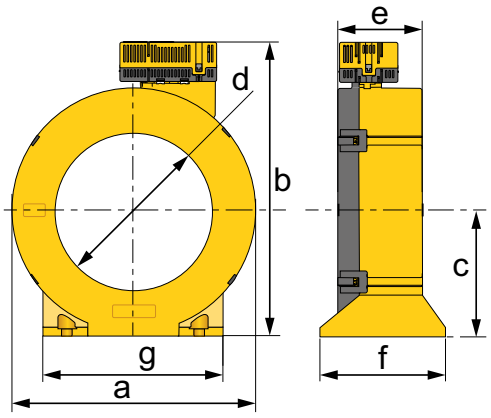
B



C



D

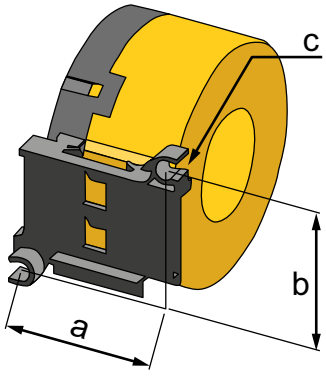


Dimensions in mm (in)								
	Type	a	b	c	d	e	f	g
A	CTUB103	74 (2.91)	44 (1.73)	30 (1.18)	32 (1.26)	4,6 (0.18)	–	–
B	CTUB103-CTBC35	97 (3.82)	130 (5.12)	47 (1.85)	ø 35 (ø 1.38)	46 (1.81)	61 (2.40)	–
C	CTUB103-CTBC60	126 (4.96)	151 (5.94)	57 (2.24)	ø 60 (ø 2.36)	56 (2.20)	78 (3.07)	–
D	CTUB103-CTBC120	188 (7.40)	225 (8.86)	96 (3.78)	ø 120 (ø 4.72)	65 (2.56)	96 (3.78)	139 (5.47)

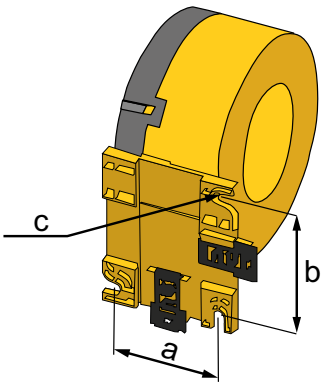
Tolerance: ±0.5 mm

Mountings

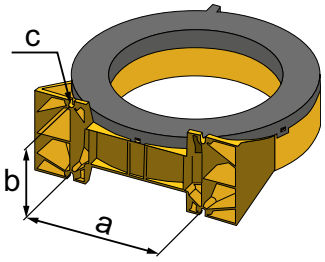
CTBC35



CTBC60



CTBC120



Dimensions in mm (in)			
Type	a	b	c
CTBC35	49 (1.93)	49,80 (1.96)	2 x ø 5,5 (2 x ø 0.22)
CTBC60	56 (2.20)	66 (2.60)	3 x ø 6,5 (3 x ø 0.26)
CTBC120	103 (4.05)	81 (3.19)	4 x ø 6,5 (4 x ø 0.26)

Technical data

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

Definitions	
Measuring circuit (IC1)	primary conductors routed through thecurrent transformer
Secondary (IC2)	connections X plug
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 CTUB103

Description	24 V, GND
Supply voltage U_s	DC 24 V
Operating range of U_s	±20 %
Ripple U_s	≤ 1 %
Power consumption	≤ 5.3 W
Inrush current	1 A for 1 ms

Measuring circuit

Internal diameter measuring current transformer	see dimension diagrams on page 4
Measurement accuracy	±2 %
Rated continuous thermal current I_{cth}	42 A
Rated short-time thermal current I_{th}	2.4 kA/1 s
Rated dynamic current I_{dyn}	6 kA/40 ms

Measuring ranges

Measuring range 1	5 A rms
Permanent overload capacity	10.5 A rms
	14.5 A peak
Scaling	5 A/50 mA, 100:1
Measuring range 2	10 A rms
Permanent overload capacity	21 A rms
	29.5 A peak
Scaling	10 A/50 mA, 200:1
Measuring range 3	25 A rms
Permanent overload capacity	42 A rms
	59 A peak
Scaling	25 A/50 mA, 500:1

Displays

Multicolour LED	red, green

Output

Name	S1 (k), S2 (l)
Max. voltage	±10 V
Max. current	±100 mA
Max. cable length	30 m
Load	68 Ω

Environment/EMC

EMC	IEC 61000-6
Operating temperature	-25…55 °C

Classification of climatic conditions acc. to IEC 60721 (except condensation and formation of ice)

Stationary use (IEC 60721-3-3)	3K5
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)	3M4
Transport (IEC 60721-3-2)	2M4
Long-term storage (IEC 60721-3-1)	1M12

Connection

Use 60 °C/75 °C copper lines only.

X plug

Manufacturer	Phoenix Contact
Type	DFMC 1.5/4-ST-3.5 BK
The connection conditions of the manufacturer apply.	
Connection properties	
rigid	0.2…1.5 mm² (AWG 24…16)
flexible	0.2…1.5 mm² (AWG 24…16)
with ferrule	0.25…0.75 mm²

Mounting CTBC…

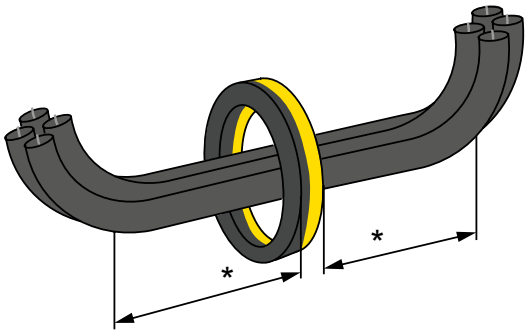
Screw type	
CTBC35, CTBC60	DIN EN ISO 7045 - M5
CTBC120	DIN EN ISO 7045 - M6
Washer type	
CTBC35, CTBC60	DIN EN ISO 7089/7090 - 5
CTBC120	DIN EN ISO 7089/7090 - 6
Tightening torque	
CTBC35	0.6 Nm
CTBC60, CTBC120	1 Nm

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
Documentation number	D00410
Weight	
CTUB103- CTBC35	≤ 310 g
CTUB103- CTBC60	≤ 530 g
CTUB103- CTBC120	≤ 1460 g

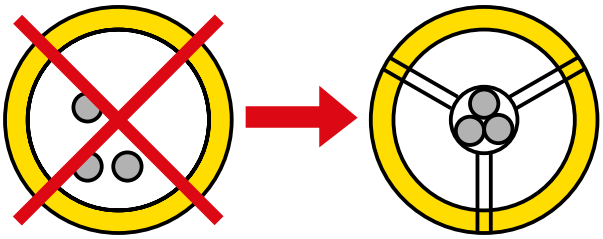
Installation instructions

- Do not route any shielded cables through the measuring current transformer.
- 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.
- The connecting cable (supply, secondary connection etc.) must not be routed directly past the current transformer core, otherwise interference pulses may occur.



* Distance to 90° angle: 2x external diameter of the 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.



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

BENDER
The Power in Electrical Safety©

Bender GmbH & Co. KG
P.O. Box 1161 • 35301 Grünberg • Germany
Londorfer Straße 65 • 35305 Grünberg • Germany
Tel.: +49 6401 807-0 • Fax: +49 6401 807-259
E-mail: info@bender.de • www.bender.de

BENDER Group