Accessories

multict current transformer

CURRENT TRANSFORMER DIVERSITY!

Transformers for energy and current measuring technology.





energy monitoring.

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Current transformers multict



The current transformers in the multict product group are an essential part of any energy measurement. Along with choosing the right current transformer, this is a significant contributing factor in the accuracy of measured values. The high measuring quality is a prerequisite to establishing a plausible energy data management system and evaluating the network quality.

THE MULTICT FAMILY:

THE RIGHT TRANSFORMER FOR EVERY MEASUREMENT TASK.



Bushing type current transformer – multict ASK

Compact construction for use with circular conductors and busbars.



Bushing type current transformer – multict CTM7

For installing in distribution measurements with low space for installation.



Bushing type current transformer – multict CTB

Bushing type current transformers with "Cage Clamp®" screwless connection technology, UL-certified.

More information starting on page 8

Core balanced current transformer – multict KBU

Folding transformers for subsequent installation in existing distributions.



starting on page 14

Core balanced current transformer – multict KBR

For subsequent installation without separating the primary circuit.

More information starting on page 18

More information starting on page 22

More information starting on page 16



Totalizing current transformer – multict KSU / SUSK

Aggregation of multiple main transformers to connect to one measuring device.

More information starting page 28

Do you have any questions concerning a product or a special requirement? We will be happy to advise you personally. Product advice: +49 (0) 9122 6373-0

info@kbr.de



multict KBR

multict SUSK multict KSU

multict X series



multict FASK

More information

starting on page 30

The alternative when there's no space for the current transformer.

Bushing type current transformers,

"Cage Clamp" screwless connection

for billing purposes – multict ECTB

With PTB design approval for estab-

lishing a measuring point, which is

needed for billing.

starting on page 62



Measurements up to 20 kHz multict XCTB / XKBU / XKBR

Guarantee highly precise signal transmission up to 20 kHz. Ideal in combination with the multimess D9-PQ power quality analyzer.

More information starting on page 40



Totalizing current transformers for billing purposes – multict EASK

With PTB design approval for establishing a measuring point, which is needed for billing.

starting on page 68



Bushing type current transformers

for billing purposes – multict EASK

With PTB design approval for estab-

lishing a measuring point, which is

needed for billing.

More information

starting on page 56

Residual current transformers multict DACT

For recording the residual current in 3-/4-wire AC networks.

starting on page 72

No measuring device without a current transformer. The multict current transformer and the multimess measuring device series form a strong team together!



multimess F144 LED

THE MULTIMESS EXCELLENCE: MEASURE, MEASURE, MEASURE AND MORE ...



Capturing and documenting energy data has never been easier. Whether it be standard and consumption values, load profiles or network quality according to applicable standards: multimess energy measuring devices meet the most diverse requirements with the highest level of safety and precision.

Flexible interfaces

The bus compatibility and load profile memory create the basis for efficient energy monitoring and safe power networks.

KBR Uh lh U L1 L2 W Extra L3

11

+101

F4



ofibu DP

odbu TCP

Comfortable monitoring

Easy monitoring, evalucaptured energy data with

Intuitive operation

Clear, functional user interface design and LED or LCD displays provide a good overview and easy operation.

ation and control of all the web-based analysis software **visual energy**

7

KBU D/-RCMB

multict ECTB

multict ASK bushing type current transformer

Application:

An affordable and compact alternative for setting up new systems.



multict ASK bushing type current transformer

Highlights

 \rightarrow

Compact design

→ Use with circular conductors and primary rails

An overall view of **technical details** can be found on the following pages.

The current transformers in the **multict ASK** series are set apart by their compact size, versatility, and higher safety standards.

Compactness

All transformers in this series have a depth of 30 mm. The different designs offer different windows for different cable and bar diameters.

Versatility

A primary rail clamp with a positive guide is available for fastening the transformer to primary rails. If necessary, for example in conditions with tight space, the connection terminal can easily be pulled out.

Description

Bushing type current transformers for primary rated currents between 30 A and 7,500 A, secondary rated current 1 A, 5 A, in accuracy classes 0.2s, 0.2, 0.5s, 0.1, and 1. All transformers are delivered including the the materials necessary for fastening. The supply of primary conductor rails (electrolyte copper, nickel-plated) in accordance with the rail window is optional, including DIN 933 screws, complete with nuts, washers, and spring rings for mounting in busbars or similar.

Technical Data

Maximum operating voltage U _m	0.72 kV	
Rated continuous thermal current $\mathrm{I}_{\mathrm{cth}}$	1.0 x I _n	
Rated short-time thermal current I_{th}	60 x l _n , 1 sec (max. 100 kA)	
Rated surge current I _{dyn}	2.5 x l _{th}	
Overcurrent limiting factor	FS 5	
Rated frequency	50 (60) Hz (16 ² / ₃ up to 400 Hz by request)	
Insulation class	E	
Insulation test voltages	3 kV, 1 min, U _{eff} , 50 Hz (U _m ≤ 0,72 kV)	
Working temperature range	-5 °C ≤ T ≤ +50 °C	
Storage temperature range	-25 °C ≤ T ≤ +70 °C	
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2	
Unbreakable plastic housing made of polycarbonate		
Flame-resistant and self-extinguishing in accordance with UL94-V2		
Nickel-plated secondary clamps with plus/minus screws (2 Nm)		

Selection matrix

	Housing (HxWxD)	Circular con- ductor Ø	Rail 1	Rail 2
multict ASK 31.3	76 x 61 x 48 mm	26 mm	30 x 10 mm	2x 20 x 10 mm
multict ASK 41.4	86 x 71 x 58 mm	32 mm	40 x 10 mm	2x 30 x 5 mm
multict ASK 51.4	99 x 86 x 58 mm	44 mm	50 x 12 mm	2 x 40 x 10 mm
multict ASK 61.4	106 x 96 x 58 mm	44 mm	63 x 10 mm	2x 50 x 10 mm
multict ASK 81.4	124 x 120 x 58 mm	55 mm	80 x 10 mm	2x 60 x 10 mm
multict ASK 101.4	141 x 130 x 58 mm	70 mm	100 x 10 mm	2x 80 x 10 mm

All devices are delivered including the the materials necessary for fastening.

Included in the scope of delivery:

- 1 primary rail clamp
- 2 screws M5x35
- 2 secondary clamp covers (red valve)
- 2 mounting feet



multict EASK

multict DACT/ -KBU D/-RCMB 70

multict ASK bushing type current transformer







multict ASK 31.3

multict ASK 41.4

multict ASK 51.4

		Secondar 5	ry current A
Α	VA	Cla	ss 1
50	1	22	000
75	1.5	10	724
100	2.5	21	999
150	2.5	22	001
200	5	10	753
250	5	10	754
300	5	10	755
400	5	10	756
500	5	10	757
600	5	10	758
750	10	10	801
			ltem no.
Snap-on mounting		24807	

		Secondar 5	y current A
А	VA	Cla	ss 1
75	1.5	10	802
100	2.5	10	803
150	5	10	804
200	5	10	805
250	5	10	806
300	5	10	807
400	5	10	808
500	5	10	809
600	5	10	810
750	10	10	811
800	10	10	812
1000	10	10	813
			ltem no.
Snap-on mounting		ntina	24810

		Secondary current 5A
Α	VA	Class 1
100	1.5	10814
150	2.5	10815
200	5	10922
250	5	10817
300	5	10818
400	5	10819
500	5	10886
600	10	10821
750	10	10822
800	10	10921
1000	10	10824
1250	10	10825

Snap-on mounting 24810

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

multict CTM7

multict CTB

multict KBU

multict KBR

multict KSU multict SUSK







multict ASK 61.4

		Secondary current 5A
Α	VA	Class 1
200	2.5	10826
250	5	10854
300	5	10828
400	5	10829
500	5	10830
600	10	10894
750	10	10832
800	10	10833
1000	10	10834
1250	10	10835
1500	10	10836

multict ASK 81.4

		Secondary current 5A
Α	VA	Class 1
400	5	10837
500	5	10838
600	10	10839
750	10	10840
800	10	10914
1000	10	10915
1250	10	10843
1500	10	10740

multict ASK 101.4

		Secondary current 5A
А	VA	Class 1
500	10	10846
750	10	10847
800	10	10848
1000	10	10849
1250	10	10850
1500	10	10851
2000	10	10852

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

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multict ASK bushing type current transformer



multict ASK 41.4 ^{A, B}















multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

multict CTM7 miniature bushing type current transformer

Application:

An affordable and compact alternative for setting up new systems.



multict CTM7 miniature bushing type current transformer

Highlights

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- Maintenance-free
- → Primary rated current 32 A 64 A
- → Secondary rated current 1 A
- → Accuracy class 1

An overall view of **technical details** can be found on the following page.

Bushing type current transformers in the **multict CTM7** series are inductive single-wire current transformers that work according to the transformer principle. They serve to adjust the primary measuring parameters for the nominal input values of connected measuring devices.

Because of the measuring principle used, these current transformers are only suitable for use in AC networks.

Current transformers in the multict CTM7 series require no maintenance and are designed for primary rated currents between 32 A and 64 A with a secondary rated current of 1 A, in accuracy class 1. Also suitable for use in data centers thanks to its low current consumption.

Can be installed directly on 3-phase circuit breaker (center-to-center distance: 17.5 mm).

Quick and easy assembly; transformers L1 and L3 can be snapped onto the DIN rail with optional snap-on mounting, and transformer L2 is plugged onto the other two transformers.

multict ASK

multict CTM7

multict CTB

multict KBU

multict KBR

multict KSU multict SUSK

multict Rogowski series

multict X series

multict EASK

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

Technical Data

Maximum operating voltage U _m	0.72 kV	
Rated continuous thermal current $\mathrm{I}_{\mathrm{cth}}$	1.0 x I _n	
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)	
Rated surge current I _{dyn}	2,5 x I _{th}	
Overcurrent limiting factor	FS 5	
Rated frequency	50 (60) Hz (16 ² / ₃ up to 400 Hz by request)	
Insulation class	E	
Insulation test voltages	3 kV, 1 min, U_{eff} , 50 Hz ($U_m \le 0.72$ kV)	
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$	
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$	
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2	
Unbreakable plastic housing made of polyca	arbonate	
Flame-resistant and self-extinguishing in accordance with UL94-V0		
Nickel-plated secondary clamps with plus/minus screws (2 Nm)		

multict CTM7

		Secondary current 1A
Α	VA	Class 1
32	0.2	23471
35	0.2	23472
40	0.3	23473
50	0.4	23474
60	0.4	23475
64	0.5	23476



Dimensions: Circular conductors: 7.6 mm Width: 27.5 mm Height: 46.5 mm Total depth: 19.0 mm





Snap-on mounting for standard rail assembly multict CTM7 Item No. 23477



Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

multict CTB bushing type current transformer

Application:

Installation in distribution measurements.



multict CTB bushing type current transformer

Highlights	\rightarrow	"Cage Clamp®" screwless connection technology
	\rightarrow	Shock- and vibration-resistant
	\rightarrow	UL-certified
\rightarrow	\rightarrow	Low-voltage current transformers for max. operating voltages up to 1.2 kV, can be used in 690 V networks
\rightarrow		Accuracy class 0,5 and 1
		An overall view of technical details can be found on the following page.

The current transformers from the multict CTB series are the first current transformers in the world with the "Cage Clamp®" screwless connection technology.

Maintenance-free

The screwless connection technology with spring terminal makes connections gas-tight and maintenance-free. Thanks to the strong retaining forces, the current transformer can be used even in conditions of high mechanical stress (e.g. vibrations). The spring terminal is designed for solid and flexible conductors up to a max. of 4 mm². This eliminates the need for ferrules.

The current transformers are also UL-certified. With optional accessories, assembly can be made even easier.

Description

Bushing type current transformers for primary rated currents between 50 A and 2,500 A.

Secondary rated current 1 A or 5 A, in accuracy classes 0.2s or 0.2, 0.5s, 0.5, 1, 3.

multict ASK

multict CTM7

multict KBU

multict KBR

Technical Data

Maximum operating voltage U _m	1.2 kV	
Rated continuous thermal current I_{cth}	1.2 x l _n	۳
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)	ict C
Rated surge current I _{dyn}	2,5 x I _{th}	mult
Overcurrent limiting factor	FS 5 and FS 10	-
Rated frequency	50 (60) Hz (16 ² / ₃ up to 400 Hz by request)	
Insulation class	E	HX t
Insulation test voltages	6 kV, 1 min, U_{effr} 50 Hz ($U_m \le 1,2$ kV)	nulti
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$	
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$	~
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2	+ KB
Unbreakable plastic housing made of polycarbonate		ultic
Flame-resistant and self-extinguishing in accordance with UL94-V0		5
Nickel-plated secondary clamps with plus/minus screws (2 Nm)		

multict CTB on request



CAUTION: If a cable lug is already pressed on the cable, it must be considered when determining the window size of the transformer.

UL-certified

multict ESUSK

KBU D/-RCMB 70 multict DACT/

multict KBU split core transformer, folding



multict KBU folding split core transformer

lighlights	\rightarrow	Safe and easy attachment –
		current transformer audibly clicks into place

- → Secondary current 1 A or 5 A
- → Also available in accuracy class 0.5

An overall view Of technical details can be found on the following page.

Folding multict KBU split core transformer.

Current transformers with split measuring core for primary rated currents between 100 A and 5000 A, secondary rated current 1 A and 5 A, in accuracy classes 0.5 and 1.

The split measurement system enables easy subsequent installation in already existing systems with minimal installation effort.

To install, the transformer's locking mechanism is opened, it is laid around the primary conductor, and pushed back into place with an audible click. The measuring assembly is ready to use immediately after connecting the secondary conductors.

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Technical Data

Maximum operating voltage $U_{\rm m}$	0.72 kV				
Rated continuous thermal current I_{cth}	1.0 × I _n				
Rated short-time thermal current I_{th}	60 x I _n , 1 sec				
Rated surge current I _{dyn}	2,5 x l _{th}				
Overcurrent limiting factor	FS 5 through FS 20 (depending on type)				
Rated frequency	50 (60) Hz (16 ² / ₃ up to 400 Hz by request)				
Insulation class	E				
Insulation test voltages	3 kV, 1 min, U_{eff} , 50 Hz ($U_m \le 0.72$ kV)				
Working temperature range	$-5 \degree C \le T \le +50 \degree C$				
Storage temperature range	$-25 \degree C \le T \le +70 \degree C$				
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2				
Unbreakable plastic housing made of polycarbonate					
Flame-resistant and self-extinguishing in accordance with UL94-V2					
Nickel-plated secondary clamps with plus/m	Nickel-plated secondary clamps with plus/minus screws (2 Nm)				

Selection matrix	Transformer width	Circular conductor Ø	Current range
multict KBU 23	93 mm	20 mm	100 400 A
multict KBU 58	125 mm	50 mm	250 1000 A
multict KBU 812	155 mm	80 mm	250 1500 A

Dimensions	A Width mm	B Width mm	C/C1 Width mm	D MM	E MM	F MM	G MM
multict KBU 23	93	106	34 / 58	23	33	64	56
multict KBU 58	125	158	34 / 58	55	85	96	56
multict KBU 812	155	198	34 / 58	85	125	126	56







multict EASK

multict DACT/ -KBU D/-RCMB 70

multict KBU split core transformer, folding



multict KBU 23

		Secondary current 1A			Secor	ndary cu 5A	urrent
А	VA	Class 3	Class 1	Class 0.5	Class 3	Class 1	Class 0.5
100	1.25	23071			23064	_	
150	1.5	23072			23065	—	—
200	2.5	23073			23066	—	—
250	1.5		23074			23067	—
300	3.75		23075			23068	—
400	1			23077			23070
400	5		23076			23069	—



Please note that all current transformers are not eligible for returns or exchanges.

multict KBU 58

		Secondar 1	ry current A	Secondaı 5	ry current A
Α	VA	Class 1	Class 0.5	Class 1	Class 0.5
250	1.5	23084	—	12405	—
300	2.5	23085		12406	—
400	1		23092	—	23078
400	2.5	23086		12407*	
500	2.5		23093	—	23079
500	5	23087		12408	
600	2.5		23094	—	23080
600	5	23088		12409	
750	2.5		23095		23081
/50	5	23089		12410	
000	2.5		23096	—	23082
800	7.5	23090		12411	
1000	5		23097		23083
1000	10	23091		12412	

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.



multict KBU



multict KBU 812

		Secondary current		Seconda	ry current
		1	Α	5	Α
А	VA	Class 1	Class 0.5	Class 1	Class 0.5
250	1.5	23114	—	23098	-
300	2.5	23115	-	23099	_
400	2.5	23116	-	23100	—
500	2.5	_	23123	—	23106
500	5	23117	—	23101	_
750	2.5	—	23125	—	23108
750	5	23119	_	23103	_
1000	5	_	23127	—	23110
1000	10	23120	—	23104	—
1250	7.5	_	23129	_	23112
1250	15	23121	_	12413	_
1500	7.5	_	23130	_	23113
1500	15	23122	-	12414	-

The rated power is the power that the transformer can generate at the end of the cable or terminal.



multict KBR core balanced current transformer, split

Application: Core balanced current transformers are mainly used in subsequent installation to prevent the primary conductors from separating.

multict KBR core balanced current transformer, split

Highlights

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- Safe and easy attachment
- → Suitable for use in places that are hard to reach or have limited space, thanks to its dimensions and easy handling
- → Can be installed "singlehandedly" thanks to the "click" system
- → Secondary current 1 A or 5 A

An overall view Of **technical details** can be found on the following page.

multict KBR has a split measuring core and can be ordered for primary rated currents between 50 A and 1000 A, secondary rated current 1 A and 5 A, in accuracy classes 0.5, 1, and 3.

The split measurement system enables easy subsequent installation in already existing systems with minimal installation effort.

To install, the transformer's locking mechanism is opened, it is laid around the primary conductor, and pushed back into place with an audible click. The measuring assembly is ready to use immediately after connecting the secondary conductors.

The "click" system combined with the fixing clips makes it possible to install "singlehandedly"



Technical Data

Maximum operating voltage U_m	0.72 kV			
Rated continuous thermal current I _{cth}	1.2 x I _n (KBR 18, 32, 44); 1.0 x I _n (other models)			
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)			
Rated surge current I _{dyn}	2,5 x l _{th}			
Overcurrent limiting factor	FS 5 or FS 10 (depending on type)			
Rated frequency	50 (60) Hz (16 ² / ₃ up to 400 Hz by request)			
Insulation class	E			
Insulation test voltages	3 kV, 1 min, U _{eff} , 50 Hz (U _m ≤ 0,72 kV)			
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$			
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$			
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2			
Unbreakable plastic housing made of polyamide				
Flame-resistant and self-extinguishing in accordance with UL94-V0				
Nickel-plated secondary clamps with plus/minus screws (2 Nm)				

Selection matrix

	Housing (Hx-	Circular con-	
	WxD)	ductor Ø	Current range
multict KBR 18S	63 x 36 x 50 mm	18.5 mm	60 250 A
multict KBR 18 65 x 42 x 68 mr		18.5 mm	50 250 A
multict KBR 18L	81 x 49 x 59 mm	18.4 mm	100 250 A
multict KBR 28	80 x 49 x 59 mm	27.9 mm	200 500 A
multict KBR 32	97 x 60 x 90 mm	32.5 mm	100 600 A
multict KBR 42	97 x 60 x 90 mm	42.4 mm	250 1000 A
multict KBR 42L	139 x 67 x 69 mm	2 x 42.4 mm	250 1000 A
multict KBR 44	139 x 67 x 69 mm	44 mm	250 1000 A

Length of connecting cable (color-coded)

Sec. 1A:	2.5m, cross-section 2x 0.75mm ²	KBR 18; KBR 32; KBR 44
	2.5m, cross-section 2x 0.50 mm ²	KBR 18S; KBR 18L; KBR 28; KBR 42; KBR 42L
Sec. 5A:	0.5 m, cross-section 2x 1.50 mm ²	KBR 18L; KBR 28; KBR 32; KBR 44; KBR 42; KBR 42L

multict KBR

multict ASK

multict CTM7

multict KBR core balanced current transformer, split



Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

multict KBR

multict KSU multict SUSK

multict Rogowski series

multict X series

multict EASK

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

mul	tict	KBR	18L

		Secondary current 1A		Secondaı 5	ry current A
А	VA	Class 1	Class 0.5	Class 1	Class 0.5
100	0.3	23239			
125	0.5	23240			
150	1	23241		23234	
200	0.2		23237		
200	1.5	23242		23235	
	0.5		23238		
250	1				23233
250	2			23236	
	2.5	23243			
	-				



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68,8 80,1 K 19 44,50 18,4 59 49

Snap-on mounting for standard rail assembly mutltict KBR 18L, mutltict KBR 28 Artikel-Nr. 23479

multict KBR 28

		Secondary current 1A		Secondaı 5	ry current A
Α	VA	Class 1	Class 0.5	Class 1	Class 0.5
200	0.3	23251			
250	1	23252		23245	
300	1.5	23253		23246	
400	0.5		23249		
400	2.5	23254		23247	
500	1		23250		23244
500	3	23255		23248	





Snap-on mounting for standard rail assembly mutltict KBR 18L, mutltict KBR 28 Artikel-Nr. 23479





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multict KBR core balanced current transformer, split







		Secondary current 1A		Secondaı 5	ry current A
А	VA	Class 3	Class 1	Class 3	Class 1
100	1.5			23260	
100	2.5	23269			
125	2.5			23261	
125	3	23270			
150	3	23271		23262	
200	3			23263	
200	5	23272			
250	3			23264	
250	5	23273			
200	2.5				23256
300	5		23265		
400	5		23266		23257
500	5		23267		23258
600	5		23268		23259

multict KBR 32

multict KBR 42

		Secondary current 1A		Secondaı 5	ry current A
А	VA	Class 1	Class 0.5	Class 1	Class 0.5
250	2.5	23291	—	—	
300	2.5	23292		23278	
400	2.5		23285		
400	5	23293		23279	
500	2.5		23286		
500	5	23294		23280	
600	2.5		23287		23274
600	5	23295		23281	
750	2.5		23288		23275
/50	5	23296		23282	
800	2.5		23289		23276
800	5	23297		23283	
1000	2.5		23290		23277
1000	5	23298		23284	



<u>54.60</u> 69

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

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multict KBR multict KBU

multict KSU mu multict SUSK

multict mult Rogowski series mult

multict EASK multict X series

multict DACT/ -KBU D/-RCMB 70

mu	ltict	KBR	42L

		Secondary current 1A		Secondaı 5	ry current A
Α	VA	Class 1	Class 0.5	Class 1	Class 0.5
250	2.5	23316			
300	2.5	23317		23303	
400	2.5		23310		
400	5	23318		23304	
500	2.5		23311		
500	5	23319		23305	
600	2.5		23312		23399
600	5	23320		23306	
750	2.5		23313		23300
750	5	23321		23307	
000	2.5		23314		23301
800	5	23322		23308	
1000	2.5		23315		23302
1000	5	23323		23309	



multict KBR 44

		Secondary current 1A	Secondary current 5A
Α	VA	Class 1	Class 1
250	1.5		23324
250	2.5	23332	
300	2.5	23333	23325
400	5	23334	23326
500	5	23335	23327
600	5	23336	23328
750	5	23337	23329
800	5	23338	23330
1000	5	23339	23331

54,60 69





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multict KSU / SUKS Totalizing current transformer



multict KSU / SUKS Totalizing current transformer

- Highlights → For identical main transformers; different main transformers upon request
 - → Primary rated currents 1 A or 5 A
 - → Secondary rated currents 1 A or 5 A
 - → For up to 8 main transformers
 - \rightarrow Record total consumption with just one measuring instrument

An overall view of **technical details** can be found on the following page.

Totalizing current transformers from the **multict KSU** and **multict SUSK** series adds up the input currents from up to eight main transformers and then divides them by the number of transformers or inputs. At the end of this process, the result is a standardized signal that can be further processed with one measuring device.

The totalizing current transformers are designed to be used with identical main transformers. Upon request, totalizing current transformers that can be used with different main transformers or for billing purposes can also be provided.

It is also possible to calculate differences through the count-

er connection of main transformers to the totalizing current transformer.

Housing (HxWxD):

multict KSU 2	94 x 127 x 57 mm
multict KSU 3	94 x 127 x 57 mm
multict SUSK 4	137 x 156 x 65 mm
multict SUSK 5	137 x 156 x 65 mm
multict SUSK 6	137 x 156 x 65 mm
multict SUSK 6	137 x 156 x 65 mm
multict SUSK 7	137 x 156 x 65 mm
multict SUSK 8	137 x 156 x 65 mm

Technical Data

Maximum operating voltage U _m	0.72 kV				
Rated continuous thermal current I _{cth}	$1.2 \times I_n$ (1.0 x I_n for higher primary currents)				
Rated short-time thermal current I _{th}	40 x I _n , 1 sec (max. 100 kA)				
Rated surge current I _{dyn}	2,5 x I _{th}				
Overcurrent limiting factor	FS 5				
Rated frequency	50 Hz				
Insulation class	E				
Insulation test voltages	3 kV, 1 min, U_{eff} , 50 Hz ($U_{m} \le 0.72$ kV)				
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$				
Storage temperature range	-25°C ≤ T ≤ +70°C				
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2				
Unbreakable plastic housing made of polyca	Unbreakable plastic housing made of polycarbonate				
Flame-resistant and self-extinguishing in accordance with UL94					

Nickel-plated secondary clamps with plus/minus screws (2 Nm)

	Power (VA)	Secondary current (A)	Power dissi- pation (VA)	ltem number
multict-KSU 2-1+1/1A-1VA-terminal 1	1	1	0.36	25798
multict-KSU 2-1+1/1A-2.5VA-terminal 1	2.5	1	1.39	25590
multict-KSU 2-1+1/1A-1.5VA-terminal 1	1.5	1	0.83	25799
multict-KSU 2-5+5/5A-2.5VA-terminal 1	2.5	5	2.61	25800
multict-KSU 3-1+1+1/1A-2.5VA-terminal 1	2.5	1	1.81	25591
multict-KSU 3-5+5+5/5A-2.5VA-terminal 1	2.5	5	1.96	25801
multict-SUSK 4-1+1+1+1/1A-5VA-terminal 1	5	1	1.83	25764
multict-SUSK 4-5+5+5+5/5A-2.5VA-terminal 1	2.5	5	1.98	25802
multict-SUSK 5-1+1+1+1+1/1A-2.5VA-terminal 1	2.5	1	1.23	25803
multict-SUSK 5-5+5+5+5+5/5A-5VA-terminal 1	5	5	3.95	25765
multict-SUSK 6-1+1+1+1+1+1/1A-2.5VA-terminal 1	2.5	1	1.86	25804
multict-SUSK 6-5+5+5+5+5+5/5A-5VA-terminal 1	5	5	3.25	25766
multict-SUSK 7-1+1+1+1+1+1+1/1A-5VA-terminal 1	5	1	1.84	25767
multict-SUSK 7-5+5+5+5+5+5+5/5A-5VA-terminal 1	5	5	3.55	25769
multict-SUSK 8-1+1+1+1+1+1+1+1/1A-5VA-terminal 1	5	1	1.7	25770
multict-SUSK 8-5+5+5+5+5+5+5+5/5A-5VA-terminal 1	5	5	3.37	25773

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges. multict ASK

MULTIMESS F96 ROGOWSKI: RETROFITTING SWITCHGEARS



RETROFIT

multimess F96 Rogowski. IMPROVES YESTERDAY FOR THE DAY AFTER TOMORROW.

With our energy measuring devices, efficient energy management is very easy. We will be happy to advise you personally.

Product advice: +49 (0) 9122 6373-0

info@kbr.de

Retrofitting current transformers into existing switchgears is always a difficult task. With the use of Rogowski bands, this work can be done quickly. Transformers can be installed without the hassle of shutting off the system under voltage. The bands can be used in virtually any distribution thanks to their flexible, narrow design, and can even be installed in tiny spaces between individual conductors without a problem. Rogowski bands are usually the only way to retrofit a measurement when parallel connections or copper rails are involved. The KBR Rogowski band's special structure allows it to be installed in any position without changing the measurement sensor.

multict ASK

multict CTM7

multict CTB

multict KBU

multict KBR

multict KSU multict SUSK

multict Rogowski series

multict X series

multict EASK

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

The multimess F96 measuring devices with Rogowski bands are the best solution for retrofitting switchgears. If measuring devices have to be retrofitted in switchgears, the subsequent installation of current transformers is the biggest challenge. A multimess F96 and its flexible Rogowski bands can solve that challenge easily, quickly, and efficiently.



Multimess F96 with Rogowski bands: The easy way to a modern switchgear Optional upgradeable interfaces make the multimess F96 reliable for the future. Save time and expense.







Subsequent assembly made easy, even in the tightest spaces, your switchgear will always be "up to date."

mutict FASK Rogowski coil and integrator ROI-3



multict FASK flexible current transformer with split measurement system

Highlights

 \rightarrow

Quick and easy installation

- → Length of connecting cables 10 meters
- → The materials allow it to be used in environments with tough conditions
- → The coils are shielded, which gives them the best possible protection from interference

An overall view of **technical details** can be found on the following page.

The flexible, very thin design of the coils allows them to be easily conducted around live conductors and plugged together.

They are fast and easy to install around busbars and cable bunches without interrupting the power.

The Rogowski coil combined with the QE-485 universal converter gives you a freely configurable analog and digital

output as well as an RS-485 Modbus RTU interface.

The ROI-3 3-phase integrator is best suited for outputs with 3 \times 1A. The integrator circuit is necessary to correct the phase of the passive Rogowski coil by 90°.

multict CTM7

Technical data – Rogowski coil

Туре	FASK-100	FASK-150	FASK-200	FASK-300	
Rated current reference	1000 A	3000 A	6000 A	10000 A	
Coil length	395 mm	525 mm	665 mm	965 mm	
Coil window size	100 mm	150 mm	200 mm	300 mm	
Weight	ca. 100-160 g				
Transmission ratio	100 mV/kA @ 50	Hz			
Transmission ratio error	< 0.5% of the central position on the seal @ 25°C				
Phase error	≤ 0.5 ° (30 angular minutes)				
Maximum measurable current	100 kA				
Coil resistance	between 100 and 250 ohms				
Coil diameter	8 mm				
Supply line length	10 m				
Temperature coefficient	400 ppm/K				
Position error	±1% maximum				
Linearity error	± 0.2 % maximum of measured value				
Bandwidth	1 Hz to 100 kHz (- 3dB)				
Working temperature range	-30 to +80 °C				
Storage temperature range	-40 to +90 °C				

Materials

Coil & cable	Thermoplastic rubber flame-resistant in accordance with UL 94 V-0
Seal	In accordance with PA6 UL 94 V-0
Color (coil)	Orange
Shielding	100% coil and 100% supply line cable

safety

Certificates	CE certified	ASK
	Fulfills EMC EN 61326-1:2006	ct E/
	IP 68	nulti
Insulation voltage	Coil: 3000 V	-
	Supply line: 1000 V	TB
safety	1000 V CATIII; 600 V CATIV	CH EC

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges. multict KBU

multict DACT/ -KBU D/-RCMB 70

Coil and integrator selection

- 1. Select Rogowski coil based on the max. current and diameter of coil
- 2. Select integrator based on the maximum current actually expected
- 3. Programming the measuring device



Example

- 1. Maximum current 200 A, coil diameter of 100 mm is sufficient
- 2. Rogowski coil FASK-100 and integrator ROI-3 (250 A) selected
- 3. Programming in measuring device 250/1A

Positioning and its influence on accuracy



Primary conductor position with the typical error values

As with every Rogowski coil, the positioning of the primary conductor has an influence on accuracy. The FASK series is adapted so that the smallest of errors occurs directly on the seal and thus near the fixing device. The figure on the left illustrates this situation and defines the exact error values.

Primary conductor position	Typical errors
Directly on seal	< 0.5
 In the center up to the outer edges of the coil 	< 0.8
 Directly on the opposite side of the seal 	< 1.0

Dimensions



Installation

The installation of these sensors is designed to be extremely simple. In just a few steps, the coil is laid around the primary conductor and closed at the seal. The primary conductor does not have to be separated.



Ordering chart - Rogowski coil and ROI-3 transducer

	I		l i i i i i i i i i i i i i i i i i i i
Product	Description		ltem no.
Rogowski coil FASK-100	FASK 100, 100 mV/kA, max. current 1000 A, 10 m		26015
Rogowski coil FASK-150	FASK 100, 150 mV/kA, max. current 3000 A, 10 m		26016
Rogowski coil FASK-200	FASK 100, 200 mV/kA, max. current 6000 A, 10 m		26017
Rogowski coil FASK-300	FASK 100, 300 mV/kA, max. current 10000 A, 10 m		26018
Integrator ROI-3 (250 A)	250/1A	ROI-3 100 mV/kA 0,25 kA	26019
Integrator ROI-3 (400 A)	400/1A	ROI-3 100 mV/kA 0,40 kA	26020
Integrator ROI-3 (630 A)	630/1A	ROI-3 100 mV/kA 0,63 kA	26021
Integrator ROI-3 (1 kA)	1000/1A	ROI-3 100 mV/kA 1 kA	26022
Integrator ROI-3 (1.5 kA)	1500/1A	ROI-3 100 mV/kA 1,5 kA	26023
Integrator ROI-3 (2 kA)	2000/1A	ROI-3 100 mV/kA 2 kA	26024
Integrator ROI-3 (4 kA)	4000/1A	ROI-3 100 mV/kA 4 kA	26025
Integrator ROI-3 (6 kA)	6000/1A	ROI-3 100 mV/kA 6 kA	26026
Integrator ROI-3 (10 kA)	10000/1A	ROI-3 100 mV/kA 10 kA	26027

mutict FASK Rogowski coil and integrator ROI-3



Highlights

 \rightarrow

Compact housing

→ Connection of 3 Rogowski coils FASK

Standard output signal 1 A

An overall view of **technical details** can be found on the following page.

An integrator circuit is necessary to correct the phase of the passive Rogowski coil by 90°. At the same time, it is preferable to get a standard signal to ensure compatibility with typical measuring devices.

The ROI-3 3-phase integrator is best suited for an output of 1 A. 3 Rogowski coils can be connected simultaneously. One 24 VCD source is required for voltage supply. It is designed to be installed on the DIN rail (TH35).

Note for ordering:

When ordering in conjunction with the Rogowski coil FASK, the primary rated current must be determined. There is a fixed transmission ratio like with a conventional current transformer (e.g. 1,000/1 A). The primary measuring range 0-1,000 A is mapped onto the secondary measuring range 0-1 A.


Technical data – Integrator ROI-3

Туре	ROI-3
Number of phase connections	3
Rated output signal	1A AC rms
Max. output signal (overload)	1.5A AC rms
Primary rated currents [A]	250; 400; 630; 1,000; 1,500; 2,000; 4,000; 6,000; 10,000
Transmission accuracy	0.5% at 1% (≥10 A) up to 110% of the primary rated current @ 25°C
Phase error	≤ 0.5 °
Linearity	\pm 0.2% of the measured value (at 10 – 120% of the rated current)
Bandwidth	30 Hz to 5 kHz
Maximum load per phase	0.5 Ω
Energy consumption	10 W
Output at 0A (zero drift)	≤ 0.01A
Temperature drift	200 ppm/K
Weight	185 g
Dimensions	114 x 100 x 22.5 mm
Supply voltage	24V DC
Working temperature range	−30 °C to +70 °C
Storage temperature range	−30 °C to +70 °C
Relative humidity	80 % maximum without condensation
Protection level	IP 20
Certification	CE certified



multict ASK

MULTIMESS D9-PQ: POWER QUALITY NETWORK ANALYZER FOR ALL NETWORK LEVELS



Power Quality Analyzer and Fault Recorder

The innovative **multimess D9-PQ** power quality analyzer and fault recorder for low and medium voltage networks is suitable for any measurement task required in electrical networks. You can use it as a power quality interface in accordance with network quality standard EN 50160 and as a measuring device for all physically defined measured values in alternating current networks. Additionally, it provides all consumption values required for energy data management.

In addition to the standard evaluations, the **multimess D9-PQ** also features a highspeed fault recorder with a recording rate of 40.96 kHz/10.24 kHz, as well as an 10 ms RMS value recorder. This makes a detailed evaluation of network interferences possible.

This component is especially suitable to monitor individual supply qualities or quality agreements between the energy provider and customer, to register them and make them available for evaluation or storage. Modern voltage quality measuring devices operate according to the IEC 61000-4-30 (01/ 2018) standard. This standard defines measurement methods to create a comparable basis for the user. Devices of different manufacturers operating according to this standard necessarily have to obtain the same measuring results.

The multimess D9-PQ helps you to analyze , the causes of malfunctions in electrical systems and machines. By permanently monitoring and controlling network quality, you can detect possible malfunctions early on.





The multict current transformers from the X series interact perfectly with the D9-PQ multimess



multict XCTB starting on page 40



multict XKBU starting on page 46



multict XKBR starting on page 48



When used as a power quality interface, the **multimess D9-PQ** provides comprehensive evaluations in accordance with the network quality standard DIN EN 50160

Technical Data

- 1.7 inch color display
- Class A measurement data processing
- IEC 61000-4-30
- Acquisition of power quality events according to DIN EN 50160; IEC61000-2-2; -2-12;-2-4
- Automatic reporting according to EN 50160
- 1 GB internal memory
- Input channel bandwidth 20 kHz
- 4 voltage inputs, measuring range end value: 480 V L-N, accuracy < 0,1%

- 4 Current inputs
- Simultaneous processing of sampled and calculated voltages and currents
- Voltage and current oscillograph sampling rate: 40.96 kHz / 10.24 kHz
- Half-cycle recorder: Network frequency, rms voltages and currents (RMS), pointer for voltage and current, power recording rate:
 10 ms (50 Hz) / 8,33 ms (60 Hz)
- Powerful triggering

multict DACT/ KBU D/-RCMB

multict XCTB bushing type current transformer

Application:

Installation in distribution measurements. Maintenance-free thanks to screwless connection technology.



multict XCTB bushing type current transformer

Highlights

- → Highly precise transmission up to 20 kHz
- \rightarrow For use in networks distorted by harmonics
- → Accuracy class 0.5
- → "Cage Clamp[®]" screwless connection technology
- → Shock- and vibration-resistant

An overall view Of technical details can be found on the following page.

The current transformers in the **multict XCTB** series combine two advantages in one device. In addition to highly precise transmission up to 20 kHz, the current transformers are set apart by the "Cage Clamp[®]" screwless connection technology.

Highly precise transmission

The XCTB current transformer series guarantees highly precise transmission up to 20 kHz and is also thermally designed for use in networks distorted by harmonics. The output signals are 1 or 5 A, as is customary for inductive current transformers according to the IEC. The power outputs likewise correspond to typical values. The transformer can thus be used in conventional 50 Hz applications as well. The frequency transmission behavior is defined with an additional rating plate.

Maintenance-free

The screwless connection technology with spring terminal makes connections gas-tight and maintenance-free. Thanks to the strong retaining forces, the current transformer can be used even in conditions of high mechanical stress (e.g. vibrations). The spring terminal is designed for solid and flexible conductors up to a max. of 4 mm². This eliminates the need for ferrules. With optional accessories, assembly can be made even easier.

Description

Bushing type current transformers for primary rated currents between 100 A and 2,000 A.

Secondary rated current 5 A or 1 A, in accuracy classes 0.2, 0.2s, 0.5, 0.5s, or 1.

Technical Data

Maximum operating voltage U_m	1.2 kV			
Rated continuous thermal current $\mathrm{I}_{\mathrm{cth}}$	1.2 x l _n			
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)			
Rated surge current I _{dyn}	2,5 x l _{th}			
Overcurrent limiting factor	FS 5			
Rated frequency	50/60 Hz			
Insulation class	E			
Insulation test voltages	6 kV, 1 min, U _{eff} , 50 Hz (U _m ≤ 1,2 kV)			
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$			
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$			
Applied norms DIN EN 61869/1+2, DIN 42600-1+2				
Unbreakable plastic housing made of polycarbonate				
Flame-resistant and self-extinguishing in accordance with UL94-V0				
Nickel-plated secondary clamps with plus/minus screws (2 Nm)				

Selection matrix

			Circular conduc-		
		Housing (HxWxD)	tor Ø	Rail 1	Rail 2
multict XCTB	31.35	81 x 60 x 52 mm	25.7 mm	30 x 10 mm	25 x 12 mm
multict XCTB	41.35	92 x 70 x 52 mm	31.8 mm	40 x 10 mm	30 x 15 mm
multict XCTB	51.35	106 x 95 x 52 mm	43.7 mm	50 x 12 mm	40 x 30 mm
multict XCTB	61.35	115 x 95 x 52 mm	43.7 mm	63 x 10 mm	50 x 30 mm
multict XCTB	81.35	135 x 120 x 52 mm	54.7 mm	80 x 10 mm	60 x 30 mm
multict XCTB	101.35	148 x 130 x 52 mm	70.0 mm	100 x 10 mm	80 x 30 mm

CAUTION: If a cable lug is already pressed on the cable, it must be considered when determining the window size of the transformer.

multict ASK

multict CTM7

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multict XCTB 31.35

		Secondary current 5A			
Α	VA	Class 0.5			
100	2.5	24621			
250	5	24622			
500	5	24623			
750	5	23624			

multict XCTB 41.35

		Secondary current 5A				
Α	VA	Class 0.5				
250	2.5	24625				
400	5	24626				
500	5	24627				
750	5	24629				
1000	5	24628				
		^				

multict XCTB 51.35

		Secondary current 5A			
Α	VA	Class 0.5			
250	2.5	24630			
400	5	24631			
500	5	24632			
750	5	24633			
1000	5	24634			
1250	5	24635			

All devices are delivered including the the materials necessary for fastening.

Included in the scope of delivery:

- 1 primary rail clamp
- 2 screws M5x35
- 2 secondary terminal covers
- 2 mounting feet

multict CTM7

multict CTB

multict KBU

multict KBR

multict SUSK

multict KSU







multict XCTB 61.35

multict XCTB 81.35

multict XCTB 101.35

		Secondary current 5A				
Α	VA	Class 0.5				
250	5	24636				
400	5	24637				
500	5	24638				
750	5	24639				
1000	5	24640				
1250	5	24641				
1500	5	24642				

		Secondary current 5A
Α	VA	Class 0.5
400	2.5	24643
500	5	24644
750	5	24645
1000	5	24646
1250	5	24647
1500	5	24648
2000	5	24649

		Secondary current 5A
Α	VA	Class 0.5
400	2.5	24650
500	5	24651
750	5	24652
1000	5	24653
1250	5	24654
1500	5	24655
2000	5	24656

multict EASK

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

multict Rogowski series



Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

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$\label{eq:constraint} \textbf{XCTB} \text{ bushing type current transformer}$



multict XCTB 41.35





multict XCTB 51.35







multict KBR

multict KSU series multict SUSK

t multict es Rogowski series

multict X series

multict EASK



multict XCTB 61.35

multict XCTB 81.35

multict XCTB 101.35





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37 35

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multict XKBU split core transformer, folding

Application:

Installation in distribution measurements. Requires no maintenance thanks to screwless connection technology.



multict XKBU folding split core transformer

Highlights \rightarrow Highly precise transmission up to 20 kHz

- → Safe and easy attachment current transformer audibly clicks into place
- → Secondary current 1 A or 5 A
- → Also available in accuracy class 0.5
- → UL-certified
- → Subsequent installation with minimal effort thanks to split measurement system

An overall view of technical details can be found on the following page.

The folding split core transformers from the **multict XKBU** series are suited for highly precise measurements.

Highly precise transmission

The XKBU current transformer series guarantees highly precise transmission up to 20 kHz and is also thermally designed for use in networks distorted by harmonics.

Split measurement system

The split measurement system enables easy subsequent installation in already existing systems with minimal installation effort.

To install, the transformer's locking mechanism is opened, it is laid around the primary conductor, and pushed back into place with an audible click. The measuring assembly is ready to use immediately after connecting the secondary conductors.

Description

Current transformers with split measuring core for primary rated currents between 250 A and 2500 A, secondary rated current 1 A and 5 A, in accuracy classes 0.5 and 1.

Technical Data

Maximum operating voltage U _m	0.72 kV			
Rated continuous thermal current I _{cth}	1.0 x I _n			
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)			
Rated surge current I _{dyn}	2,5 x l _{th}			
Overcurrent limiting factor	FS 5			
Rated frequency	50 Hz			
Insulation class	E			
Insulation test voltages	3 kV, U _{eff} , 50 Hz, 1 min.			
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$			
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$			
Applied norms	DIN EN 61869, part 1+2			
Unbreakable plastic housing made of polycarbonate				
Flame-resistant and self-extinguishing in accordance with UL94				
Nickel-plated secondary clamps with plus/minus screws (2 Nm)				

Selection matrix	Transformer width	Circular conductor Ø	Current range	
multict XKBU 23	93 mm	20 mm	250 400 A	
multict XKBU 58	125 mm	50 mm	250 1000 A	
multict XKBU 812	155 mm	80 mm	250 1500 A	

Dimensions	A Width mm	B Height mm	C/C1 depth mm	D MM	E MM	F MM	G MM
multict XKBU 23	93	106	34 / 58	23	33	64	56
multict XKBU 58	125	158	34 / 58	55	85	96	56
multict XKBU 812	155	198	34 / 58	85	125	126	56







multict ASK

multict EASK

XKBU split core current transformer



multict XKBU 23

		Secondary current 5A	
А	VA	Class 1	Class 0.5
250	1.5	24679	_
400	1		24680



multict XKBU 58

		Secondary current 5A		
А	VA	Class 1	Class 0.5	
250	1.5	24681		
400	1		24682	
500	2.5		24683	
750	2.5		24684	
1000	5		24685	



multict XKBU 812

		Secondary current 5A		
Α	VA	Class 1	Class 0.5	
250	2.5	24686		
500	2.5		24687	
750	2.5		24688	
1000	5		24689	
1250	5		24690	
1500	5		24691	

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

multict ASK

Your power supply in good hands



One System. Best Solutions.



multict DACT/ -KBU D/-RCMB 70

multict XKBR core balanced current transformer, split



multict XKBU core balanced current transformer, split

Highlights → Safe and easy attachment – current transformer audibly clicks into place

- → Highly precise transmission up to 20 kHz
- → Secondary current 1 A or 5 A
- → Prepared for UL-approval and sealable version available (XKBR 18S; XKBR 18L; XKBR 28; XKBR 42; XKBR42L)

An overall view of **technical details** can be found on the following page.

The core balanced current transformers from the **multict XKBR** series are suited for highly precise measurements.

Highly precise transmission

The XKBR current transformer series guarantees highly precise transmission up to 20 kHz and is also thermally designed for use in networks distorted by harmonics.

Split core balanced current transformer multict XKBR starting

Current transformers with split measuring core for primary rated currents between 50 A and 1000 A, secondary rated current 1 A or 5 A, in accuracy classes 0.5, 1, and 3.

The split measurement system enables easy subsequent installation in already existing systems with minimal installation effort.

To install, the transformer's locking mechanism is opened, it is laid around the primary conductor, and pushed back into place with an audible click. The measuring assembly is ready to use immediately after connecting the secondary conductors.

The "click" system combined with the fixing clips makes it possible to install "singlehandedly"



multict ASK

multict CTM7

multict CTB

multict KBU

multict KBR

multict KSU multict SUSK

multict Rogowski series

multict X series

multict EASK

Technical Data

Maximum operating voltage U _m	0.72 kV			
Rated continuous thermal current I _{cth}	1.0 x l _n			
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)			
Rated surge current I _{dyn}	2,5 x I _{th}			
Overcurrent limiting factor	FS 5			
Rated frequency	50			
Insulation class	E			
Insulation test voltages	3 kV, 1 min, U _{eff} , 50 Hz (U _m \leq 0,72 kV)			
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$			
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$			
Applied norms DIN EN 61869, part 1+2				
Unbreakable plastic housing made of polyamide				
Flame-resistant and self-extinguishing in accordance with UL94				
Nickel-plated secondary clamps with plus/minus screws (2 Nm)				

Accuracy classes

Selection matrix

XKBR	18S /	XKBR	18/)	KBR	18L /
XKBR	28				

Measurement accuracy up to 20 kHz:

Δφ	≤ 1°	@	0.05-20 kHz
8	≤ 2%	@	0.05-1.5 kHz
8	≤ 5%	@	1.5-9 kHz
8	≤ 10%	@	9-20 kHz

XKBR 32 / XKBR 42 / XKBR 44 / XKBR 42L

Measurement accuracy up to 20 kHz:

Δφ	≤ 1°	@	0.05-20 kHz
8	≤ 2%	@	0.05-1.5 kHz
8	≤ 5%	@	31.5-3 kHz
8	≤ 10%	@	3-9 kHz
8	≤ 20%	@	9-20 kHz

	Housing (H x W x D)	Circular con- ductor Ø	Current range
multict XKBR 18S*	63 x 36 x 50 mm	18.5 mm	200 250 A
multict XKBR 18*	65 x 42 x 68 mm	18.5 mm	200 250 A
multict XKBR 18L	81 x 49 x 59 mm	18.4 mm	100 250 A
multict XKBR 28	80 x 49 x 59 mm	27.9 mm	200 500 A
multict XKBR 32	97 x 60 x 90 mm	32.5 mm	300 600 A
multict XKBR 42	96 x 67 x 69 mm	42.4 mm	250 1000 A
multict XKBR 42L	139 x 67 x 69 mm	2 x 42.4 mm	250 1000 A
multict XKBR 44	121 x 73 x 98 mm	44 mm	250 1000 A

*On request

Length of connecting cable (color-coded)

Sec. 1A:	2.5 m, cross-section 2x 0.75 mm ²	XKBR 18; XKBR 32; XKBR 44
	2.5 m, cross-section 2x 0.50 mm ²	XKBR 18S; XKBR 18L; XKBR 28; XKBR 42; XKBR 42L
Sec. 5A:	0.5 m, cross-section 2x 1.50 mm ²	XKBR 18L; XKBR 28; XKBR 32; XKBR 44; XKBR 42; XKBR 42L

-KBU D/-RCMB 70 multict DACT/

multict XKBR core balanced current transformer, split



multict XKBR 18L

		Secondary current 5A	
Α	VA	Class 1	Class 0.5
150	1	24657	
200	1.5	24658	
250	1		24659





Snap-on mounting for standard rail assembly multict KBR 18L, multict KBR 28 Item no. 23479

multict XKBR 28

		Secondary current 5A	
Α	VA	Class 1	Class 0.5
300	1.5	24660	
500	1	24662	24661



Snap-on mounting for standard rail assembly multict XKBR 18L, multict XKBR 28 Item no. 23479



59



79,5 68,2 27 44,50 27,9 49

multict CTM7

multict CTB

multict KBU

multict KBR

multict KSU multict SUSK

multict Rogowski series

multict X series

multict EASK

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70





multict XKBR 42

multict XKBR 32

VA

5

Α

500

Secondary current 5A

Class 1

24662

		Secondary current 5A	
А	VA	Class 1	Class 0.5
300	2.5	24663	
400	5	24664	
500	5	24665	
750	2.5		24666
1000	2.5		24667





multict XKBR core balanced current transformer, split



multict XKBR 42L

		Secondary current 5A		
Α	VA	Class 1	Class 0.5	
300	2.5	24668		
400	5	24669		
500	5	24670		
750	2.5		24671	
1000	2.5		24672	



multict XKBR 44

54,60

69

		Secondary current 5A
А	VA	Class 1
250	1.5	24673
300	2.5	24674
400	5	24675
500	5	24676
750	5	24677
1000	5	24678

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

MULTIWAVE: OPERATIONAL SAFETY GUARANTEES COST EFFECTIVENESS

Safety and cost-effectiveness are viewed as fundamentally important in companies. This means having machinery, production systems and office equipment function without fault. High network voltage quality ensures operational safety.







multiwave passive

Passive filters are the perfect solution when it comes to filtering out a specific harmonic from the mains. Cost-effective line filters are built with high-quality components that are precisely matched with each other.

multiwave active

Active Filter Solution

Active filters can filter out an entire spectrum of harmonics from the mains. Disturbances in the network are measured, analyzed, and eliminated in microseconds by means of the electronic power source installed. multict ESUSK

multict DACT/ -KBU D/-RCMB 7

multict EASK current transformer for internal billing purposes

Application:

Establishing a measuring point, which is consulted for billing energy consumers.



multict EASK current transformer for internal billing purposes

Highlights

 \rightarrow

- All types with PTB design approval
- → Calibrated version orderable
- → Primary rated current 25 A 3000 A
- → class 0.2s, 0.2, 0.5s, and 0.5

An overall view of technical details can be found on the following page.

The current transformers for internal billing purposes from the **multict EASK** series are suited for use in conjunction with an MID energy consumption meter. The current transformer's calibration period is indefinite.

Transformers approved by the Physikalisch Technische Bundesanstalt (PTB) Braunschweig (module B) can be identified by a type and design number arranged in a stylized "Z."

The conformity of transformers is documented by a yellow conformity mark and a declaration of conformity enclosed with the product. The quality assurance system must be recognized by the PTB in accordance with module D of the conformity evaluation procedure, so that billing transformers can be used directly for billing purposes. For other European countries, these design-approved current transformers are approved for billing purposes.

Billing current transformers for current ranges from 25 A to 3,000 A in accuracy classes 0.2s, 0.2, 0.5s, 0.5.

Technical Data

Maximum operating voltage U _m	0.72 kV		
Rated continuous thermal current I _{cth}	1.2 x I _n		
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)		
Rated surge current I _{dyn}	2,5 x l _{th}		
Overcurrent limiting factor	FS 5		
Rated frequency	50 Hz		
Insulation class	E		
Insulation test voltages	3 kV, 1 min, U_{eff} , 50 Hz ($U_m \le 0.72$ kV)		
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$		
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$		
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2		
Unbreakable plastic housing made of polycarbonate			
Flame-resistant and self-extinguishing in accordance with UL 94			
Nickel-plated secondary clamps with plus/minus screws (2 Nm)			

Selection matrix

		Housing (HxWxD)	Circular conductor Ø	Rail 1	Rail 2	Rail 3
multict EASK	31.3	79 x 61 x 48 mm	26 mm	30 x 10 mm	2x 20 x 10 mm	
multict EASK	41.4	89 x 71 x 58 mm	32 mm	40 x 10 mm	2x 30 x 5 mm	
multict EASK	51.4	102 x 86 x 58 mm	44 mm	50 x 12 mm	2x 40 x 10 mm	
multict EASK	61.4	109 x 96 x 58 mm	44 mm	60 x 10 mm	2x 50 x 10 mm	
multict EASK	81.4	127 x 120 x 58 mm	55 mm	80 x 10 mm	60 x 30 mm	2x 60 x 10 mm
multict EASK	123.3*	188 x 172 x 52 mm	100 mm	120 x 30 mm	3x 100 x 10 mm	
multict EASK	130.5*	120 x 180 x 68 mm		130 x 30 mm	_	

*On request

All devices are delivered including the the materials necessary for fastening.

Included in the scope of delivery:

- 1 primary rail clamp
- 2 screws M5x35
- 2 secondary terminal covers
- 2 mounting feet

CAUTION: If a cable lug is already pressed on the cable, it must be considered when determining the window size of the transformer.

multict ASK

multict CTM7







multict EASK 51.4

multict EASK 31.3

		Secondar 5	ry current A
А	VA	Clas	s 0.5
100	1.5	24	698
150	2.5	24	699
200	2.5	24	463
250	5	24	700
300	5	24	701
400	5	24	702
500	5	24	703
600	5	24	259
750	5	24704	
			ltem no.
Snap-o	Snap-on mounting 24807		

multict EASK 41.4

		Secondar 5	ry current A
А	VA	Clas	s 0.5
100	1.5	24	705
150	2.5	24	706
200	2.5	24	707
250	2.5	24	708
300	5	24709	
400	5	24710	
500	5	24711	
600	5	24712	
750	5	24713	
			ltem no.
Snap-o	Snap-on mounting 24810		24810

Secondary current 5A Α VA Class 0.5 2.5 2.5

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.





multict EASK 61.4

		Secondary current 5A
А	VA	Class 0.5
200	2.5	24723
250	5	24724
300	5	24725
400	5	24726
500	5	24727
600	10	24728
750	5	24258
750	10	24729
1000	10	24730
1250	10	24731
1500	10	24732

multict EASK 81.4

		Secondary current 5A
Α	VA	Class 0.5
400	5	24733
500	5	24734
600	10	24735
750	10	24736
1000	10	24737
1250	10	24738
1500	15	24739

multict ASK

multict EASK current transformer for internal billing purposes

multict EASK 31.35 48 TH: 10,50 12,50 20,50 25,50 30,50 K-P1 Ē 10,50 12,50 20,50 ____ 30 30,50 47 40 60









multict EASK 81.4

multict ECTB current transformer for internal billing purposes

multict ECTB current transformer for internal billing purposes

Highlights	\rightarrow	Alle types with PTB design approval
	\rightarrow	Calibrated version orderable
	\rightarrow	Primary rated current 100 A – 2000 A
	\rightarrow	class 0.2s, 0.2, 0.5s, or 0.5
	\rightarrow	Requires no maintenance thanks to screwless technology
		An overall view of technical details can be found on the following page.

The current transformers for internal billing purposes from the **multict ECTB** series are suited for use in conjunction with an MID energy consumption meter.

The current transformer's calibration period is indefinite.

The conformity of transformers is documented by a yellow conformity mark and a declaration of conformity enclosed with the product.

The quality assurance system must be recognized by the PTB in accordance with module D of the conformity evaluation procedure, so that billing transformers can be used directly for billing purposes. For other European countries, these design-approved current transformers are approved for billing purposes. The current transformers from the multict ETCB series are also set apart by the "Cage Clamp®" screwless connection technology.

The springless connection technology with spring terminal makes connections gas-tight and **maintenance-free**. Thanks to the strong retaining forces, the current transformer can be used even in conditions of high mechanical stress (e.g. vibrations). The spring terminal is 2 designed for solid and flexible conductors up to a max. of 4 mm². This eliminates the need for ferrules.

Billing current transformers for current ranges from 25 A to 3,000 A in accuracy classes 0.2s, 0.2, 0.5s, 0.5.

multict ASK

multict CTM7

multict CTB

multict KBU

multict KBR

multict EASK

multict ECTB

multict ESUSK

KBU D/-RCMB 70 multict DACT/

Technical Data

Maximum operating voltage U _m	1.2 kV		
Rated continuous thermal current I _{cth}	1.2 x I _n		
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)		
Rated surge current I _{dyn}	2,5 x l _{th}		
Overcurrent limiting factor	FS 5		
Rated frequency	50 Hz		
Insulation class	E		
Insulation test voltages	6 kV, 1 min, U_{eff} , 50 Hz ($U_m \le 1,2$ kV)		
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$		
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$		
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2		
Unbreakable plastic housing made of polycarbonate			
Flame-resistant and self-extinguishing in accordance with UL 94			

Nickel-plated secondary clamps with plus/minus screws (2 Nm)

multict ECTB current transformer for internal billing purposes on request

All devices are delivered including the the materials necessary for fastening.

Included in the scope of delivery:

- 1 primary rail clamp
- 2 screws M5x35
- 2 secondary terminal covers
- 2 mounting feet

CAUTION: If a cable lug is already pressed on the cable, it must be considered when determining the window size of the transformer.

multict ECTB current transformer for internal billing purposes

52 37 35

33

68

multict ECTB 31.35

		Secondary current 5A
A	VA	Class 0.5
100	2.5	24740
150	2.5	24741
200	2.5	24742
250	5	24743
300	5	24744
400	5	24745
500	5	24746
600	10	24747
750	10	24748

multict ECTB 41.35

		Secondary current 5A
Α	VA	Class 0.5
200	2.5	24749
250	2.5	24750
300	5	24751
400	5	24752
500	5	24753
600	10	24754
750	10	24755

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

multict CTM7

multict CTB

multict KBU

multict KBR

multict KSU multict SUSK

multict Rogowski series

multict X series

multict EASK

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

multict ECTB 51.35

		Secondary current 5A
А	VA	Class 0.5
100	1.5	24756
150	2.5	24757
200	2.5	24758
250	2.5	24759
300	5	24760
400	5	24761
500	5	24762
600	10	24763
750	10	24764
1000	10	24765

multict ECTB 61.35

		Secondary current 5A
Α	VA	Class 0.5
200	1.5	24766
250	2.5	24767
300	5	24768
400	5	24769
500	5	24770
600	5	24771
750	10	24772
1000	10	24773
1250	10	24774
1500	10	24775

multict ECTB current transformer for internal billing purposes

multict ECTB 81.35

		Secondary current 5A
Α	VA	Class 0.5
400	2.5	24776
500	5	24777
600	5	24778
750	10	24779
1000	15	24780
1250	15	24781
1500	15	24782
2000	15	24783

multict ECTB 101.35

		Secondary current 5A
A	VA	Class 0.5
400	2.5	24784
500	2.5	24785
600	5	24786
750	10	24787
1000	15	24788
1250	15	24789
1500	15	24790
2000	15	24791

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

One System. Best Solutions.

multict ASK

multict KBR

67

multict ESUSK totalizing current transformer for internal billing purposes

multict ESUSK totalizing current transformer for internal billing purposes

- Highlights → For identical main transformers; different main transformers upon request
 - → Primary rated current 64 A
 - \rightarrow Secondary rated currents 5 A
 - \rightarrow Class 0.2
 - → For up to 8 main transformers
 - \rightarrow All types with PTB design approval
 - → Calibrated version orderable

An overall view of **technical details** can be found on the following page.

Totalizing current transformers from the **multict ESUSK** series add up the input currents from up to eight main transformers and then divides them by the number of transformers or inputs.

The totalizing current transformers are designed to be used with identical main transformers. Upon request, totalizing current transformers that can be used with different main transformers or for billing purposes can also be provided. It is also possible to calculate differences through the counter connection of main transformers to the totalizing current transformer. In addition, the totalizing current transformers from the multict ESUSK series can be used for billing purposes in conjunction with main transformers suited for billing and an MID energy consumption meter.

multict CTM7

multict CTB

multict KBU

multict KBR

multict SUSK multict KSU

Rogowski series

multict

multict X series

multict EASK

multict ECTB

multict ESUSK

KBU D/-RCMB 70

multict DACT/

The current transformer's calibration period is indefinite.

The conformity of transformers is documented by a yellow conformity mark and a declaration of conformity enclosed with the product.

The quality assurance system must be recognized by the PTB in accordance with module D of the conformity evaluation procedure, so that billing transformers can be used directly for billing purposes.

Technical Data

Maximum operating voltage U_m	0.72 kV
Rated continuous thermal current I_{cth}	$1.2 \times I_n$ (1.0 x I _n for higher primary currents)
Rated short-time thermal current I_{th}	60 x I _n , 1sec (max. 100 kA)
Rated surge current I _{dyn}	2,5 x l _{th}
Overcurrent limiting factor	FS 5
Rated frequency	50 Hz
Insulation class	E
Insulation test voltages	3 kV, 1 min, U_{eff} , 50 Hz ($U_m \le 0.72$ kV)
Working temperature range	$-5^{\circ}C \le T \le +50^{\circ}C$
Storage temperature range	$-25^{\circ}C \le T \le +70^{\circ}C$
Applied norms	DIN EN 61869/1+2, DIN 42600-1, DIN 42600-2
Unbreakable plastic housing made of polyca	arbonate
Flame-resistant and self-extinguishing in acc	cordance with UL 94
Nickel-plated secondary clamps with plus/m	ninus screws (2 Nm)

	Class	Housing (HxWxD)	Inputs	Primary current	Secondary current	VA	ltem no.
multict ESUSK 2	0.2	140 x 156 x 65 mm	2	5+5	5	5	24814
multict ESUSK 2	0.2	140 x 156 x 65 mm	2	5+5	5	10	24815
multict ESUSK 3	0.2	140 x 156 x 65 mm	3	5+5+5	5	5	24816
multict ESUSK 3	0.2	140 x 156 x 65 mm	3	5+5+5	5	10	24817
multict ESUSK 4	0.2	140 x 156 x 65 mm	4	5+5+5+5	5	5	24818
multict ESUSK 4	0.2	140 x 156 x 65 mm	4	5+5+5+5	5	10	24819
multict ESUSK 5	0.2	140 x 156 x 65 mm	5	5+5+5+5+5	5	5	24820
multict ESUSK 5	0.2	140 x 156 x 65 mm	5	5+5+5+5+5	5	10	24821
multict ESUSK 6	0.2	140 x 156 x 65 mm	6	5+5+5+5+5	5	5	24822
multict ESUSK 6	0.2	140 x 156 x 65 mm	6	5+5+5+5+5+5	5	10	24823
multict ESUSK 7	0.2	140 x 156 x 65 mm	7	5+5+5+5+5+5+5	5	5	24824
multict ESUSK 7	0.2	140 x 156 x 65 mm	7	5+5+5+5+5+5+5	5	10	24825
multict ESUSK 8	0.2	140 x 156 x 65 mm	8	5+5+5+5+5+5+5	5	5	24826
multict ESUSK 8	0.2	140 x 156 x 65 mm	8	5+5+5+5+5+5+5+5	5	10	24827

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

Confirmation of proof if used for billing purposes

The following confirmations are available as proof of the use of EASK, ECTB, and ESUSK current transformers for billing purposes.

CE EU KONFORMITÄTSERP EU DECLARATION OF CONFORMITY DÉCLARATION UE DE CONFORMITÉ UE DECLARACIÓN UE DE CONFORMIDAD	
Einzelstromwandler (Typenreihe) Single current transformer (series) Transformateur de courant uique (serie) Transformador de corriente individual (serie)	EAS 176.3 EWSK 31.5 EASR EASK
Die alleinige Verantwortung für die Ausstell trägt der Hersteller This declaration of conformity is issued under the sole La prösente déclaration de conformité est établie sous La presente declaración de conformidad se expide bajo Name und Anschrift des Herstellers oder so Name and adress of the manufacturer or his authorise Nom et adresse du fabricant ou de son mandataire: Nombre y dirección del fabricante o de su representar	lung dieser Konformitatser Kallung responsibility of the manufactorer la seule responsabilité du fabricant o la exclusiva responsabilidad del fabricante seines Bevollmächtigten: d representative: ate autorizado:
MBS AG Eisbachstrasse 51 D-74429 Sulzbach - Laufer Der oben beschriebene Gegenstand der B Harmonisierungsrechtsvorschriften der U	n Erklärung erfüllt die einschlägigen Jnion:
The object of the declaration described above is in con- harmonisation legislation: L'object de la déclaration décrit ci-dessus est conform applicable: El objeto de la declaración descrita anteriormente es Unión:	ntormity with the relevant Childh ne à la législation d'harmonisation de l'Union conforme con la legislación pertinente de la
Niederspannungsrichtlinie Iow voltage directive Directive basse tension	2014/35/EU
Directiva de baja tensión Angabe der einschlägigen harmonisierten Normen References to the relevant harmonised standards Références des normes harmonisées pertinentes a Referencias a las normas armonizadas pertinentes	EN 61869-1:2009 EN 61869-2:2012 EN 61869-2:2013-07 utilizadas
Unterzeichnet für und im Namen von: Signed for and on behalf of: Signé par et au nom de: Firmado en nombre de:	Prof. Dr. h.c. Wolfgang Gilgen Vorstand Board of directors Conseil d'administration Junte Directiva
	or M

Declaration of conformity is the manufacturer's declaration that a measuring device has been proven to meet legal requirements.

Free of charge

multict CTB

multict KBU

multict KBR

multict KSU multict SUSK

multict Rogowski series

multict X series

multict EASK

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

In addition to the declaration of conformity, the following attachments can be created for an extra charge.

	MBS /	AG		6						
Anlage zur Konfor Prüfprotokoll ohne	rmitätserklärung (Inve Messwertangaben (T	stment declaration of co est report without meas	onformity) urements)	MDS						
Antragsteller (applicant):		KBR GmbH								
Fabrikat (type):	EASK 31.3	Bemessungsübersetzun	ng: / _{nn} (A)	250						
		(rated translation)	I _{sn} (A)	5						
-abrik-Nr. (series-nr.) : Hersteller (manufacturer) :	21/115976 MBS AG	Bemessungsbürde (rated	i burden): Z (VA)	5						
requenz (frequenzy) :	(Hz) 50	Genauigkeitsklasse (acc	uracy class) :	0,5						
Der Stromwandler wurde auf de Messmittel werden regelmäßig (The current transformer has be acility will be monitored regular Der Stromwandler wurde in über 1. 2. / m / m / m	Prüfeinichtung ITTS 8125 () überwacht. Die Rückfühhötek en tested on the test facility I y. The traceability to national reinistimmung folgender Vorsic Isolationsprüfung Genauigkeitsprüfung primäre Bemessungsstrom extundiate Bemessungsstrom	ID-Nr: 107) geprüft. Die in der P tit auf nationale Normale gemäß TTS 8125 (ID-N: 107). The met standards in accordance with IS chriften geprüft (The current transform (insulation te (accuracy ter mstärke (primary rate genundare)	Prüfeinrichtung verwer I ISO 9001 ff ist gewä asuring equipment us 05 9001 ff is guarante were were tested in according test) st) st) add current) ated current)	ndeten hrheistet. ed.) ywim): DIN 42600 IEC 61869-2						
Z Z	Bemessungsbürde	(rated burder	n)			MBS AG				6
				Anlage zur Kon Prüfprotokoll	formitätserklä mit Messwer	ärung (Investn tangaben (Tes	nent declara at report with	tion of confo measureme	rmity) nts)	ШÐ
				Antragsteller (applicant) :		KE	BR GmbH		,	
				Konformitätsmarken-N	r. (conformity mark-	nr.) : 86	367			
				Fabrikat (type) :		EASK 31.3 B	emessungsüb ated translation)	ersetzung :	I _{pn} (A I _{sn} (A	.) 10
				Fabrikat-Nr. (series-nr.):		20/208899				·
				Hersteller (manufacturer) :		MBS AG B	emessungsbü	rde (rated burden)	Z (VA) 1,5
ewertung (assesment) :	bestanden (passed) :	X nicht besta	anden (failec	Frequenz (frequency) :	(Hz)	50 G	enauigkeitskla	ISSE (accuracy clas	s) :	Klasse 0,
BS AG sbachstrasse 51 1429 Sulzbach-Laufen		MIS AC signier recommendation of the second	rt Rudolf Hen 14.01.2021 07:32:12 Gl	Der Stommandler wurde auf der P regenhälig überwacht. Die Flüchtl (The current transformer has been monitored regulary. The traceability Der Stromwandler wurde in Übereil 1. 2. Messergebnisse (measurem	üfeinrichtung ITTS 82 vrbarkeit auf nationale tested on the test facil to national standards istimmung folgender \ Isolationspr Genauigkei nt results) :	187 (ID-Nr.: 113) geprül Normale gemäß ISO O IV ITTS 8287 (ID-Nr.: i in accordance with ISO Vorschriften geprüft (Tr rüfung Itsprüfung	ft. Die in der Prüfein 3001 ff ist gewährlei 113). The measuring D 9001 ff is guarant ne current transformers (ir (a	richtung verwendeten stet. 9 equipment used in t eed.) were tested in according isulation test) ccuracy test)	Messmittel werden he test facility will be with) : DIN IEC	42600 61869-2
nment to the ration of conforming without	ity,	_		Die Erge <i>K</i> _n <i>I</i> pn <i>I</i> sn <i>I</i> p <i>I</i> s <i>I</i> s	bnisse der Prüfung sin Bernessung primäre Ber sekundäre i tatsächliche tatsächliche 00 Messpunkk Strommess $e_{\rm I} = \frac{I_{\rm S} + I_{\rm S}}{2}$	In folgender Tabelle : gsübersetzung messungsstromstärke Bemessungsstromstärke e sekundäre Stromstärke e sekundäre Stromstärk in % abweichung in % $\frac{K_{\rm III}}{f_{\rm P}} * 100$	angegeben (the res (r ke (s ke (a ke (a (te (c	ults of testing are give ated translation) rimary rated current) ecundary rated current chual primary current ctual secundary current ctual secundary current st point in %) urrent-measuring dev	en in the following ta nt) int) iation in %)	ble):
ured values.				δ _i cos ß 7	Fehlwinkel Leistungsfa	in ' ktor der Bürde	(d (ra	eviation of the phase ated phase displacent ated burden)	displacement) ent of the standard	burden)
ct to a charge				sekundäre Bemessungs	tromstärke		(1	5 A		
. 25284				Bemessungsbürde			1,50 VA; o	cos ß = 1,0	1,00 VA; (cos /3 = 1,0
				Frequenz primäre Bemessungsst	omstärke	6// _{pn} in %	ε _i in %	50,00 Hz δ _i in '	ε _i in %	δ; in '
						120	0,146	7,55		<u> </u>
				100 A		100	0,154	7,71	0,260	5,73
	Attac	chment to the				5	-0,036	20,91	1	
	decla test l value	aration of conform og with measured es.	hity, d	Bewertung (assessment) : Prüfdatum lokale Zeit (te	bes st date local time) :	tanden (passed) : 202	E X 20-9-30 T 10	nicht bestar	nden (failed) :	
	Subi	ect to a charge								
	Class						MBS AG Enbachstraße 1 74479 States	signiert	lolf Hennia	
	ltem	no. 25286		MBS AG Eisbachstr. 51			E-Mail: Info@mbs-a	am: 05. um: 06:	10.2020 53:52 GMT	
				/4429 Sulzbach-La	Jiten					

MULTISIO D2-4CI4DO: RESIDUAL CURRENT MONITOR FOR PERSONAL AND SYSTEM PROTECTION

With our energy measuring devices, efficient energy management is very easy. We will be happy to advise you personally. Product advice: +49 (0) 9122 6373-0

info@kbr.de
The multisio D2-4CI4DO residual current monitor monitors and reports residual currents from systems and machines. The module can optionally take the applicable system parts off the network for safety reasons when previously established limits are exceeded. In conjunction with the visual energy software, the measured residual current can be documented for proof.





multict CTM7 multict ASK

KBU D/-RCMB 70

multict DACT/

multict DACT residual current transformer, type A



multict DACT 20 residual current transformer

Highlights	\rightarrow	Easy connection with 4-pin WAGO [®] spring terminal	
------------	---------------	--	--

- → High safety thanks to integrated overvoltage protection
- \rightarrow Flexible use due to large frequency range
- → Class 1

An overall view of **technical details** can be found on the following page.

The residual current transformers from the DACT series can be used in 3- and 4-wire AC networks. The typical residual currents in the AC range in a system can be recorded. They are evaluated by the module Multisio D2-4AI3DO residual current monitor. Along with residual currents typical for the system, the residual current transformer also measures various capacitive leakages. These can be caused by line filters, for example. This phenomenon must be watched for when evaluating the measured residual current.

Technical Data

Primary rated residual current $I_{\Delta N}$:	25 A
Secondary rated residual current:	0.0417 A
Measuring range:	0.02 25 A
Transmission ratio:	1:600
Accuracy class:	1
RTC (75 °C):	58Ω
L (U _{sec} = 100 mV; 50 Hz):	8 12 H
Working temperature range:	-10 °C < T < + 70 °C
Storage temperature range:	-25 °C < T < +70 °C
Thermal rated continuous residual current I _{cth} :	see table of types
Rated voltage:	up to 800 V
Rated surge voltage:	8 kV
Contamination degree:	Ш
Protection type: Housing:	IP 40; terminals: IP 20
Working frequency range:	30 Hz 3 kHz
Applied technical norms:	IEC 60644-1 / IEC 60664-3

Selection matrix

	Housing (HxWxD)	Circular conductor Ø
DACT 20	63 x 61 x 30 mm	20 mm
DACT 35	86.5 x 70 x 30 mm	35mm
DACT 60	117 x 85 x 37 mm	60 mm
DACT 120	191.5 x 95 x 37 mm	120 mm

CAUTION:

The required protection for systems and people can only be guaranteed by residual current transformers if their measurement systems have been specially adapted to the connection conditions of the connected device!

Because of the low output currents due to the very small measuring parameters ($1/600x0.02A = 33.3 \mu A!$), twisted or shielded connecting cables should primarily be used for connection to the secondary circuit!

Residual current transformers may not be installed near strong magnetic fields!



multict ESUSK

KBU D/-RCMB 70

multict DACT residual current transformer, type A





multict DACT 20

Primary rated residual current I∆N:	25 A
Secondary rated residual current:	0.0167 A
Measuring range:	0.02 25 A
Transmission ratio:	1:600
Rated load:	180 Ω / 50.2 mW
Accuracy class:	1
Rct (75 °C):	5 8 Ω
L (U Sec = 100 mV; 50 Hz):	8 12 H
ltem no.	25436













multict DACT 35

Primary rated residual current I∆N:	25 A	
Secondary rated residual current:	0.0167 A	
Measuring range:	0.02 25 A	
Transmission ratio:	1:600	
Rated load:	180 Ω / 50,2 mW	
Accuracy class:	1	
Rct (75 °C):	5 8 Ω	
L (U Sec = 100 mV; 50 Hz):	8 12 H	
ltem no.	26028	

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

multict CTM7

multict CTB

multict KBU

multict KBR

multict KSU multict SUSK

multict Rogowski series

multict X series

multict EASK

multict ECTB

multict ESUSK

multict DACT/ -KBU D/-RCMB 70

multict DACT 60

25 A 0.0167 A 0.02 25 A 1:600
0.0167 A 0.02 25 A 1:600
0.02 25 A 1:600
1:600
1800/
50,2 mW
1
58Ω
8 12 H
26029



6,50

......

55,40

È

18,18





multict DACT 120

Primary rated residual current IΔN:	25 A
Secondary rated residual current:	0.0167 A
Measuring range:	0.02 25 A
Transmission ratio:	1:600
Rated load:	180 Ω / 50,2 mW
Accuracy class:	1
Rct (75 °C):	5 8 Ω
L (U Sec = 100 mV; 50 Hz):	8 12 H
ltem no.	26030









multict KBU...D split residual current transformer, type A



multict KBU...D split residual current transformer

Highlights	\rightarrow	Easy and cost-effective installation	
	\rightarrow	No need to shut off or disconnect the system	
	→ Practical locking system		

An overall view of **technical details** can be found on the following page.

The residual current transformers from the KBU...D series can be used in 3- and 4-wire AC networks. This series has the advantage that the transformers can be installed without shutting off and disconnecting the lines.

The typical residual currents in the AC range in a system can be recorded. They are evaluated by the module Multisio D2-4AI3DO residual current monitor. Along with residual currents typical for the system, the residual current transformer also measures various capacitive leakages. These can be caused by line filters, for example. This phenomenon must be watched for when evaluating the measured residual current.

Technical Data

Primary rated residual current $I_{\Delta}N$	18 A
Insulation test voltages	3 kV, U _{eff} , 50 Hz, 1 min.
Rated frequency	50 Hz
Secondary connections	Brass profile, nickel-plated, max. 4.0 mm ²
Transmission ratio	1:600
Working frequency range	30 1000 Hz
Secondary load	100 180 Ohm
Operating temperature range	-5°C +45°C
Class	1
Housing material	Polycarbonate, gray RAL 7035

Selection matrix	Transmission ratio	Max. wire diameter in mm	Bus- bar	Max. primary residual current
multict KBU 23D	600/1	4x ca. 10 (rm-10 qmm) or 8x 7 (rm-6 qmm)	max. 20 x 30 mm	18 A
multict KBU 58D	600/1	4x ca. 27 (rm-24 qmm) or 8x 20 (rm-95 qmm)	max. 50 x 80 mm	18 A
multict KBU 812D	600/1	4x ca. 42 (rm-500 qmm) or 8x 29 (rm-240 qmm)	max. 80 x 120 mm	18 A

Dimensions	A Width mm	B Height mm	C/C1 depth mm	D MM	E MM	Weight kg
multict KBU 23D	93	106	34 / 58	20	30	0.7
multict KBU 58D	125	158	34 / 58	50	80	1.1
multict KBU 812D	155	198	34 / 58	85	125	1.4







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multict DACT/ -KBU D/-RCMB 70

multict KBU....D split residual current transformer, type A



multict KBU 23D

ltem no.

26052





multict KBU 58D

ltem no.

26053

multict KBU 812D

ltem no.

26054

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.



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-KBU D/-RCMB 70

multict RCMB 70 residual current transformer, type B/B+



multict RCMB 70 residual current transformer

Highlights

 \rightarrow

- AC and DC residual current measurements
- → Measurements up to 100 kHz
- \rightarrow Can be individually configured by the user
- → Analog 4-20 mA and relay output
- \rightarrow Complies with DIN 62020

An overall view of **technical details** can be found on the following page.

The RCMB 70 residual current monitor can be used in 2-, 3-, and 4-wire networks. All residual currents in the AC and DC range of a system are recorded and evaluated. The following settings can be individually configured on the residual current monitor:

- Rated residual current limit 30, 100, 300, 500, and 1000 mA
- Frequency range 100 Hz,
 2, 20 and 100 kHz
- Integration time short, medium or long

Applications:

- Residual current monitoring in the industry
- Status-based monitoring of insulation condition
- Replace/supplement insulation test (component of repeated test in accordance with DGUV Regulation 3)

Monitoring of

DC power supply systems (UPS, PV, LED lights-)

High-frequency loads (SMPS, motor drives-)

Critical infrastructures (data centers, medicine-)

multict CTM7

Technical Data

Monitored primary circuit

Parameters	Value		
Rated	Un	0-690 Vrms	
voltage range of the			
monitored circuit			
Rated frequency of the	f _n	50 / 60 Hz	
monitored circuit			
Applicable	f _n	0-400 Hz	
rated frequency range			
of the monitored circuit			
Rated current	l _n	100 A (I _{Δn} =30 mA)	
		300 A (I _{An} =100-1000 mA)	
max. non-tripping	I _{max}	600 A (I _{∆n} =30 mA)	
overcurrent		1800 A (I _{∆n} =100-1000 mA)	
Thermal	$I_{\Delta th}$	200 A	
rated short-time			
residual current			
Thermal	$I_{\Delta cth}$	100 A	
rated continuous			
residual current			
Rated surge	I _{∆dyn}	10 kA	
residual current	,		
Rated insulation voltage	Ui	700 V	
Rated surge	U _{imp}	8 kV	
electric strength			
Overvoltage	OVC	IV	
category			
Contamination degree	PD	3	

Residual current data

Parameters		Value
Rated residual current relay at 50/60 Hz – se- lectable	I _{Δn}	30 mA-100 mA - 300 mA-500 mA - 1000 mA
Residual current frequency range – selectable	f _{∆n}	DC-100 Hz, 2 kHz, 20 kHz, and 100 kHz
Rated residual operat- ing current output at 50/60 Hz	l _{Δn}	100% l _{Δn} +0%-20%
Rated residual non-op- erating current relay at 50/60 Hz	_{∆no}	50% l _{∆n} +20%-0%
Frequency dependence of rated residual operat- ing current	_{∆n, freq}	150 Hz: 2,4·Ι _{Δn} 400 Hz: 6·Ι _{Δn} 1000 Hz: 14·Ι _{Δn} (or 2 Arms max)
Frequency depen- dence of rated residual non-operating current	_{∆n, freq}	150 Hz: 0,5·l _{Δn} 400 Hz: 0.5·l _{Δn} 1000 Hz: 1·l _{Δn}
Rated current at analog output (20 mA)	l _{an}	0,4 Arms ±6% (I _{Δn} =30-300 mA) 2 Arms ±6% (I _{Δn} =0,5-1A)
Hysteresis on relay output (for un- locked operation)	_{∆n,hyst}	< 30% I _{Δn}
Integration time	T _i	Short (100 ms), Medium (400 ms), Long (1000 ms)

NOTE: Don't forget a power supply unit for the residual current transformer. External energy supply 24 VDC, 5W. e.g. multisys D4-PS24V-1 **Item number: 14270**

Complies with DIN 62020. This eliminates the need for the prescribed regular insulation measurement. This does not release the electrician from the obligation to perform recurring tests on the electrical system.



83

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multict DACT/ -KBU D/-RCMB 70

multict RCMB 70 residual current transformer, type B/B+

Current output 4-20mA

Parameters		Value
Current output	I _{out}	4-20 mAdc
0-0.4 Arms / 0-2 Arms		
Current output	0%	4-4.2 mAdc
at 0% I _{Δn}		
Current output	100%	19-21 mAdc
at 0.4 Arms / 2 Arms		
Peak - peak -	pk-pk	≤ 0.25%
static		
Resolution	Res _{out}	0.01 mA
Short circuit current	I _{sc,out}	<25 mAdc, short circuit
		protected
Load resistance/load	Rt, _{max}	≤ 900 Ω
Typical	R _{typ}	250 Ω
load resistance		
Voltage on	U _{oc,out}	24 Vdc
open terminals		
Reaction time $1 \times I_{\Delta n'}$	t _{10-90%}	≤Ti
step response 10-90%		
Reaction time $1 \times I_{\Delta n}$,	t _{0-50%}	≤Ti/2
step response 0-50%		
Reaction time $5x I_{\Delta n}$,	5x	≤Ti/30
step response 10-90%	t _{10-90%}	
Reaction time $5 \times I_{\Delta n}$,	5x	≤Ti/50
step response 0-50%	t _{0-50%}	

Relay output

Parameters		Value
Contact type		1 changeover contact
		(NC+NO)
Rated voltage	Ur	30 Vac/dc
Rated current	l _r	1 Aac/dc
Maximum reaction time	t _r ,1x l _{∆n}	≤Ti
1x l _{∆n}		
Maximum reaction time	t _r , 5x	≤Ti/16
5x l _{∆n}	I _{Δn}	
Response threshold $I_{\Delta n}$		100% +0-20%
Locking function with		Yes
reset (int/ext)		
Shortest	t _{nr,}	≤Ti/2
non-tripping time	$1 \mathrm{x} \mathrm{I}_{\Delta \mathrm{n}}$	
Switching cycles		> 20,000

Environment/mechanical characteristic values

Parameters		Note					
Operating temperature	-20−55 °C						
range							
Storage temperature	-40–85 °C						
range							
Relative humidity	20-80 %	non-					
		condensing					
Weight	0.9 kg						
Socket	Phoenix Cor	tact DFMC DFMC					
	1.5/5	5-ST-3.5-LR					
	— PN: 1790519 or compati						
	stripping	length 10 mm					
Building regulation	EN / IEC	62020-1:2020					

Ordering chart

	ltem no.
multict RCMB 70 residual current trans- former	26006
Compatible power supply unit: multisys D4-PS24V-1	14270

Transformers with other transmission ratios, primary current/secondary current power, and accuracy classes by request. Please note that all current transformers are not eligible for returns or exchanges.

Supply voltage

Parameters		Value
Rated voltage	U _e	24 Vdc +10%/-15%
Overvoltage	OVC_{e}	
category		
Rated surge	U _{impe}	1.5 kV
electric strength		
Rated insulation voltage	U _{ie}	30 V
Consumption	Pe	< 4 W

Functional diagram



multict ASK

Current transformer Technical terms

Current transformers are special transformers for the proportional conversion of high-voltage currents into smaller values that are directly measurable. Due to its structural design and physical operating principle, a secure galvanic separation is created between the primary circuit and measuring circuit.

Primary rated current	Value of the primary current that denotes the current transformer and for which it is rated.
Secondary rated current	Value of the secondary current that denotes the current transformer and for which it is rated.
Rated power	Value of the apparent power (in [VA] for established power factor) that the trans- former can generate with the secondary rated current and rated load on the secondary ciruit.
Rated transmission ratio	Ratio of the primary rated current to the secondary rated current. The rated transmission ratio of a current transformer is given on the rating plate as a complete fraction.
Load	Impedance of the secondary circuit, expressed in ohms with the power factor. The load is typically given as apparent power in volt-amperes (VA), which is re- corded with the established power factor and secondary rated circuit.
Rated load	Value of the load on which the accuracy requirements of this standard are based.
Rated frequency	Value of the frequency on which the current transformer rating is based.
Accuracy class	Specification for a current transformer that its measurement deviations fall with- in established limits under prescribed operating conditions.
Error angle [d]	Difference in angle between the primary and secondary current pointer. The di- rection of the pointer is to be selected so that the error angle is equal to zero for an ideal current transformer.
Current measurement deviation	Measurement deviation that a current transformer causes while mea- suring a current and that arises as a result of the fact that the ac- tual transmission ratio differs from the rated transmission ratio. The current measurement deviation expressed as a percentage is calculated us- ing the following formula:
	$F_{i}[\%] = \frac{(K_{n} I_{s} - I_{p}) \times 100}{I_{p}}$
	 F_i = Current measurement deviation in % K_n = nominal transmission ratio I_p = actual primary current I_s = actual secondary current, when I_p flowing under measurement conditions
Highest voltage for equipment U_m	Effective value of highest conductor-conductor voltage for which a measuring transformer is rated with regard to its insulation.
Sub-load	When the current transformer supplies less power (VA) than is required in the

accuracy (class) is negatively impacted.

secondary current, this is called a sub-load. The result is that the measurement

multict CTM7

Transf	former 5A			Cable le	ength fro	om curre	nt trans	former to	o measu	ring inst	trument			
		1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 15 m 20 m									20 m			
_	1.5 mm ²	0.60	1.19	1.79	2.38	2.98	3.57	4.17	4.76	5.36	5.95	8.93	11.90	[V
e :tior	2.5 mm ²	0.36	0.71	1.07	1.43	1.79	2.14	2.50	2.86	3.21	3.57	5.36	7.14	[\
able -sec	4 mm ²	0.22	0.45	0.67	0.89	1.12	1.34	1.56	1.79	2.01	2.23	3.35	4.46	[V
C	6 mm ²	0.15	0.30	0.45	0.60	0.74	0.89	1.04	1.19	1.34	1.49	2.23	2.98	[\
	10 mm ²	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.71	0.80	0.89	1.34	1.79	[V

Power requirements for cables:

Trans	former 1 A	Cable length from current transformer to measuring instrument												
		1 m	2 m	3 m	4 m	5 m	6 m	7 m	8 m	9 m	10 m	15 m	20 m	
_	1.5 mm ²	0.02	0.05	0.07	0.10	0.12	0.14	0.17	0.19	0.21	0.24	0.36	0.48	[VA
tior	2.5 mm ²	0.01	0.03	0.04	0.06	0.07	0.09	0.10	0.11	0.13	0.14	0.21	0.29	[VA]
ablo s-sec	4 mm ²	0.01	0.02	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.09	0.13	0.18	[VA]
Close	6 mm ²	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.06	0.09	0.12	[VA]
0	10 mm ²	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.05	0.07	Γ\/Α

|² x l P = mm^2 x conductive material (cu=56)

The transformer's power must be \geq than the load (power consumption of measuring instrument + cable load)

Example:

A 250/5 A current transformer with a rated power of 2 VA should be connected to a measuring device with a power consumption of 0.3VA (at 5A). The cable is 5 meters long.

In the table above, we see that a cable of 2.5 mm² with a length of 5 meters has a power consumption of 1.79 VA.

1.79 VA + 0.3 VA = 2.09 VA. The current transformer cannot be used.

Either a larger cross-section must be laid (6 mm²) or a 1A current transformer must be used.

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KBU D/-RCMB 70 multict DACT/

Current transformer Technical terms

Proper dimensioning of totalizing current transformers

The energy balance must be taken into consideration in the design of totalizing current transformers.

Current transformer power minus the loads from the cables.

The total power from both inputs minus the power dissipation from the totalizing current transformer is the maximum power at the output.

The power at the totalizing current transformer output minus the load from the cable and the measuring device power required must be greater than 0 VA.

Energy balance for a totalizing current measurement:

- + P1 Current transformer 1
- Cable 1 to totalizing current transformer load
- + P2 Current transformer 2
- Cable 2 to totalizing current transformer load
- Power dissipation Totalizing current transformer
- Cable 3 to measuring device load
- Power consumption Measuring device

Result must be greater than 0 VA

The measuring assembly must be coordinated in order to do this.







Example calculations:

Current transformer KBU 23, 300/5A, 3.75 VA-terminal 1	+3.75 VA
Cable to totalizing current transformer load 3m, 2.5 mm ²	-1.07 VA
Current transformer KBU 23, 300/5A, 3.75 VA-terminal 1	+3.75 VA
Cable to totalizing current transformer load 3m, 2.5 mm ²	-1.07 VA
Power dissipation Totalizing current transformer	-2,61 VA
Cable to measuring device load 5m, 2.5 mm ²	-1.79 VA
Power consumption Measuring device	-0,30 VA
	0.66 VA
	(\cdot)



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\bigcirc
-1.84 VA
-0,30 VA
-1.79 VA
–2.61 VA
-1.07 VA
+2.50 VA
-1.07 VA
+2.50 VA



Current transformer KBU 23, 200/ 1A , 1.5 VA-terminal 3	+2.50 VA
Cable to totalizing current transformer load 3m, 2.5 mm ²	-0.04 VA
Current transformer	
KBU 23, 200/ 1A , 3.75 VA-terminal 3	+2.50 VA
Cable to totalizing current transformer load 3m, 2.5 mm ²	-0.04 VA
Power dissipation	
Totalizing current transformer 1+1/1A	–0.83 VA
Cable to measuring device load 5m, 2.5 mm ²	-0.07 VA
Power consumption Measuring device	-0,05 VA
	3.97 VA

89

 \checkmark

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