

# Operating instructions / Installation instructions

Please keep!

## Low-voltage current transformer -Plug-in current transformers - ASK, SASK series



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

## **1. Safety instructions**



### **CAUTION**

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 ASK and SASK 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. Current transformers of the ASK and SASK series are maintenance-free.

## 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 5 matches the operating parameters of the system. Before starting any installation work, disconnect the system from the power supply!



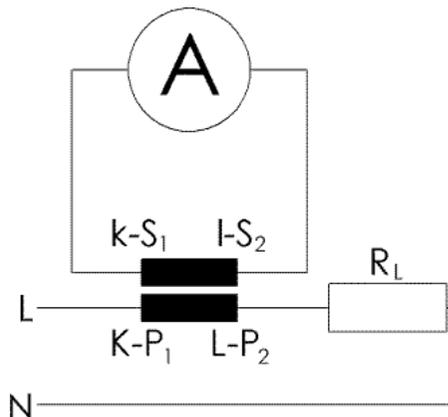
**WARNING**

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.**

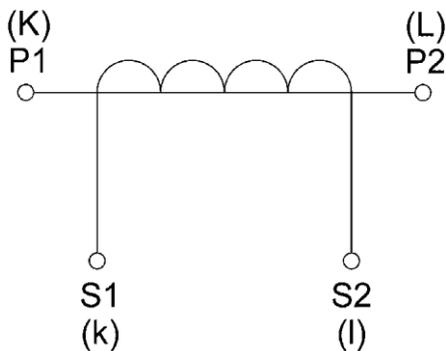
## 4. Installation

- During assembly, maintenance and installation work, ensure a safe working environment. Interrupt the power supply to the primary conductor and secure it against being inadvertently switched back on.
- Install the current transformer on the primary conductor.
- To do this, lead the primary conductor (Cu-rail or round conductor) through the window opening of the current transformer housing. The window opening is marked with "K-P1" and "L-P2".
- 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 mounting bracket included in the accessory pack.
- Some types of the ASK and SASK series can also be mounted on 35 mm DIN top-hat rails by means of a snap-on mounting available as an accessory (see Accessories in table).
- Establish the secondary connections. Observe the markings on the secondary terminals.

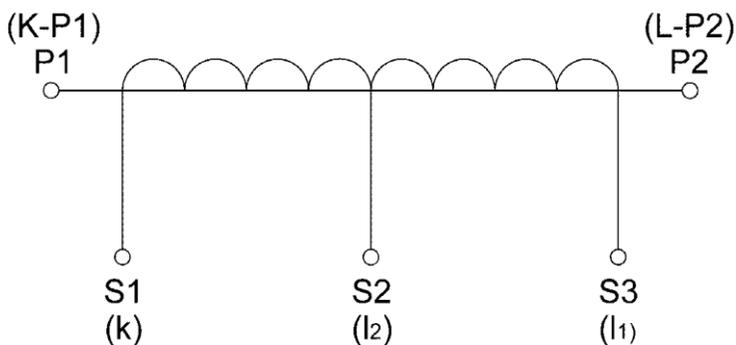
### 4.1. Measuring circuit



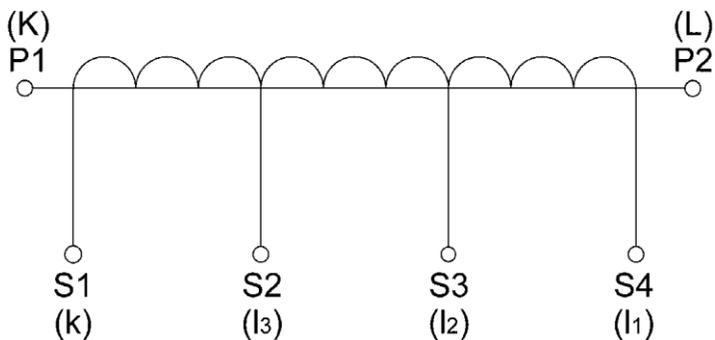
## 4.2. Connection markings



Transformer with one ratio



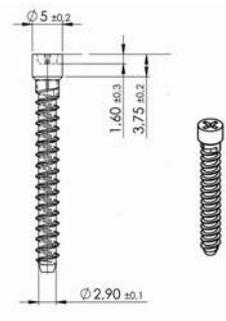
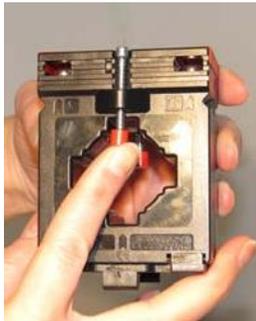
Secondary switchable transformers ASK xxx 2U



Secondary switchable transformers ASK xxx 3U

## 4.2. Installation instructions

### Mounting the fastening screws

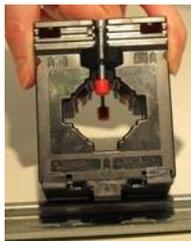
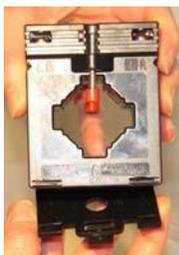


### Mounting on copper rail or round conductor

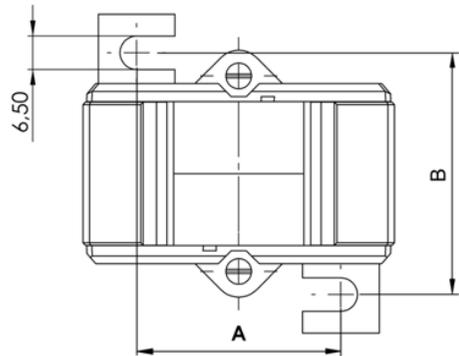


Tightening torque  
of fastening screw:  
0.5 Nm

### Mounting on 35 mm DIN top-hat rail with snap-on mounting (optional accessory)



## Mounting on mounting plate



Transformer type*)	AS 176.3	ASK 176.3	ASK 205.3	(S)ASK 21.3	ASK 231.5
Dimension "A" [mm]	25	25	28.5	40	29.5
Dimension "B" [mm]	47	47	47	47	67

Transformer type*)	(S)ASK 31.3	ASK 318.3	(S)ASK 31.4	(S)ASK 31.5	(S)ASK 31.6
Dimension "A" [mm]	40	40	40	40	72.5
Dimension "B" [mm]	47	47	57	67	75

Transformer type*)	ASK 41.3	(S)ASK 421.4	(S)ASK 41.4	(S)ASK 41.5	ASK 412.4	(S)ASK 41.6
Dimension "A" [mm]	40	50	50	41	50	72.5
Dimension "B" [mm]	47	57	57	67	57	75

Transformer type*)	(S)ASK 41.10	(S)ASK 541.4	(S)ASK 51.4	(S)ASK 51.6	(S)ASK 561.4	(S)ASK 61.4
Dimension "A" [mm]	112	65	65	72.5	65	70
Dimension "B" [mm]	112	57	57	75	57	57

<b>Transformer type*)</b>	(S)ASK 61.6	(S)ASK 61.10	(S)ASK 63.4	(S)ASK 63.6	(S)ASK 81.4	ASK 83.4
Dimension "A" [mm]	72.5	112	70	50	95	69
Dimension "B" [mm]	75	112	57	77	57	57

<b>Transformer type*)</b>	ASK 101.4	(S)ASK 103.3	ASK 103.41	(S)ASK 105.6	(S)ASK 105.6N	(S)ASK 123.3
Dimension "A" [mm]	95	95	58	100.5	100	95
Dimension "B" [mm]	57	47	57	77	77	47

<b>Transformer type*)</b>	(S)ASK 127.4	(S)ASK 127.6	(S)ASK 128.4	(S)ASK 129.10	ASK 130.3	ASK 130.5
Dimension "A" [mm]	130	161	61	210	145	145
Dimension "B" [mm]	57	77	56	117	52	70

\*) Dimensions apply to the ASK and SASK series.



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

### 5.1. Technical data general input

Primary rated current $I_{pr}$ :	See 5.2
Rated thermal continuous current $I_{cth}$ :	$1.0 \times I_{pr}$ (100%)
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 $I_{sr}$ :	5 A or 1 A
Accuracy class (type-dependent):	0.2s ... 3
Rated load $S_r$ (type-dependent):	1 ... 45 VA
Overcurrent limiting factor FS (type-dependent):	FS5 ... FS15

### Operating conditions

Ambient temperature:	-5 ... +50 °C
Storage temperature:	-25 ... +70 °C
Relative humidity (non-condensing):	5 ... 85 %
Permitted altitude for operation:	Up to 2000 m

### Insulation properties:

Rated insulation level $U_m$ (in accordance 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:	PC
UL housing classification:	UL94-V2

## **Connection**

Conductor feedthrough primary conductor:	See 5.2
Connection technology secondary:	Secondary terminals nickel-plated with ± - screw M 5 x 8 mm nickel-plated
Tightening torque secondary:	max. 2 Nm
Connection cross-section secondary:	max. 4 mm <sup>2</sup> with wire end ferrule, 6 mm <sup>2</sup> solid

## **Applied standards**

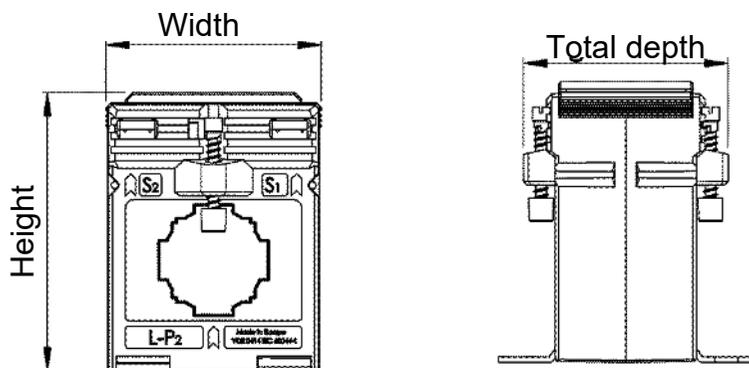
IEC 61869-1  
EN 61869-2  
EN 61010-1

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

## 5.2. Technical data type-related

\*) Dimensions apply to the ASK and SASK series.

The range of the primary rated current may deviate from the specified values for the SASK series (please enquire if necessary).



Transformer type <sup>*)</sup>	AS 176.3	ASK 176.3	ASK 205.3	(S)ASK 21.3	ASK 231.5
Primary rated current [A]	75 ... 250	75 ... 250	60 ... 400	50 ... 500	60 ... 500
<b>Conductor feedthrough primary conductor</b>					
Rail 1 [mm]	17 x 6	17 x 6	20 x 5	20 x 10	30 x 10
Rail 2 [mm]	---	---	15 x 15	15 x 15	25 x 25
Rail 3 [mm]	---	---	---	---	20 x 20
Round conductor [mm]	15.2	15.2	17.5	19.2	28
<b>Dimensions</b>					
Width [mm]	45	45	49.5	61	50
Height [mm]	65	65	65	75.5	70
Total depth [mm]	30	46	50	48	68

<b>Transformer type<sup>*)</sup></b>	(S)ASK 31.3	ASK 318.3	(S)ASK 31.4	(S)ASK 31.5	(S)ASK 31.6
Primary rated current [A]	50 ... 750	60 ... 600	50 ... 750	40 ... 750	40 ... 750
<b>Conductor feedthrough primary conductor</b>					
Rail 1 [mm]	30 x 10	31 x 18	30 x 10	30 x 10	30 x 10
Rail 2 [mm]	20 x 20	---	20 x 20	---	20 x 13
Rail 3 [mm]	---	---	---	---	---
Round conductor [mm]	26	26	28	28	23
<b>Dimensions</b>					
Width [mm]	61	61	61	61	95
Height [mm]	75.5	75.5	75.5	75.5	116
Total depth [mm]	48	48	58	68	74

<b>Transformer type<sup>*)</sup></b>	ASK 41.3	(S)ASK 421.4	(S)ASK 41.4	(S)ASK 41.5	ASK 412.4	(S)ASK 41.6
Primary rated current [A]	100 ... 750	40 ... 500	50..1000	60..1000	50..800	50..1000
<b>Conductor feedthrough primary conductor</b>						
Rail 1 [mm]	40 x 12	20 x 10	40 x 10	40 x 10	40 x 12	40 x 12
Rail 2 [mm]	320 x 18	---	2 x 30 x 5	2 x 30 x 5	30 x 15	30 x 15
Rail 3 [mm]	---	---	---	---	---	---
Round conductor [mm]	26	20	32	32	30.5	32
<b>Dimensions</b>						
Width [mm]	61	71	71	71	71	95
Height [mm]	75.5	85.5	85.5	85.5	85.5	116
Total depth [mm]	48	58	58	68	58	74

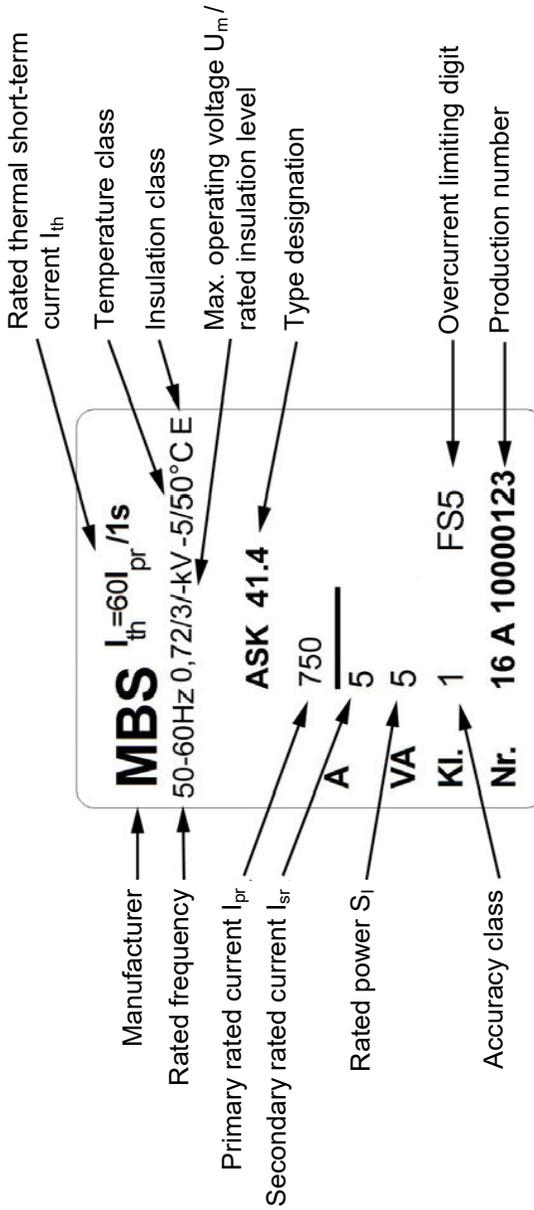
<b>Transformer type<sup>1)</sup></b>	(S)ASK 41.10	(S)ASK 541.4	(S)ASK 51.4	(S)ASK 51.6	(S)ASK 561.4	(S)ASK 61.4
Primary rated current [A]	75 ... 800	30 ... 1000	100 ... 1250	100 ... 1250	200 ... 1250	200 ... 1600
<b>Conductor feedthrough primary conductor</b>						
Rail 1 [mm]	40 x 10	40 x 10	50 x 12	50 x 12	60 x 10	63 x 10
Rail 2 [mm]	---	2 x 30 x 5	2 x 40 x 10	2 x 40 x 10	30 x 40	2 x 50 x 10
Rail 3 [mm]	---	---	---	---	2 x 50 x 10	---
Round conductor [mm]	32	32	44	40	44	44
<b>Dimensions</b>						
Width [mm]	150	86	86	95	86	96
Height [mm]	175.5	98.5	98.5	116	98.5	105.5
Total depth [mm]	114	58	58	74	58	58

<b>Transformer type<sup>1)</sup></b>	(S)ASK 61.6	(S)ASK 61.10	(S)ASK 63.4	(S)ASK 63.6	(S)ASK 81.4	ASK 83.4
Primary rated current [A]	100 ... 1500	100 ... 1500	300 ... 1600	200 ... 2000	400 ... 2000	300..2000
<b>Conductor feedthrough primary conductor</b>						
Rail 1 [mm]	60 x 10	60 x 10	60 x 30	60 x 30	80 x 10	84 x 34
Rail 2 [mm]	2 x 50 x 10	2 x 50 x 10	50 x 40	---	2 x 60 x 10	---
Rail 3 [mm]	---	---	---	---	---	---
Round conductor [mm]	40	---	44	30	55	34
<b>Dimensions</b>						
Width [mm]	95	150	96	88	120	96
Height [mm]	116	175.5	105.5	129	123.5	117
Total depth [mm]	74	114	58	78	58	68

<b>Transformer type<sup>*)</sup></b>	ASK 101.4	(S)ASK 103.3	ASK 103.41	(S)ASK 105.6	(S)ASK 105.6N	(S)ASK 123.3
Primary rated current [A]	500 ... 2000	750 ... 3000	400 ... 2000	600 ... 3000	2500..4000	750 ... 3000
<b>Conductor feedthrough primary conductor</b>						
Rail 1 [mm]	100 x 10	2x100x10	103 x 41	100 x 55	100 x 55	123 x 30
Rail 2 [mm]	2 x 80 x 10	3 x 80 x 10	---	---	---	3x100x10
Rail 3 [mm]	---	---	---	---	---	---
Round conductor [mm]	70	85	40	55	55	100
<b>Dimensions</b>						
Width [mm]	130	172	99	129	129	172
Height [mm]	141	184.8	150	167	214	184.8
Total depth [mm]	58	52	58	78	78	52

<b>Transformer type<sup>*)</sup></b>	(S)ASK 127.4	(S)ASK 127.6	(S)ASK 128.4	(S)ASK 129.10	ASK 130.3	ASK 130.5
Primary rated current [A]	1000..2500	1000..6000	400 ... 2500	1000..7500	300 ... 1600	300 ... 3200
<b>Conductor feedthrough primary conductor</b>						
Rail 1 [mm]	120 x 70	120 x 70	128 x 38	120 x 90	130 x 25	130 x 30
Rail 2 [mm]	---	---	---	---	---	---
Rail 3 [mm]	---	---	---	---	---	---
Round conductor [mm]	70	70	38	90	25	30
<b>Dimensions</b>						
Width [mm]	159	205	100	250	180	180
Height [mm]	195.3	203	175	247	100	120
Total depth [mm]	58	78	58	118	50	68

### 5.3. Type plate markings



## 6. Accessories

Snap-on mounting for installation on 35 mm DIN top-hat rail



Design	Insert for transformer type	Order No.
A	(S)ASK 21.3, (S)ASK 31.3, ASK 318.3, ASK 41.3	53011
B	(S)ASK 31.4	54011
C	(S)ASK 31.5, (S)ASK 41.5	55011
D	(S)ASK 421.4, (S)ASK 41.4, ASK 412.4	55012
E	AS 176.3, ASK 176.3	55013
F	ASK 205.3	55014

Mounting bracket for three-phase current transformer set  
(2 piece)



Insert for transformer type	Order No.
(S)ASK 421.4, (S)ASK 41.4, ASK 412.4	59037
(S)ASK 41.5	59082
(S)ASK 31.3	59083

Universal secondary closure for MBS current transformers

**Order No. 53016**





## Sealed shutter



Design	Insert for transformer type	Order No.
Shape A	(S)ASK 21.3, (S)ASK 31.3, ASK 318.3, ASK 41.3, (S)ASK 103.3(2x), (S)ASK 123.3(2x)	59040
Shape B	(S)ASK 31.4, (S)ASK 31.5, (S)ASK 421.4, (S)ASK 41.4, (S)ASK 41.5, ASK 412.4,	59041
Shape C	(S)ASK 541.4, (S)ASK 51.4, (S)ASK 561.4, (S)ASK 61.4, ASK 63.4, (S)ASK 63.6, (S)ASK 81.4, ASK 101.4, (S)ASK 105.6, (S)ASK 105.6N, (S)ASK 127.4, (S)ASK 127.6, (S)ASK 128.4, (S)ASK 129.10	59042
Shape E	(S)ASK 31.6, (S)ASK 41.6, (S)ASK 51.6, (S)ASK 61.6	59044



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!



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