

# Operating instructions / Installation

Please keep!

## Low-voltage current transformers - Divisible current transformers -



**MBS AG**

**Eisbachstrasse 51  
74429 Sulzbach-Laufen  
Tel. +49 7976 9851-0  
Fax. +49 7976 9851-90**

[info@mbs-ag.com](mailto:info@mbs-ag.com) • [www.mbs-ag.com](http://www.mbs-ag.com)

# **Before installation, commissioning or operation of the device, read these instructions carefully and thoroughly.**

## 1. Safety information



### **WARNING**

The following points must be noted:

- The applicable laws, standards and provisions.
- The state of the technological art at the time of installation.
- The rules surrounding technology.
- The operating instructions.
- The fact that operating instructions can only include general instructions and that these instructions must be observed.
- Before commissioning, check the device carefully for any damage it may have sustained during transport. In the event of mechanical damage, the device must not be put into operation.
- The devices described are designed for installation by qualified specialist electricians and must only be installed in electrical plant rooms or in closed housings. Any other use or failure to comply with these usage instructions will render the warranty / guarantee null and void.
- Devices must only be installed in dry, indoor spaces.
- Do not install on easily flammable materials.
- Operation with a rated current higher than that stated on the type plate can result in overheating of the current transformer and burns.

## 2. Functional description

Current transformers in the KBU series are inductive single-wire current transformers that operate on the transformer principle. They are used to adapt the primary measuring parameter to the input rated parameters of the connected measuring equipment.

As a result of the measuring principle used, these current transformers are only suitable for use on alternating current networks.

The KBU series is suitable for installation both on insulated and un-insulated primary conductors.

## 3. Warning information



**WARNING**

Dangerous electrical voltage can cause electric shock and burns.

Ensure that the information on the type plate and in the "Technical data" under Point 7 matches the operating parameters of the system.

Before starting any installation work, disconnect the system from the power supply!



**WARNING**

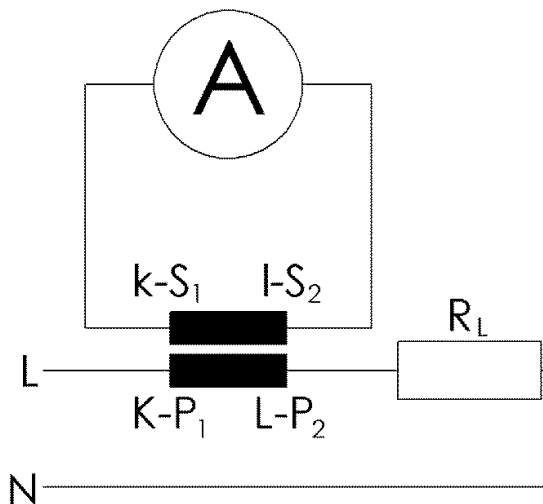
If there is an unladen (open) secondary circuit in the current transformer, high voltages will be induced at its secondary terminals. The voltage values that occur there represent a danger to persons and to the functional safety of the current transformer.

**"Open mode", i.e. operation of the current transformer without secondary circuitry, must be avoided at all costs.**

## 4. Installation

- During assembly, maintenance and installation work, ensure a safe working environment. If necessary, interrupt the power supply to the primary conductor and secure it against being inadvertently switched back on.  
**Important:** If the power supply is not interrupted during assembly of the primary conductor, the current transformer's secondary circuit must be closed first.  
Connect the measuring device or if necessary bridge the secondary connections.
- To open the current transformer, press the two actuator buttons simultaneously (Figure 1). On type KBU 816, first remove the knurled screw (Figure 2).
- Wrap the current transformer around the primary conductor and close it by firmly pressing together.  
On type KBU 816, reattach the knurled screw.  
Note the direction of current flow. The window opening is marked with "K-P1" and "L-P2". P1 points towards the current source, P2 to the consumer.  
**Important:** Ensure that the interfaces of the divided core are clean, and avoid hand contact (sweat).
- The device can be attached optionally directly on the primary conductor or on a mounting plate. To do this, use the attachment materials included in the scope of delivery.  
Direct attachment to the primary conductor is achieved by screwing the fastening screws included in the accessory pack into the screw bosses located in the transformer housing.  
Installation on the mounting plate is achieved using the foot angle included in the accessory pack.
- If you have not already done so, now connect the secondary wires on the current transformer to the measuring device (ammeter, meter, etc.). Note the operating instructions for whichever device you are using.
- Check that the current transformer is installed correctly and that the secondary wires are connected properly.
- If necessary, remove the bridge on the secondary connections.
- If necessary, switch the power supply to the primary conductor back on.

## 4.1. Measuring circuit



## 4.2. Installation instructions

Figure 1: Actuator buttons for opening the KBU

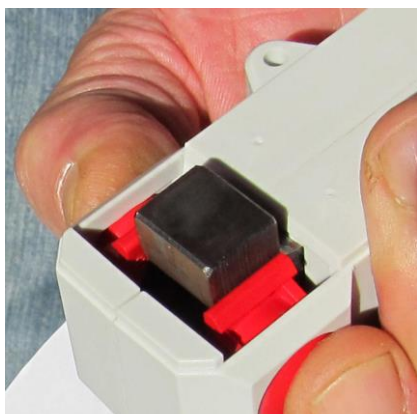


Figure 2: Knurled screw for KBU 816



## 5. Maintenance and inspection

- Check that the secondary wires are firmly connected to the power transformer and measuring device.
- Check that the current transformer is properly connected.
- Remove any coarse dirt from the current transformer housing. Contact with moisture, especially with the core, must be avoided at all costs.

## 6. Troubleshooting

E.g. unexpected or incorrect values, inverted power

- Check the settings on the measuring device using these operating instructions.
- Check whether the current transformer is installed in the direction of energy flow on the conductor provided.
- Check that the current transformer is properly connected.
- Check the load requirements of the wires and measuring devices connected to the current transformer. This must not exceed the rated load of the current transformer (see type plate).
- If the points set out above do not resolve the problem:  
Check whether there is any dust or other soiling between the two parts of the core. If so, clean the surfaces carefully with a lint-free cloth.

Avoid hand contact (sweat)!

## 7. Technical data (for exact details, see type plate)

### 7.1. Technical data general

#### Input

Primary rated current $I_{pr}$ :	See table under 7.2.
Rated thermal continuous current $I_{cth}$ :	$1.0 \times I_{pr}$
Rated thermal short-term current $I_{th}$ :	$60 \times I_{pr} / 1s$ (max. 100 kA)
Rated surge current $I_{dyn}$ :	$2.5 \times I_{th}$
Rated frequency $f_R$ :	50 ... 60 Hz

#### Output

Secondary rated current $I_{sr}$ :	1 or 5A
Accuracy class (type-dependent):	0.5 ... 3
Rated load $S_r$ (type-dependent):	1.25 ... 30 VA
Overcurrent limiting factor FS:	FS5 ... FS20

#### Operating conditions

Ambient temperature:	-5...+40 °C
Storage temperature:	-25 ... +70 °C
Relative humidity (non-condensing):	5 ... 85 %
Permitted altitude for operation:	Up to 1000 m

#### Insulation properties

Rated insulation level $U_m$ (in agreement with IEC 61010-1 under the following conditions: - Overvoltage category III - Degree of contamination 2 - Heterogeneous electric field):	0.72/3/- kV
Insulation material class:	E

#### Safety

Protection category:	IP20
Housing material: on o	PC
UL housing classificati f these types:	UL94-V2

#### Connection

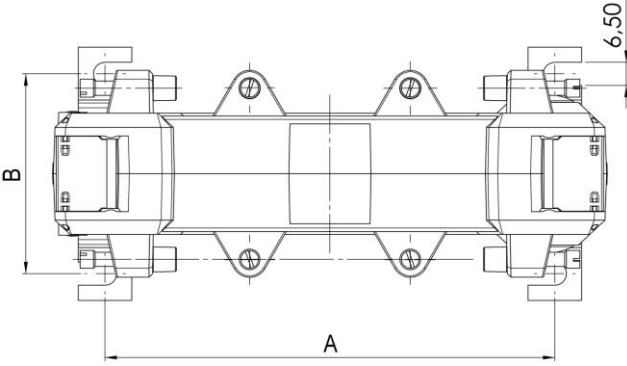
Conductor feedthrough primary conductor:	See table under 7.2.
Secondary terminals:	Screw terminals M5x8
Connection cross-sections max.:	4 mm <sup>2</sup> with wire ferrules 6 mm <sup>2</sup> solid
Tightening torque of secondary terminals max.:	2 Nm

## Applied standards

IEC 61869-1  
EN 61869-2  
IEC 61010-1

The most recent edition of the documents specified, including all modifications, apply.

## 7.2. Technical data type-related

	KCMA -RCM-23D	KCMA -RCM-58D	KCMA- RCM-812D	
Primary rated current [A]	100 ... 400	250 ... 1000	250 ... 1500	
Primary conductor opening [mm]	20 x 30	50 x 80	80 x 120	
Transformer width [mm]	93	125	155	
Transformer height [mm]	106	158	198	
				
Dimension "A" [mm]	64	96	126	
Dimension "B" [mm]	56	56	56	



DE	EN
Hersteller	Manufacturer
Bemessungsfrequenz	Rated frequency
Primärer Bemessungsform $I_{pr}$	Primary rated form $I_{pr}$
sekundärer Bemessungsform $I_{sr}$	Secondary rated form $I_{sr}$
Bemessungsleistung $S_r$	Rated load $S_r$
Genauigkeitsklasse	Accuracy class
Thermischer Bemessungs-Kurzzeitsstrom $I_{th}$	Rated thermal short-term current $I_{th}$
Temperaturklasse	Temperature class
Isolierstoffklasse	Insulation class
Max. Betriebsspannung $U_m$ / Bemessungsisolationspegel	Max. operating voltage $U_m$ / rated insulation level
Typbezeichnung	Type designation
Überstrombegrenzungsziffer	Overcurrent limiting digit
Fertigungsnummer	Production number

## 8. Product Information

MBS AG has been developing, producing and marketing current and voltage transformers for more than 40 years. Our customers rely on the globally renowned quality of our products.

Production at MBS AG includes current transformers with closed and divided cores. During the production process, these undergo multiple checks to ensure they meet MBS AG's quality requirements.

The divided structure of the KBU product group means that these transformers respond more sensitively to external influences compared to current transformers with a closed core.

In addition to environmental conditions such as temperature and ambient humidity, as well as mechanical stress, other factors such as soiling, corrosion and damage to the interfaces can have an impact on the instrument transformers' accuracy.

As the manufacturer, MBS AG has no influence over these factors. However the products are constantly being developed in order to minimise their impacts.

Some deviations in measuring accuracy caused by these influences, especially in relation to long-term measuring behaviour, cannot be ruled out entirely.

The overall errors that occur as a result of the influences set out above are however generally always within the applicable operating control limits

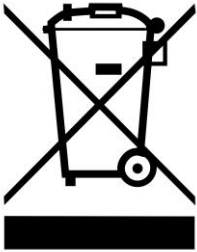
(the applicable operating control limits are no more than double the standard error value).



This product was developed and produced in accordance with the applicable standards (IEC 61010, IEC 61869) and complies with the requirements of the Low Voltage Directive 2014/35/EU.



MBS AG hereby declares that it only uses components from qualified manufacturers in its products, the specifications of which satisfy or exceed the requirements of the EU directive on the restricted use of certain hazardous substances.



Once the product has reached the "end of its useful life", it must be recycled. Do not dispose of in domestic waste!  
If necessary, ask a waste consultant!



**MBS AG**

Eisbachstrasse 51 • 74429 Sulzbach-Laufen • Germany  
Telephone: +49 7976 9851-0 • Fax: +49 7976 9851-90  
info@mbs-ag.com • www.mbs-ag.com