

LINK BETWEEN MEASUREMENT TECHNOLOGY AND HIGH CURRENT

FOR THE SAFE MEASUREMENT
AND CONVERSION OF
CURRENTS

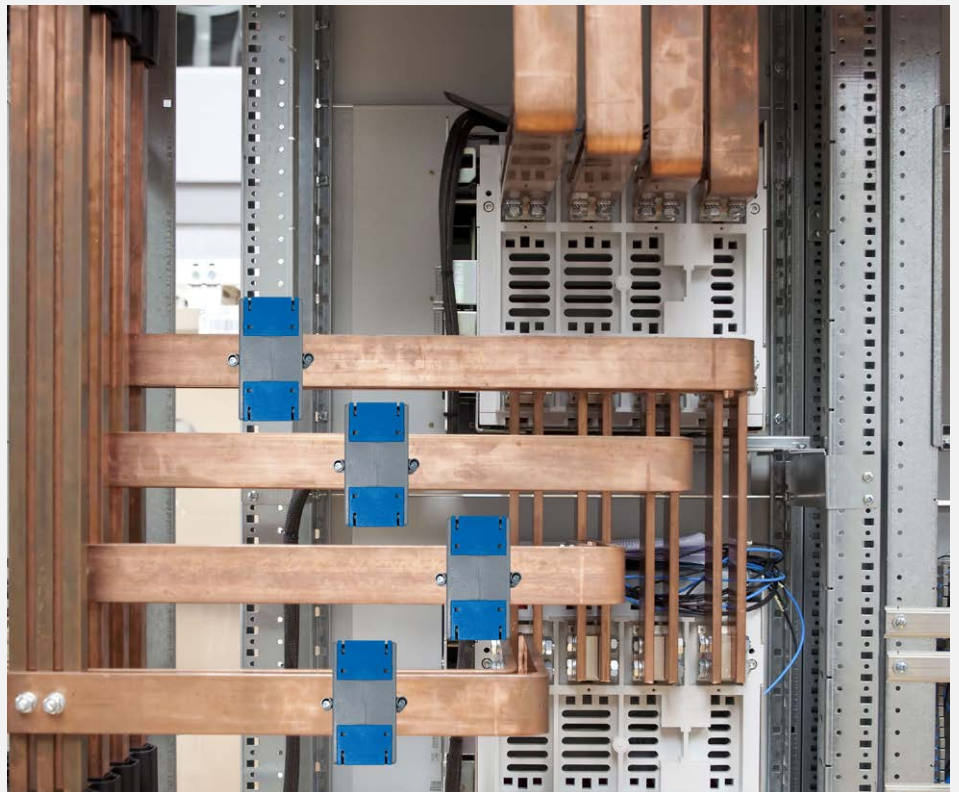


CURRENT TRANSFORMERS

WOUND CURRENT TRANSFORMER • BUSHING-TYPE CURRENT TRANSFORMER • SPLIT-CORE CURRENT TRANSFORMER • SUMMATION CURRENT TRANSFORMER
CORE-BALANCED CURRENT TRANSFORMERS • BUSHING-TYPE CURRENT TRANSFORMER FOR PQ • RESIDUAL CURRENT TRANSFORMER • INTELLIGENT CURRENT TRANSFORMERS
ROGOWSKI CURRENT SENSORS • CURRENT CLAMPS • SHUNTS



Current transformers for safe energy acquisition



Camille Bauer and Gossen Metrawatt, your competent partners in heavy current measurement technology, offer a wide range of products for safe and precise energy acquisition.

Using the completely harmonised product portfolio, you can:

- Measure and acquire current and energy values systematically
- Analyse current and energy values
- Identify and plan energy consumption
- Visualise and save data

In the acquisition of electrical energy consumption, respective currents have to be measured. This is realised via measuring current transformers which transform a primary rated current into a galvanically isolated secondary rated current of 5A or 1A that can be used by the measuring system.

To safeguard the quality and accuracy of a measurement, an appropriate combination of converter and measuring device is of paramount importance.

Camille Bauer Metrawatt provides a wide range of different current transformers according to IEC 61869-2 irrespective of the required nominal size, the accuracy class, the size of conductors or the available space.

SAFE

High measuring accuracy up to Class 0.2S

High safety due to galvanic isolation between measuring circuit and measuring device

High overload capacity

Compliance with IEC 61869-1 and IEC 61869-2

Robust break-proof plastic housing

Flame resistant and self-extinguishing according to UL94 V0

Primary bar mounting with insulating protection cap (touch-proof)

Touch and tamper protection of connections due to sealable covers or lockable plug terminals

FLEXIBLE

Ideally suited to energy and current measuring devices

Range of current transformers from simple current measurement to power quality measurement

Compact design facilitates applications involving places hard to access and limited in space

Large selection of versions for new designs or subsequent integration into existing facilities

Different assembly options are available

Flexible use in circular conductors, copper bars, mounting rails or assembly plates

EASY

Easy and time-saving assembly and installation

Easy and safe connection technology

Versatile assembly due to foot, rail and wall mounting

Free of maintenance



WOUND CURRENT TRANSFORMER

Winding current transformers convert small primary rated currents from 1 A to 5 A or 1 A, which can be used by the measuring system and galvanically isolated secondary rated currents. In contrast to clip-on or Kabelumstromwandler winding transformer have 4 screw terminals. The primary current as well as the secondary current are connected directly via the screw terminals.

Winding current transformers are particularly suitable for small currents where plug-in or Bushing-type current transformers can no longer be used.



MAIN FEATURES

EASY • PRECISE • SAFE

- Primary and secondary currents are connected directly via screw terminals
- Safe housing with high flame protection
- Tamper protection by sealable covers
- Protection against contamination due to optimized housing
- Enclosed coil body
- High measuring accuracy up to class 0.2S
- Easy and fast assembly
- Safe connection technology via screw terminals
- Free of maintenance



TECHNICAL DATA

Type	SIRAX CT100		SIRAX CT110	
Width / height / depth	62 / 78 / 40 mm		74 / 98 / 45 mm	
Primary current I_{pr}	1 A ... 30 A		1 A ... 60 A	
Secondary current I_{sr}	5 A or 1 A			
Class of accuracy	0.2	0.5	0.2	0.5
Test voltage	3 kV; 50 Hz; 1 min			
Nominal frequency	50 ... 60 Hz			
Rated insulation level U_m	0.72 kV			
Rated power S_r	1.0 VA	2.5 VA	1.5 VA	5 VA
Thermal short circuit current I_{th}	$40 \times I_N$			
Dynamic short circuit current I_{dyn}	$2.5 \times I_{th}$			
Insulation class	E (max. 120 °C)			
Instrument security factor FS	FS15	FS10	FS15	FS10
Housing material	Polycarbonate			
Flammability class	UL94 V-0, self-extinguishing, not dripping, free of halogen			
Ambient temperature	-20 °C ... +45 °C			
Standard accepted	IEC 61869-1; IEC 61869-2			

Transformer type	SIRAX CT100		SIRAX CT110	
Accuracy class	0.2	0.5	0.2	0.5
Primary current	Rated power / Instrument security factor (FS)			
1 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
2.5 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
5 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
7.5 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
10 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
15 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
20 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
25 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
30 A	1 VA / FS15	2.5 VA / FS10	1.5 VA / FS15	5 VA / FS10
40 A	–	–	1.5 VA / FS15	5 VA / FS10
50 A	–	–	1.5 VA / FS15	5 VA / FS10
60 A	–	–	1.5 VA / FS15	5 VA / FS10



BUSHING-TYPE CURRENT TRANSFORMER

Bushing-type current transformers are used wherever high currents are to be acquired and processed. They are directly placed on the primary conductor (bus bar or conductor) through the opening. The secondary side (usually a measuring device, energy meter or display) is connected by front and rear connecting terminals.

Bushing-type current transformers constitute the most reliable, precise and cost-effective current transformer versions. However, the primary conductor must be disconnected for installation purposes. For this reason, they are more suitable for new facilities.



MAIN FEATURES

PRECISE • SAFE • EASY

- Safe housing with high flame protection
- Tampering protection due to sealable covers
- Contamination protection due to optimised housing
- Enclosed coil body
- High measuring accuracy up to Class 0.2S
- Large selection of nominal sizes and dimensions
- Easy and fast assembly
- Safe connection technology via screw terminals
- Suitable for circular conductors, copper rails, mounting rails
- Free of maintenance



TECHNICAL DATA

Type	SIRAX CT200	SIRAX CT210	SIRAX CT220	SIRAX CT230
Circular conductor	Ø 21 mm	Ø 28 mm	Ø 30.5 mm	Ø 51 mm
Primary conductor	20 x 10 mm	30 x 10 mm 20 x 20 mm 2 x 15 x 10 mm	30 x 10 mm 25 x 25 mm 2 x 20 x 10 mm	60 x 12 mm 50 x 30 mm 50 x 20 mm
Width / height / depth	50 / 70 / 51 mm	50 / 70 / 51 mm	62 / 78 / 40 mm	86 / 110 / 45 mm
Primary current I_{pr}	50 A ... 300 A	100 A ... 600 A	100 A ... 800 A	300 A ... 1600 A
Secondary current I_{sr}	5 A or 1 A			
Class of accuracy	0.5	0.5	0.2S; 0.5	0.2S; 0.5
Test voltage	4 kV; 50 Hz; 1 min			
Nominal frequency	50 ... 60 Hz			
Rated insulation level U_m	0.72 kV			
Rated power S_r	1 ... 20 VA			
Thermal short circuit current I_{th}	$60 \times I_N$			
Dynamic short circuit current I_{dyn}	$2.5 \times I_{th}$			
Insulation class	E (max. 120 °C)			
Instrument security factor FS	FS5; FS10			
Housing material	Polycarbonate			
Flammability class	UL94 V-0, self-extinguishing, not dripping, free of halogen			
Ambient temperature	-20 °C ... +45 °C			
Standard accepted	IEC 61869-1; IEC 61869-2			

Transformer type	SIRAX CT200	SIRAX CT210	SIRAX CT220		SIRAX CT230	
Accuracy class	0.5	0.5	0.2S	0.5	0.2S	0.5
Primary current	Rated power / Instrument security factor (FS)					
50 A	1 VA / FS10	–	–	–	–	–
60 A	1 VA / FS5 / FS10	–	–	–	–	–
75 A	1.5 VA / FS5	–	–	–	–	–
80 A	2.5 VA / FS5	–	–	–	–	–
100 A	2.5 VA / FS5	1.5 VA / FS5	1 VA / FS5	1.5 VA / FS5	–	–
120 A	2.5 VA / FS5	2.5 VA / FS5	1 VA / FS5	2.5 VA / FS5	–	–
125 A	3.75 VA / FS5	2.5 VA / FS5	1 VA / FS5	2.5 VA / FS5	–	–
150 A	5 VA / FS5	5 VA / FS5	1.5 VA / FS5	3.75 VA / FS5	–	–
200 A	5 VA / FS5	5 VA / FS5	2.5 VA / FS5	5 VA / FS5	–	–
250 A	5 VA / FS5	5 VA / FS5	2.5 VA / FS5	5 VA / FS5	–	–
300 A	7.5 VA / FS5	5 VA / FS5	2.5 VA / FS5	5 VA / FS5	1.5 VA / FS5	5 VA / FS5
400 A	–	7.5 VA / FS5 / FS10	3.75 VA / FS5	7.5 VA / FS5	2.5 VA / FS5	10 VA / FS5
500 A	–	10 VA / FS5	5 VA / FS5 / FS10	10 VA / FS5	2.5 VA / FS5	10 VA / FS5
600 A	–	15 VA / FS5	5 VA / FS5 / FS10	15 VA / FS5	5 VA / FS5 / FS10	15 VA / FS5
750 A	–	–	5 VA / FS5 / FS10	15 VA / FS5	5 VA / FS10	15 VA / FS5
800 A	–	–	5 VA / FS5 / FS10	15 VA / FS5	7.5 VA / FS10	20 VA / FS5
1000 A	–	–	–	–	10 VA / FS10	20 VA / FS5
1200 A	–	–	–	–	10 VA / FS10	20 VA / FS5
1250 A	–	–	–	–	10 VA / FS10	20 VA / FS5
1500 A	–	–	–	–	10 VA / FS10 / FS5	20 VA / FS10 / FS5
1600 A	–	–	–	–	10 VA / FS10 / FS5	20 VA / FS5



SPLIT-CORE CURRENT TRANSFORMER

Due to their compact design and easy installation, split-core current transformers are particularly suited to applications involving places hard to access and limited in space. The separable cores also facilitate the installation on cables or bus bars. Wherever an interruption of the current path is problematic or a measuring device has to be retrofitted in an uncomplicated manner, split-core current transformers are the correct choice.

They transform primary rated currents into galvanically isolated secondary currents of 5 A or 1 A that can be used by the measuring system. The secondary side (usually a measuring device, display or control) is connected by terminals. The design ensures the safe assembly of the primary cable or bus bar in the current transformer which is confirmed by a clearly audible «clicking sound». An additional locking mechanism prevents accidental opening of the separable cores.



MAIN FEATURES

FLEXIBLE • SAFE • EASY

- Safe housing with high flame protection
- Tampering protection due to sealable covers
- Contamination protection due to closed housing
- Separable coil body
- Additional locking protection prevents accidental opening
- Large selection of nominal sizes and dimensions
- Easy and fast assembly due to separable cores
- Safe connection technology via screw terminals
- Ideal for retrofitting in existing facilities without any interruption of the current supply
- Different assembly options, e.g. wall, cable, bus bar or top hat rail mounting, are available



TECHNICAL DATA

Type	SIRAX CT300	SIRAX CT310	SIRAX CT320	SIRAX CT330
Internal dimensions	23 x 33 mm	55 x 85 mm	85 x 125 mm	85 x 172 mm
Width / height / depth	93 / 106 / 40 mm	125 / 158 / 40 mm	155 / 198 / 40 mm	195 / 245 / 40 mm
Primary current I_{pr}	100 A ... 400 A	250 A ... 2000 A	1600 A ... 3000 A	2500 A ... 5000 A
Secondary current I_{sr}	5 A oder 1 A			
Class of accuracy	0.5; 1	0.5	0.5	0.5
Test voltage	4 kV; 50 Hz; 1 min			
Nominal frequency	50 ... 60 Hz			
Rated insulation level U_m	0.72 kV			
Rated power S_r	1 ... 20 VA			
Thermal short circuit current I_{th}	$60 \times I_N$			
Dynamic short circuit current I_{dyn}	$2.5 \times I_{th}$			
Insulation class	E (max. 120 °C)			
Instrument security factor FS	FS10; FS15; FS30			
Housing material	Polycarbonate			
Flammability class	UL94 V-0, self-extinguishing, not dripping, free of halogen			
Ambient temperature	-20 °C ... +45 °C			
Standard accepted	IEC 61869-1; IEC 61869-2			

Transformer type	SIRAX CT300		SIRAX CT310	SIRAX CT320	SIRAX CT330
Accuracy class	0.5	1	0.5	0.5	0.5
Primary current	Rated power / Instrument security factor (FS)				
100 A	–	1.5 VA / FS10	–	–	–
150 A	–	1.75 VA / FS10	–	–	–
200 A	–	2.5 VA / FS10	–	–	–
250 A	–	3.75 VA / FS10	1 VA / FS10	–	–
300 A	2.5 VA / FS10	5 VA / FS10	2.5 VA / FS15 / FS10	–	–
400 A	3.75 VA / FS10	6.25 VA / FS10	2.5 VA / FS10	–	–
500 A	–	–	3.75 VA / FS10	–	–
600 A	–	–	5 VA / FS10	–	–
750 A	–	–	7.5 VA / FS10	–	–
800 A	–	–	7.5 VA / FS10	–	–
1000 A	–	–	10 VA / FS10	–	–
1200 A	–	–	10 VA / FS10	–	–
1250 A	–	–	10 VA / FS10	–	–
1500 A	–	–	10 VA / FS10	–	–
1600 A	–	–	10 VA / FS10	20 VA / FS10	–
2000 A	–	–	10 VA / FS10	20 VA / FS10	–
2500 A	–	–	–	25 VA / FS10	25 VA / FS30
3000 A	–	–	–	30 VA / FS10	30 VA / FS30
4000 A	–	–	–	–	30 VA / FS30
5000 A	–	–	–	–	30 VA / FS30



SUMMATION CURRENT TRANSFORMER

If the current measurement is to be recorded with two or up to eight current transformers and the total consumption is to be calculated, the secondary signals from the individual current transformers can be summed with the help of summation current transformers. This makes

it possible to record the total consumption with just one measuring instrument.

Not only the input currents are added, also the number of inputs are divided. At the output of the summation current transformer a normalized measuring signal is available.



MAIN FEATURES

EASY • FAST • EFFICIENT

- Summation of secondary currents to several main converters
- This allows access of the measurement for a measuring instrument
- At the output a standardized measuring signal is available
- Primary currents are not only added but also divided by the number of inputs
- Distinction for similar and dissimilar main transformers
- Burst-resistant plastic housing made from polycarbonate
- Hardly inflammable and self-extinguishing according to UL94 V0
- Terminal protection, IP10
- Rated power 10 up to 20 VA
- Instrument security factor FS5 or FS10
- Nickel plated terminals with plus/minus screws
- Various mounting options such as wall mounting or DIN rail



TECHNICAL DATA

Type	SIRAX CT600		SIRAX CT610	
Height / width / depth	112.5 / 75 / 70 mm		112.5 / 150 / 70 mm	
Primary current	2...5 x 5 A		5...8 x 5 A	
Secondary current	5 A			
Class of accuracy	0.5	1	0.5	1
Test voltage	3 kV; 50 Hz; 1 min			
Nominal frequency	50 ... 60 Hz			
Rated insulation level U_m	0.72 kV			
Rated power S_r	5; 10; 15; 20; 25 VA			
Thermal short circuit current I_{th}	$60 \times I_N$			
Dynamic short circuit current I_{dyn}	$2.5 \times I_m$			
Insulation class	E (max. 120 °C)			
Instrument security factor FS	FS5; FS10			
Housing material	Polycarbonate			
Flammability class	UL94 V-0, self-extinguishing, not dripping, free of halogen			
Ambient temperature	-25 °C ... +40 °C			
Standard accepted	IEC 61869-1; IEC 61869-2			

Transformer type	SIRAX CT600		SIRAX CT610	
Accuracy class	0.5	1	0.5	1
Secondary current	5 A			
Primary current	Rated power			
5+5 A (2 x 5 A)	5 VA	5 VA	–	–
	10 VA	10 VA	–	–
	15 VA	15 VA	–	–
	–	20 VA	–	–
	–	25 VA	–	–
5+5+5 A (3 x 5 A)	5 VA	5 VA	–	–
	10 VA	10 VA	–	–
	15 VA	15 VA	–	–
	–	20 VA	–	–
	–	25 VA	–	–
5+5+5+5 A (4 x 5 A)	5 VA	5 VA	–	–
	10 VA	10 VA	–	–
	15 VA	15 VA	–	–
	–	20 VA	–	–
	–	25 VA	–	–
5+5+5+5+5 A (5 x 5 A)	–	–	5 VA	5 VA
	–	–	10 VA	10 VA
	–	–	15 VA	15 VA
	–	–	–	20 VA
	–	–	–	25 VA
5+5+5+5+5+5 A (6 x 5 A)	–	–	5 VA	5 VA
	–	–	10 VA	10 VA
	–	–	15 VA	15 VA
	–	–	–	20 VA
	–	–	–	25 VA
5+5+5+5+5+5+5 A (7 x 5 A)	–	–	5 VA	5 VA
	–	–	10 VA	10 VA
	–	–	15 VA	15 VA
	–	–	–	20 VA
	–	–	–	25 VA
5+5+5+5+5+5+5+5 A (8 x 5 A)	–	–	5 VA	5 VA
	–	–	10 VA	10 VA
	–	–	15 VA	15 VA
	–	–	–	20 VA
	–	–	–	25 VA

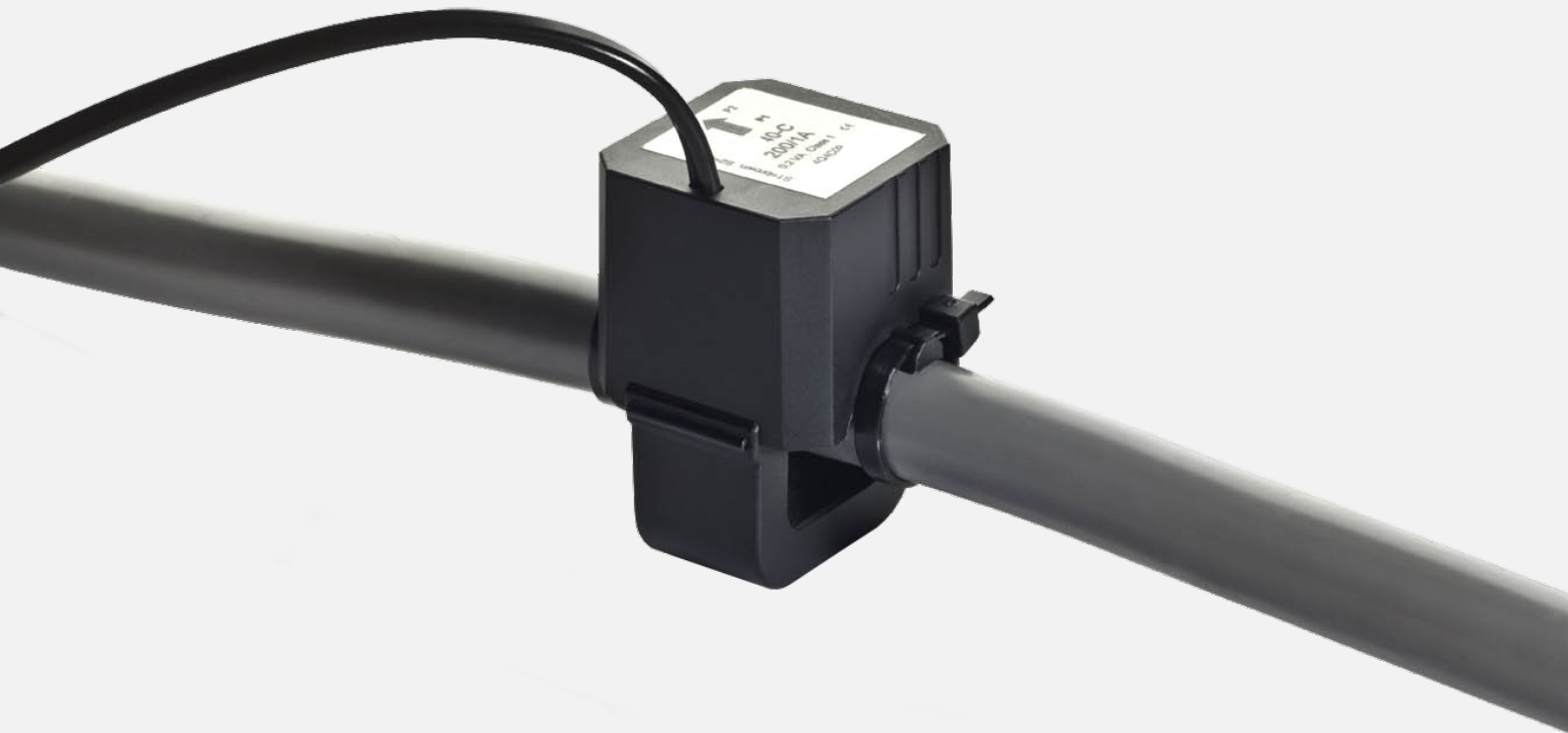


CORE-BALANCED CURRENT TRANSFORMERS

The compact open-core current transformers are particularly suited to applications involving places hard to access and limited in space. The separable cores also facilitate the installation on cables or bus bars. Wherever an interruption of the current path is problematic or a measuring device has to be retrofitted in an uncomplicated manner, open-core current transformers are well-suited.

They transform primary rated currents in galvanically isolated secondary

currents of 5 A or 1 A that can be used by the measuring system. The secondary side (usually a measuring device, display or control) is connected via a pre-fabricated, colour-coded cable. The design ensures the safe assembly of the primary cable in the current transformer which is confirmed by a clearly audible «clicking sound». Two UV-resistant cable straps are included and fasten the transformer in addition.



MAIN FEATURES

COMPACT • EASY • FLEXIBLE

- Compact design facilitates applications involving places hard to access and limited in space
- Easy and fast assembly due to separable cores
- Easy connection of the secondary line via pre-fabricated, colour-coded cable
- Ideal for retrofitting in existing facilities without any interruption of the current supply
- Audible "clicking sound" confirms correct assembly
- UV-resistant cable straps provide additional security in fastening



TECHNICAL DATA

Type	SC30	SC40-B	SC40-C	SC50-E	SC50-L
Internal dimensions	18 x 21 mm	18 x 19 mm	28 x 27.5 mm	42 x 43 mm	42 x 85 mm
Circular conductor	∅ 18 mm	∅ 18 mm	∅ 28 mm	∅ 42 mm	2 x ∅ 42 mm
Width / height / depth	36 / 50 / 48 mm	49 / 67 / 57 mm	49 / 67 / 57 mm	66 / 97 / 66 mm	66 / 139 / 66 mm
Primary current I_{pr}	60 A ... 250 A	100 A ... 250 A	200 A ... 500 A	250 A ... 1000 A	
Secondary current I_{sr}	1 A	5 A or 1 A			
Cable length secondary line	3 m, 0.5 mm ²	3 m, 0.5 mm ² 0.5 m, 1.5 mm ²	3 m, 0.5 mm ² 0.5 m, 1.5 mm ²	5 m, 0.5 mm ² 3 m, 1.5 mm ²	
Class of accuracy	1; 3	0.5; 1	0.5; 1	0.5; 1	0.5; 1
Test voltage	3 kV; 50 Hz; 1 min				
Nominal frequency	50 ... 60 Hz				
Rated insulation level U_m	0.72 kV				
Rated power S_r	0.2 ... 1 VA				
Thermal short circuit current I_{th}	60 x I_N				
Dynamic short circuit current I_{cth}	100 %				
Insulation class	E (max. 120 °C)				
Housing material	Polyamid (PA 6.6)				
Flammability class	UL94 V2, free of halogen				
Ambient temperature	-10 °C ... +55 °C				
Standard accepted	IEC 61869-2				

Transformer type	SC30		SC40-B				SC40-C				SC50-E				SC50-L			
	1 A		1 A		5A		1 A		5 A		1 A		5 A		1 A		5 A	
Secondary current	1 A		1 A		5A		1 A		5 A		1 A		5 A		1 A		5 A	
Primary current	Class	Load	Class	Load	Class	Load	Class	Load	Class	Load	Class	Load	Class	Load	Class	Load	Class	Load
60 A	3	0.2 VA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75 A	3	0.2 VA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100 A	3	0.2 VA	1	0.2 VA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
125 A	3	0.2 VA	1	0.2 VA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150 A	3	0.2 VA	1	0.2 VA	1	1 VA	-	-	-	-	-	-	-	-	-	-	-	-
200 A	1	0.2 VA	0.5	0.2 VA	1	1 VA	1	0.2 VA	-	-	-	-	-	-	-	-	-	-
250 A	1	0.2 VA	0.5	0.2 VA	0.5	1 VA	1	0.2 VA	1	1 VA	1	0.5 VA	-	-	1	0.5 VA	-	-
300 A	-	-	-	-	-	-	1	0.2 VA	1	1 VA	1	0.5 VA	1	0.5 VA	1	0.5 VA	1	0.5 VA
400 A	-	-	-	-	-	-	1	0.2 VA	1	1 VA	0.5	0.5 VA	1	0.5 VA	0.5	0.5 VA	1	0.5 VA
500 A	-	-	-	-	-	-	0.5	0.2 VA	1	1 VA	0.5	0.5 VA	1	0.5 VA	0.5	0.5 VA	1	0.5 VA
600 A	-	-	-	-	-	-	-	-	-	-	0.5	0.5 VA	0.5	0.5 VA	0.5	0.5 VA	0.5	0.5 VA
750 A	-	-	-	-	-	-	-	-	-	-	0.5	0.5 VA	0.5	0.5 VA	0.5	0.5 VA	0.5	0.5 VA
800 A	-	-	-	-	-	-	-	-	-	-	0.5	0.5 VA	0.5	0.5 VA	0.5	0.5 VA	0.5	0.5 VA
1000 A	-	-	-	-	-	-	-	-	-	-	0.5	0.5 VA	0.5	0.5 VA	0.5	0.5 VA	0.5	0.5 VA



BUSHING-TYPE CURRENT TRANSFORMER FOR POWER QUALITY

The bushing-type current transformer for Power Quality applications ensure high-precision transmission up to 20 kHz and they are designed for use in harmonic-loaded 9 kHz networks. The output signals are 5 A as in the conventional plug-on current transformers. The power specifications also correspond to the usual values. Thus, they can also be used in conventional 50 Hz applications.

The bushing-type current transformer are plugged directly through the opening on the primary conductor (busbar or line). The secondary side (usually a meter, an energy meter or a display) is connected through the terminals on the front and rear.



MAIN FEATURES

PRECISE • SAFE • EFFICIENT

- For power quality applications up to 20 kHz
- Suitable for harmonic loaded networks up to 9 kHz with the basic frequencies of 50 Hz or 60 Hz
- High insulation test voltage up to 6 kV
- Tested lightning surge voltage for 690 V systems according to IEC 61439-1 / -2
- Safe housing with high flame protection
- Contamination protection due to optimised housing
- Easy and quick installation
- Safe and time-saving connection technology for solid and flexible conductors
- Various mounting options such as wall mounting, DIN rail mounting or Quick-Fix are available
- Shock and vibrationproof
- maintenance-free



TECHNICAL DATA

Type	XCTB 31.35			XCTB 81.35		
Height / width / depth	60 / 80.9 / 52 mm			120 / 134.66 / 52 mm		
Primary conductor	30 x 10 mm; 25 x 12 mm; 20 x 20 mm			80 x 10 mm; 60 x 30 mm		
Circular conductor	Ø 25.7 mm			Ø 54.7 mm		
Primary current I_{pr}	100 A ... 750 A			400 A ... 2000 A		
Secondary current I_{sr}	5 A					
Class of accuracy	0.2S	0.2	0.5	0.2S	0.2	0.5
Test voltage	6 kV; 50 Hz; 1 min					
Lightning impulse withstand voltage	12 kV; 1.2/50 µs					
Nominal frequency	50 ... 60 Hz					
Rated insulation level U_m	1.2 kV					
Rated power S_r	1.0 VA; 1.5 VA; 2.5 VA; 5 VA			2.5 VA; 5 VA		
Thermal short circuit current I_{th}	60 x I_N ; 1 Sek.					
Dynamic short circuit current I_{dyn}	2.5 x I_{th}					
Harmonic measurement with burden	0.2 VA - Sr pf1					
Insulation class	E (max. 120 °C)					
Measuring accuracy up to 20 kHz	$\epsilon \leq 2\% \mid \Delta\Phi \leq 2^\circ @ 0.05-10 \text{ Hz}$ $\epsilon \leq 3\% \mid \Delta\Phi \leq 3^\circ @ 10-20 \text{ Hz}$					
Housing material	Polycarbonate					
Flammability class	UL94 V-0, self-extinguishing, not dripping, free of halogen					
Ambient temperature	-5 °C ... +50 °C					
Standard accepted	IEC 61869-1; IEC 61869-2; IEC 61439-1; IEC 61439-2					

Transformer type	XCTB 31.35			XCTB 81.35		
Accuracy class	0.2S	0.2	0.5	0.2S	0.2	0.5
Secondary current	5 A					
Primary current	Rated power					
100 A	–	1.5 VA	1.5 VA / 2.5 VA	–	–	–
125 A	1.0 VA	1.5 VA	1.5 VA / 2.5 VA	–	–	–
150 A	1.5 VA	1.5 VA	1.5 VA / 2.5 VA	–	–	–
200 A	–	1.5 / 2.5 VA / 5 VA	1.5 / 2.5 VA / 5 VA	–	–	–
250 A	2.5 VA / 5 VA	2.5 VA / 5 VA	2.5 VA / 5 VA	–	–	–
300 A	2.5 VA / 5 VA	2.5 VA / 5 VA	2.5 VA / 5 VA	–	–	–
400 A	5 VA	5 VA	5 VA	–	2.5 VA	2.5 VA
500 A	2.5 VA / 5 VA	2.5 VA / 5 VA	2.5 VA / 5 VA	2.5 VA	2.5 VA	2.5 VA / 5 VA
600 A	5 VA	5 VA	5 VA	2.5 VA / 5 VA	2.5 VA / 5 VA	2.5 VA / 5 VA
750 A	5 VA	5 VA	5 VA	2.5 VA / 5 VA	2.5 VA / 5 VA	2.5 VA / 5 VA
800 A	–	–	–	2.5 VA / 5 VA	2.5 VA / 5 VA	2.5 VA / 5 VA
1000 A	–	–	–	5 VA	5 VA	5 VA
1200 A	–	–	–	5 VA	5 VA	5 VA
1250 A	–	–	–	5 VA	5 VA	5 VA
1500 A	–	–	–	5 VA	5 VA	5 VA
1600 A	–	–	–	5 VA	5 VA	5 VA
2000 A	–	–	–	5 VA	5 VA	5 VA



BUSHING-TYPE RESIDUAL CURRENT TRANSFORMER

Bushing-type residual current transformers are used wherever very small currents are to be acquired and processed. They are directly placed on the primary conductor through the opening.

In conjunction with our device variants SINEAX DM5000, AMx000, CENTRAX CUx000 and LINAX PQx000, they can be used for residual and fault current monitoring of machines and plants.



MAIN FEATURES

EASY • FLEXIBLE • SAVE

- Highly sensitive current sensor for detecting smallest fault currents
- Simple connection via 4-pole WAGO® spring-type terminal
- High safety, thanks to integrated overvoltage protection
- Flexible use due to a large frequency range
- Easy and quick mounting
- Safe housing with high flame protection
- Enclosed coil body



TECHNICAL DATA

Type	DACT-20	DACT-35	DACT-60	DACT-120
Primary conductor opening	Ø 20 mm	Ø 35 mm	Ø 60 mm	Ø 120 mm
Width / Height / Depth	82 / 63 / 30 mm	104.5 / 86.5 / 30 mm	135 / 117 / 37 mm	210 / 191.5 / 37 mm
Primary rated current I_{pn}	10 A			
Secondary rated current I_{sn}	0.0167 A			
CT ratio	1:600			
Rated burden	180 Ω / 50.2 mW			
Accuracy class	1			
Thermal nominal continuous current I_{cth}	$60 \times I_{pn} / 1 \text{ s}$			
Rct (75 °C)	5 ... 8 Ω			
Rated voltage	800 V			
Rated surge voltage	8 kV			
Pollution degree	3			
Operating frequency	30 Hz ... 3 kHz			
Rated insulation level U_m	0.72 kV			
Insulation class	E			
Secondary surge protection	Suppressor diode P6KE68VA (integrated)			
Insulation test voltage	3 kV; 50 Hz; 1 min			
Housing protection class	Housing: IP40; Terminal: IP20			
Terminal connections	Spring-loaded terminals, WAGO terminal 741-901; 4pole; 0,08 ... 2.5 mm ² Stripping length of the connecting wires: 5 ... 6 mm			
Housing material	Coycoloy C2100HF; RAL 3020			
Flammability class	UL94 V-0, self-extinguishing, non-dripping, halogen-free			
Operating temperature	-10 °C ... +70 °C			
Applied standards	IEC 60664-1; IEC 60664-3			



Figure 1

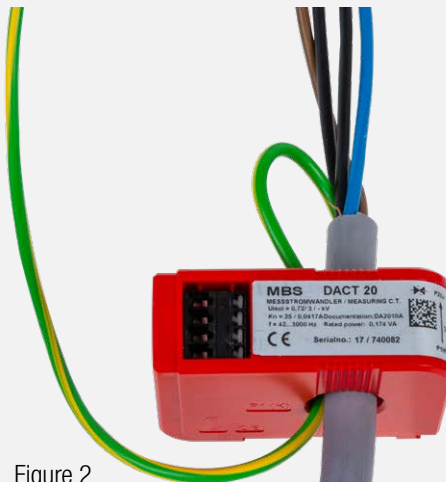


Figure 2

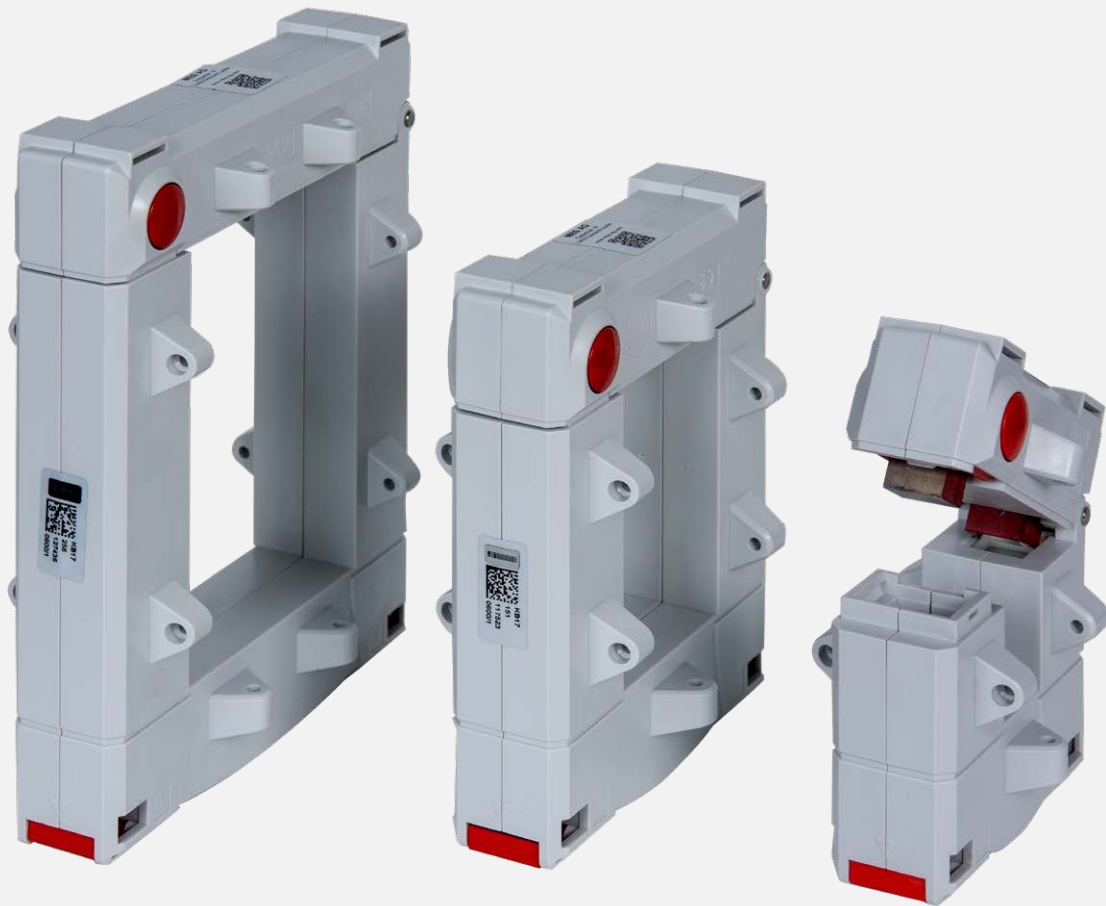
The protective conductor must not be routed through the residual current transformer (Figure 1). If this can not be prevented, the protective conductor has to be laid back again through the converter (Figure 2).



SPLIT-CORE RESIDUAL CURRENT TRANSFORMERS

Due to their compact design and easy installation, split-core current transformers are particularly suited to applications involving places hard to access and limited in space. The separable cores also facilitate the installation on cables or bus bars. Wherever an interruption of the current path is problematic or a measuring device has to be retrofitted in an

uncomplicated manner, split-core current transformers are the correct choice. They capture very small currents. In conjunction with our device variants SINEAX DM5000, AMx000, CENTRAX CUx000 and LINAX PQx000, they can be used for residual and fault current monitoring of machines and plants.



MAIN FEATURES

FLEXIBLE • SAVE • EASY

- Highly sensitive current sensor for detecting smallest fault currents
- Manipulation protection of the connections by means of sealable covers
- Ideal for retrofitting in existing systems without interrupting the power supply
- Flexible use due to a large frequency range
- Easy and quick mounting thanks to the splittable core halves
- Safe housing with high flame protection
- Separable coil body



TECHNICAL DATA

Type	KBU23D	KBU58D	KBU812D
Primary conductor opening	20 x 30 mm	50 x 80 mm	80 x 120 mm
Width / Height / Depth	93 / 106 / 34(58) mm	125 / 158 / 34(58) mm	155 / 198 / 34(58) mm
Primary rated current I_{pn}	10 A		
Secondary rated current I_{sn}	0.0167 A		
Ratio	1:600		
Rated burden	180 Ω		
Accuracy class	1		
Thermal nominal short circuit current I_{TH}	$60 \times I_{ch} / 1 \text{ s}$		
Secondary rated apparent power	0.05 VA		
Nominal frequency	50 Hz		
Operating frequency	30 Hz ... 3 kHz		
Rated insulation level U_m	0.72 kV		
Insulation class	E		
Insulation test voltage	3 kV; 50 Hz; 1 min		
Housing protection class	Housing: IP40; Terminal: IP20		
Housing material	Polycarbonate; RAL 7035; gray		
Flammability class	UL94 V-0, self-extinguishing, non-dripping, halogen-free		
Operating temperature	-5 °C ... +45 °C		
Applied standards	IEC 61869-1; IEC 61869-2		



AC/DC CURRENT TRANSFORMERS WITH TRANSMITTER FUNCTIONALITY

The current transformers for AC and DC are used to monitor 1-phase AC and DC systems. They are plugged directly through the opening on the primary conductor. The current measurement is done galvanically separated from the measured line. The excellent number of measured variables, the maximum current of up to 300 A AC or 400 A DC allow a versatile use of the devices.

The AC/DC current transformers with transmitter functionality are the ideal solution for applications where only current needs to be monitored. The devices are perfect for monitoring medium / large photovoltaic installations, battery charging systems and industrial processes.



MAIN FEATURES

INTELLIGENT • FLEXIBLE • EASY

- Break-resistant plastic housing made of PBT
- Flame retardant and self extinguishing according to UL94 V0
- Current sensing by Hall effect; range: 300 A AC / 400 A DC
- Galvanic separation from the measuring circuit
- Configuration by means of configuration software
- Serial RS485 Modbus/RTU output and analog 0...10 V or 4...20 mA output
- DIN rail or wall mounting for vertical or horizontal position



TECHNICAL DATA

Type	SIRAX BT7000	SIRAX BT7050	SIRAX BT7100	SIRAX BT7150
System type	1-phase AC/DC			
Type of measure	AC TRMS or DC			
Dimensions	46.1 x 63 x 26.4 mm (without terminals)		89.1 x 99.25 x 28.5 mm (without terminals)	
Installation form	DIN rail mounting			
Mounting position	arbitrarily, vertically or horizontally			
Max. cable diameter	Ø 14 mm		Ø 32 mm	
Input range	50 A AC/DC		300 A AC/DC	
Power supply	12 ... 30 V DC	passive loop powered 11 ... 30 V DC	12 ... 30 V DC	passive loop powered 11 ... 30 V DC
Absorption	< 20 mA	< 3.5 mA	< 20 mA	< 3.5 mA
Analog output	0 ... 10 V DC	4 ... 20 mA	0 ... 10 V DC	4 ... 20 mA
Digital output	RS485 Modbus/RTU	--	RS485 Modbus/RTU	--
Band width	DC or 20 ... 2000 Hz			
Accuracy	0.5 % F.S.			
Resolution	12 bit			
Temperature coefficient	< 200 ppm/°C			
Crest factor	2		1.4	
Insulation test voltage	3 kV, 50 Hz, 1 min			
Overload	2000 A (pulse); 300 A (continuous)		2000 A (pulse); 500 A (continuous)	
Housing protection IP	IP20			
Connections	Plug-in terminals 3.5 mm, 5 pol or 2 pol			
Housing material	PBT			
Flammability	UL94 V-0, self-extinguishing, non-dripping, halogen-free			
Operating temperature	-15 °C ... +65 °C			
Humidity	10 ... 90 % (not condensing)			
Programming	Modbus RTU and software	DIP switch	Modbus RTU and software	DIP switch



CURRENT AND ENERGY METER FOR AC AND DC

The power and energy meters for AC and DC are used to monitor 1-phase AC and DC systems up to a maximum current of up to 300 A AC and 400 A DC, and a maximum voltage of up to 800 V AC and 1000 V DC. They are plugged directly through the opening on the primary conductor. The current measurement is done galvanically separated from the measured line.

With the ability to measure currents with different frequency ranges, the AC/DC current transformers are the ideal solution for monitoring photovoltaic systems, battery charging systems, UPS systems, variable frequency drives and industrial processes.



MAIN FEATURES

INTELLIGENT • FLEXIBLE • EASY

- Break-resistant plastic housing made of PBT
- Flame retardant and self extinguishing to UL94 V0
- Bidirectional energy measurement
- Max. Input current up to 800 V AC / 1000 V DC
- Max. Input voltage up to 300 V AC / 400 V DC
- Galvanic separation from the measuring circuit
- Configuration by means of configuration software
- Serial RS485 Modbus / RTU
- DIN rail or wall mounting for vertical or horizontal position



TECHNICAL DATA

Type	SIRAX BT7200	SIRAX BT7250	SIRAX BT7300	SIRAX BT7350
System type	1-phase AC/DC			
Type of measure	AC TRMS or DC			
Dimensions	46.1 x 63 x 26.4 mm (without terminals)		89.1 x 99.25 x 28.5 mm (without terminals)	
Installation form	DIN rail mounting			
Mounting position	arbitrarily, vertically or horizontally			
Max. cable diameter	Ø 14 mm		Ø 32 mm	
Eingangsbereich Spannung	50 A AC/DC		300 A AC/DC	
Eingangsbereich Strom	800 V AC / 1000 V DC	80 V AC / 100 V DC	800 V AC / 1000 V DC	80 V AC / 100 V DC
Ratio	1.0 standard (adaptable)			
Hilfsenergie	9 ... 30 V DC			
Absorption	< 1.3 W			
Output range	RS485 Modbus/RTU			
Sampling rate	11kHz			
Band width	DC or 1 ... 400 Hz			
Accuracy	Voltage, Current, Active power: < 0.5% F.S. Frequency: ± 0.1 Hz Energy: ± 1%			
Resolution	12 bit			
Temperature coefficient	< 200 ppm/°C			
Crest factor	1.8		1.4	
Input impedance	1 MΩ ±1 %			
Insulation test voltage	3 kV;50 Hz, 1 min for voltage measurement / 4 kV; 50 Hz; 1 min for current measurement			
Overvoltage category	CATIII up to 600 V CATII up to 1000 V	CATIV up to 100 V	CATIII up to 600 V CATII up to 1000 V	CATIV up to 100 V
Housing protection IP	IP20			
Connections	Plug-in terminals 3.5 mm, 1x4 pol and 2x2 pol			
Housing material	PBT			
Flammability	UL94 V-0, self-extinguishing, non-dripping, halogen-free			
Operating temperature	-15 °C ... +65 °C			
Humidity	10 ... 90 % (not condensing)			
Programming	Via DIP Switch, Modbus RTU and software			



ROGOWSKI CURRENT SENSORS

Rogowski coils are air-core coils. The magnetic field of the wrapped current-carrying conductors induces an alternating voltage in the coils which is proportional to the current. This is determined by integration of the voltage. For that an electronic circuit is required, which needs to be powered. The great advantage of Rogowski coils is the quick and easy installation, wi-

thout the need to disconnect current circuits. By means of switchable current measurement ranges almost any application may be covered without any variance. The principle also allows to measure fast current changes and harmonics a lot better than any conventional current transformer.



Integrator for measuring range option

MAIN FEATURES

EASY • FLEXIBLE • SAVE

- Quick and easy installation
- Analysis of harmonics in power distribution
- Measurement of dynamic currents
- Current measurement in melting processes
- Test stands where test objects change often
- Mobile measurements in power mains



CURRENT CLAMPS

Measurement category: 600 V CATIII

Frequency range: 30 Hz up to 10 kHz

Current clamps 10A/1V

Current range CR: 10 mA up to 10 A AC

Output sensitivity: 100 mV/A

Uncertainty:

- Primary current	10 ... 50 mA	50 ... 100 mA	0,1 ... 10 A
- Accuracy (of reading)	±5 %	±2 %	±1 %
- Phase error (typically)	undefined	5°	3°



Current clamps 100A/1V

Current range CR: 1 A up to 120 A AC

Output sensitivity: 10 mV/A

Uncertainty:

- Primary current	1 ... 10 A	10 ... 25 A	25 ... 100 A
- Accuracy (of reading)	±2 %	±1,5 %	±1 %
- Phase error (typically)	undefined	2,2°	2°



Current clamps 1000A/1V

Current range CR: 1 A up to 1200 A AC

Output sensitivity: 1 mV/A

Uncertainty:

- Primary current	1 ... 10 A	10 ... 100 A	100 ... 1200 A
- Accuracy (of reading)	±3 % + 0,1 mV	±1,5 %	±1 %
- Phase error (typically)	undefined	0,5°	0,3°

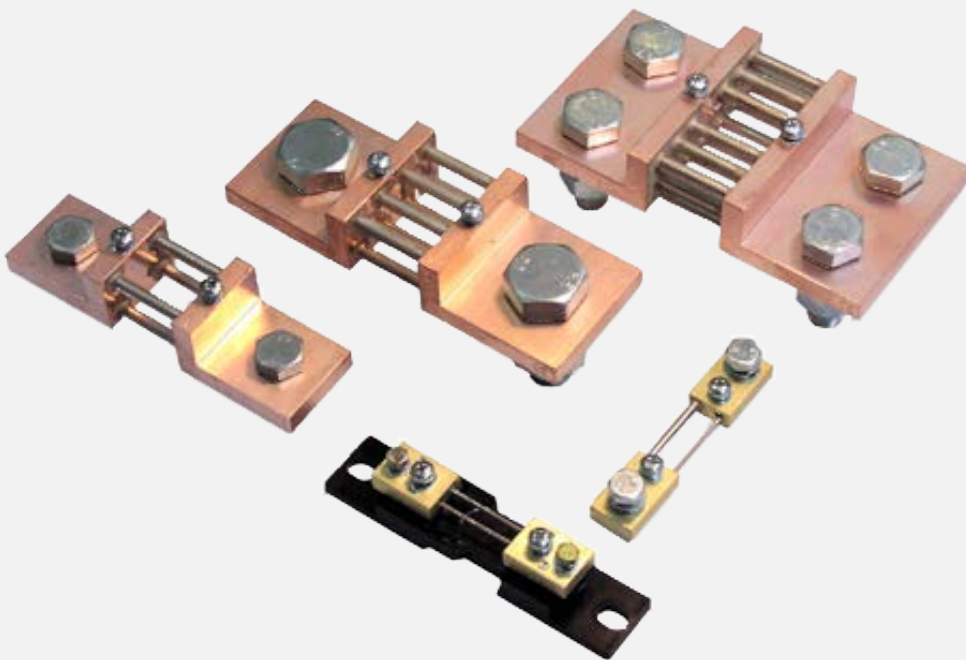




SHUNTS

The shunts are used to measure DC currents, especially at high current levels. A voltage proportional to the current drops across the shunt, which can then be displayed, for example, with a moving-coil instrument. The shunts are manufactured in

class 0.5 or 0.2 according to DIN 43709 and DIN 60051 with rated currents in the range of 1A to 15000A and a voltage drop of 50mV to 150mV. They are adjusted so that a precisely defined voltage (e.g. 60mV, 150mV) drops at the rated current.



MAIN FEATURES

SIMPLY • ROBUST • BASIC

- Primary current ratings from 1A ... 15000A available
- Voltage drop 50mV, 60mV, 75mV, 100mV and 150mV available
- Rugged construction
- High accuracy class 0.2 and 0.5
- Busbar mounting
- High overload resistance
- Very low temperature coefficient
- High long-term stability
- Shock and vibration resistant



TECHNICAL DATA

Typ	SIRAX SH100
Nominal voltage drop	50mV, 60mV, 75mV, 100mV, 150mV
Rated current range I _N	1A ... 15000A
Typ A, D	Flachprofil mit Isoliersockel (bis 25A / 50mV, 60mV, 75mV, 100mV, 150mV) Flachprofil ohne Isoliersockel (30 ... 150A)
Typ B	L-Profil
Typ C	T-Profil
Accuracy class	0.2 oder 0.5
Overload limit according to DIN 60 051	1.2-fach dauernd 5-fach für max. 5s (≤ 200A) 2-fach für max. 5s (> 2000A ... 10000A)
Climate suitability according to VDE/VDI 3540	Klimaklasse 3
Operating temperature	-10 ... +55 °C
Storage temperature	-25 ... +65 °C
Temperature coefficient	0.002% / °C
Relative humidity	≤75% im Jahresmittel, keine Betauung
Test voltage with insulating base	5kV
Resistance of the wires	35mΩ oder 75mΩ (Leitungen werden mit dem Nebenwiderstand nicht mitgeliefert)
Protection class	IP00
Resistance bars	Manganin
Connectors type A, D	Brass
Connectors type B	Brass/Copper
Connectors type C	Copper
Socket material design A, D	Lexan black, UL94 V-0, self-extinguishing, non-dripping, halogen-free
Connections:	Threaded screws
Current path	according to data sheet
Voltage path	M5 x 8
Mounting:	
Tpe A	Screw mounting (max M8) or snap-on mounting on mounting rail according to DIN EN 60715
Applied standards	DIN 43703, DIN EN 60051, DIN EN 60051-1, DIN EN 60051-8, DIN EN 60051-9, DIN EN 60715, EN 61000-6-2, EN 61000-6-4



SOLUTIONS FOR ELECTRICAL INSTRUMENTATION

MEASURING AND DISPLAYING

- Programmable power instruments with process visualisation
- Unifunctional as well as multifunctional transducers for all electrical variables
- Energy meters
- Extensive process instrumentation for low-voltage signals
- Position sensors to acquire precise angle positions and inclinations



POWER QUALITY

- Recording of power quality events to secure supply quality
- Power quality instruments Class A according to IEC 61000-4-30 Ed. 3 and IEC 62586-1 Ed. 2
- Independent certification according to IEC 62586-2 Ed. 2 by an accredited institute
- Power quality data by PQDIF format according to IEEE 1159.3 available
- Supports conformity reports concerning the voltage quality standard (e.g. according to EN 50160, IEC 6100-2-2, IEC 6100-2-4, IEC 6100-2-12 and more.)
- Stationary and portable devices available



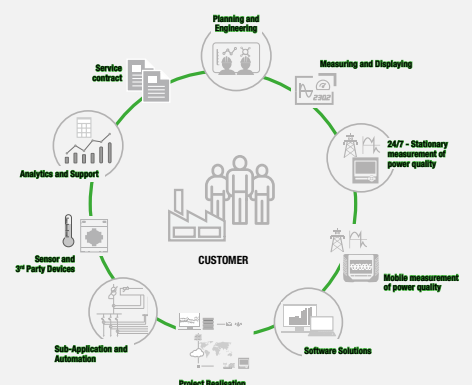
MONITORING AND CONTROLLING

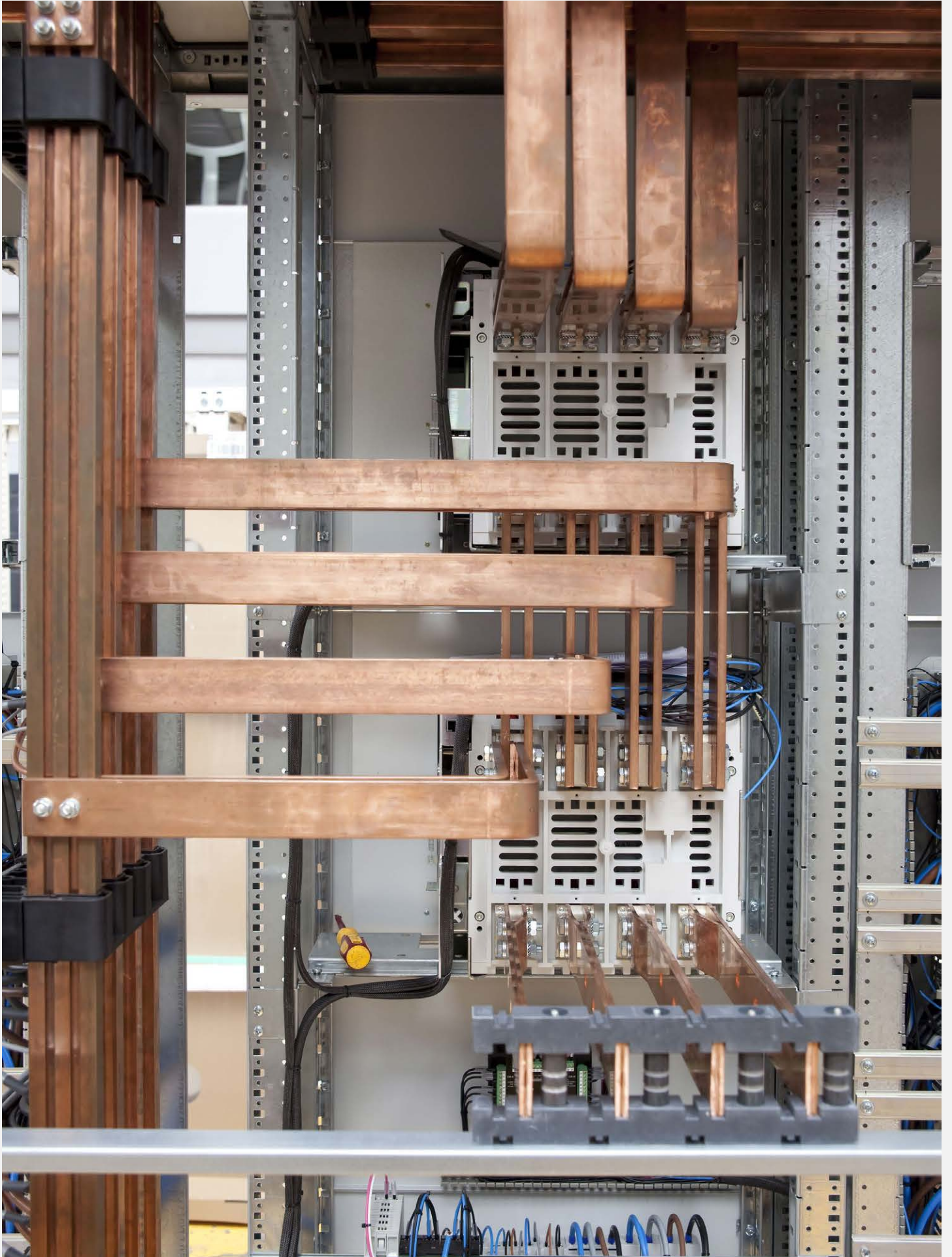
- Functionality of a highly precise instrument combined with a Soft-PLC
- On-site recording and visualising of measured data
- User-specific visualising of the programmed PLC facility
- Innovative and scalable operating concepts for intuitive use of data (WebGUI)
- Integration of further devices via Modbus interface
- Measuring tasks and automation tasks derived from the same can be solved directly



SOFTWARE, SYSTEMS AND SOLUTIONS



- Use of targeted software solutions
- Central recording and structuring of measured data of the most varied instruments
- Preparation of cost centre-related energy reports
- Extensive visualising of measured values and grid events
- Individual process visualising
- Conducting measurement campaigns
- Analysis of power quality data and fault finding







GMC INSTRUMENTS

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