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Low voltage current transformer
Plug-in current transformer

ASK 21.3 / 31.3 / 31.5 / 41.4 / 51.4

User manual / Mounting instructions



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Janitza electronics GmbH
Vor dem Polstück 6
35633 Lahnau | Germany
Support: +49 6441 9642-22
info@janitza.com | www.janitza.com

Janitza®



Low-voltage current transformer
- Plug-in current transformer -

Doc no. 2.002.202.1.a
10/2025
The German version is the original edition of the documentation.

Subject to technical alterations.

The contents of our documentation have been compiled with great care and reflect the current state of the information available to us. Nonetheless, we wish to point out that updates of this document are not always possible at the same time as technical refinements are implemented in our products. Please see our website under www.janitza.com for the current version.
Please see our website under www.janitza.com for the current version.

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1. Information on the devices and the user manual

1.1 Disclaimer

Compliance with the usage information for the devices is a prerequisite for safe operation and attaining the stated performance characteristics and product features.

Janitza electronics GmbH assumes no liability for bodily injury, material damage or financial losses which result from disregard of the usage information.

Ensure that the usage information for the products is legible and accessible.

1.2 Copyright notice

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Any reproduction, processing, distribution or other use of this usage information, in whole or in part, is prohibited.

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1.3 Technical changes

· Make sure that your device matches the user manual.
· This user manual applies to the low-voltage current transformers (plug-in current transformers) of the ASK series.
· First make sure you have read and understood the usage information accompanying the product.
· Keep the usage information associated with the product available for the entire service life and pass it on to any possible subsequent users.
· Find out about device revisions and the associated modifications of the usage information associated with your product at www.janitza.com.

·

1.4 About this user manual

If you have questions, suggestions or ideas for improvement of the user manual, please let us know via email at: info@janitza.com.

INFORMATION

This user manual describes the low-voltage current transformers (plug-in current transformers) of the ASK series and provides information on operating the transformers.

Observe any additional usage information and, in particular, the safety information in this user manual.

1.5 Defective device/disposal

Before sending **defective devices, modules or components** back to the manufacturer for testing:
· Contact the manufacturer's Support department.
· Send devices, modules or components complete with all accessories.
· When doing so, please bear the terms for transportation in mind.

INFORMATION

· Before assembly and commissioning, check the device for possible transport damage.
· Do not put defective devices into service!
· Please return defective or damaged devices, modules or components to Janitza electronics GmbH in accordance with the shipping instructions for air or road freight (complete with accessories).

Do not attempt to open or repair the device (the module, the component) on your own because otherwise all warranty claims become invalid!

For the **disposal** of the device (the module, the component), please observe national regulations! Dispose of individual parts, as applicable, depending on their composition and existing country-specific regulations, e.g. as

· Electronic waste,
· Batteries and rechargeable batteries,
· Plastics,
· Metals.

Engage a certified disposal company to handle scrapping as needed.

2. Safety

The chapter on Safety contains information which must be observed to ensure your personal safety and avoid material damage.

2.1 Display of warning notices and safety information

The warning notices shown below
· are found throughout the usage information.
· can possibly be found on the devices themselves.
· indicate potential risks and hazards.
· underscore aspects of the information provided that clarifies or simplifies procedures.



This additional symbol on the device (module/component) itself indicates an electrical hazard that can lead to severe injury or death.





This general warning symbol draws attention to a possible risk of injury. Be certain to observe all of the information listed under this symbol in order to avoid possible injury or even death.

2.2 Hazard levels

Warning and safety information is marked by a warning symbol, and the hazard levels are shown as follows, depending on the degree of hazard:

⚠ DANGER
Warns of an imminent danger which, if not avoided, results in serious or fatal injury.

⚠ WARNING
Warns of a potentially hazardous situation which, if not avoided, could result in serious injury or death.

⚠ CAUTION
Warns of an immediately hazardous situation which, if not avoided, can result in minor or moderate injury.

ATTENTION
Warns of an immediately hazardous situation which, if not avoided, can result in material or environmental damage.

INFORMATION

Indicates procedures in which there is **no** hazard of personal injury or material damage.

2.3 Product safety

The devices reflect current engineering practice and accepted safety standards, but hazards can arise nonetheless.

Observe the safety regulations and warning notices. If notices are disregarded, this can lead to personal injury and/or damage to the product.

Every type of tampering with or use of the devices,
· which goes beyond the mechanical, electrical or other operating limits can lead to personal injury and/or damage to the product;
· constitutes “misuse” and/or “negligence” under the product’s warranty and thus voids the warranty for any possible resulting damage.

Read and understand the user manual before assembling, installing, operating, maintaining or using the devices.

· Only operate the devices when in perfect condition and in compliance with this user manual and the usage information that is included.
· Send defective devices back to the manufacturer in compliance with proper transport conditions.
· Retain the user manual throughout the service life of your product and keep it at hand for consultation.

When using the device, component or module, also observe the legal and safety regulations for your system that are applicable for the respective use case.

2.4 Dangers when handling the device

When operating electric devices, components or modules, it is unavoidable for certain parts of these devices to conduct hazardous voltage. Consequently, severe bodily injury or material damage can occur if they are not handled properly.

When handling the devices, always observe the following:

- do not exceed the limit values specified in the user manual and on the rating plate! This must also be observed during testing and commissioning!
- Take note of the safety and warning notices in all usage information that belongs to the device, components or modules!
- Applicable laws, standards and regulations!
- The state of the art and current engineering practice at the point in time of installation.

2.5 Electrically qualified personnel

To avoid bodily injury and material damage, only electrically qualified personnel are permitted to work on the devices and their components, modules, assemblies, systems and current circuits who have knowledge of:

- The national and international accident prevention regulations.
- Safety technology standards.
- Installation, commissioning, operation, disconnection, grounding and marking of electrical equipment.
- The requirements concerning personal protective equipment.

Electrically qualified persons within the scope of the technical safety information of all usage information associated with the device and its components are persons who can furnish proof of qualification as an electrically skilled person.

2.6 Warranty in the event of damage

Any unauthorized tampering with or use of the device, component or module constitutes “misuse” and/or “negligence” under the product’s warranty and thus voids the warranty for any possible resulting damage.

⚠ WARNING

Risk of injury due to electrical current and voltage!
Severe bodily injury or death can result! Therefore please abide by the following:

- Do not touch bare, stripped wires or device inputs that are dangerous to touch on the devices, components and modules.
- Switch off your installation before commencing work! Secure it against being switched on again! Check to be sure it is de-energized! Ground and short circuit! Cover or block off adjacent live parts!
- During operation and troubleshooting, check the environment for dangerous voltages and switch these off if necessary!
- Wear protective clothing and protective equipment in accordance with applicable guidelines when working on electrical systems!
- Before making connections, ground the device / component / module by means of the ground wire connection, if present!
- Do not touching bare or stripped leads that are energized! Equip stranded conductors with wire ferrules!
- Hazardous voltages can be present in all circuitry parts that are connected to the power supply.
- Protect wires, cables and devices with a suitable line circuit breaker/fuse!
- Never switch off, remove or tamper with safety devices!
- There can still be hazardous voltages present in the device or in the component even after it has been disconnected from the supply voltage. Check to be sure it is de-energized!
- Do not operate equipment with current transformer circuits when open.
- Only connect screw terminals with the same number of poles and design!
- Do not exceed the limit values specified in the user manual and on the rating plate! This must also be observed during testing and commissioning.
- Observe the safety and warning notices in the usage information associated with the devices or components!

⚠ WARNING

Warning of unauthorized tampering or improper use of the device!
Opening, dismantling or unauthorized manipulation of the device which goes beyond the mechanical, electrical or other operating limits indicated can lead to material damage or injury, up to and including death.
· Only electrically qualified personnel are permitted to work on the devices, components, assemblies, systems and current circuits.
· Always use your device only in the manner described in the associated usage information.
· If there is discernible damage, send the device back to the manufacturer!

2.7 Safety information for handling current transformers

⚠ WARNING

Risk of injury due to large currents and high electrical voltage on the current transformers!
Current transformers operated while open on the secondary side (high voltage peaks pose a hazard when touched) can result in severe bodily injury or death.
· Avoid operating the current transformers while open; short circuit the unloaded transformers!
· Before interrupting the current supply, short circuit the secondary connections of the current transformers. Switch any test switches that automatically short circuit the secondary lines of the current transformers to the “Test” status (Check the test switch/short circuiting connection beforehand)!
· Only use current transformers with basic insulation in accordance with IEC 61010-1!
· Caution, even current transformers rated as safe for open operation can pose a hazard when touched during operation while open!
· Make sure that screw terminals for the current transformer connection on the device are adequately tightened!
· Comply with the information and provisions in the documentation of your current transformers!

⚠ CAUTION

Risk of injury or damage to the meter due to high measurement currents at the connections of the current transformers!
High measurement currents can cause temperatures of up to 80 °C (176 °F) on the connections of the current transformers
· Use wiring that is designed for an operating temperature of at least 80 °C (176 °F)!
· The current transformers can be hot even after the power supply has been switched off. Allow the connections of the current transformers and the connecting cables to cool down before touching them!

2.8 Incoming goods inspection

The prerequisites for trouble-free and safe operation of the devices include proper transport, storage, setup and assembly, as well as proper operation and maintenance.

Exercise due caution when unpacking and packing the device, do not use force and only use suitable tools. Check the following:
· Visually inspect the devices for flawless mechanical condition.
· Your delivered devices for completeness before you start with assembly and installation.

If it must be assumed that safe operation of your device is not possible:
1. **Switch off the power to your system (your device)!**
2. **Secure it against being switched back on!**
3. **Check to be sure it is de-energized!**
4. **Ground and short circuit the system (device)!**
5. **Cover or block off adjacent live parts!**

Safe operation is impossible, if the device:
· has visible damage,
· no longer functions despite an intact power supply,
· was subjected to extended periods of unfavorable conditions (e.g. storage outside of the permissible climate thresholds without adjustment to the room climate, condensation, etc.) or transport stress (e.g. falling from an elevated position, even without visible external damage, etc.).
.

2.9 Intended use

The device:
· Is only for use in the industrial sector.
· Is intended for use in dry, electrical operating rooms and closed housings, such as switchboard cabinets and small distribution boards.

The device is **not** for installation
· In vehicles! Use of the device in non-stationary equipment constitutes an exceptional environmental condition and is only permissible by special agreement.
· In environments with harmful oils, acids, gases, vapors, dusts, radiation, etc.
· In potentially explosive environments.

3. Product description

3.1 Principle of operation

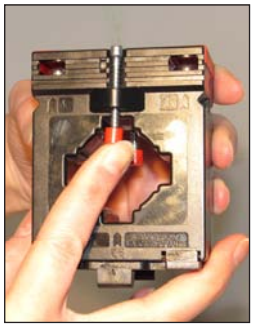
ASK series current transformers
- are inductive, single-conductor current transformers that operate according to the transformer principle.
- are used to adapt a primary measured variable to the nominal input variables of connected measurement devices.
- are, due to the measuring principle, only suitable for use in AC networks.
- are maintenance-free.

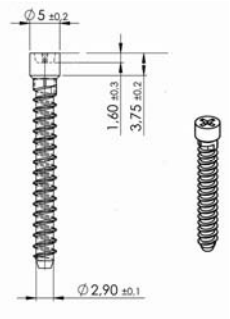
4. Mounting

4.1 Mounting instructions

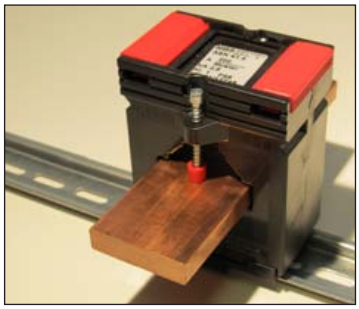
1. Mounting the fastening screws

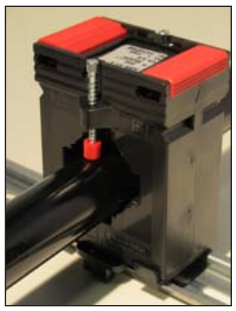






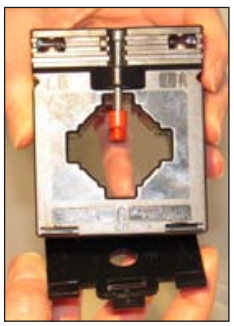
2. Mounting on copper rail and round conductor

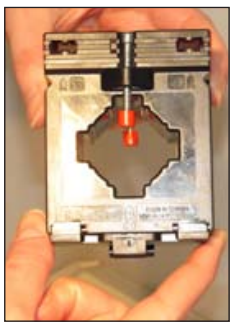




Tightening torque
Fastening screw: 0.5 Nm

3. Mounting on 35 mm DIN rail with snap-on mounting (optional accessory)

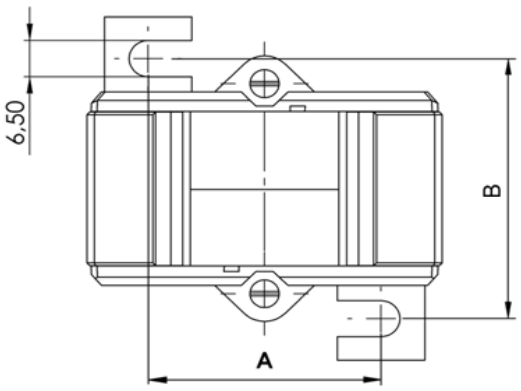








4. Mounting on a mounting plate



Transformer type	ASK 21.3	ASK 31.3	ASK 31.5	ASK 41.4	ASK 51.4
Dimension "A" [mm]	40	40	40	50	65
Dimension "B" [mm]	47	47	67	57	57

Tab. Dimensions for current transformer types

5. Installation

· Ensure there is a safe working environment during assembly, maintenance and installation work. Disconnect the power supply of the primary conductor and secure it against unintentional reconnection.

· Install the current transformer on the primary conductor.

· To do so, guide 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" or "L-P2".

· Mount the device either directly on the primary conductor or on a mounting plate. Use the fasteners included in the scope of delivery for this purpose.
Fastening
- can be carried out directly on the primary conductor by screwing the fastening screws into the screw bosses located on the transformer housing or using the optionally available snap-on mounting.
- can be carried out on the mounting plate using the foot mounting brackets.

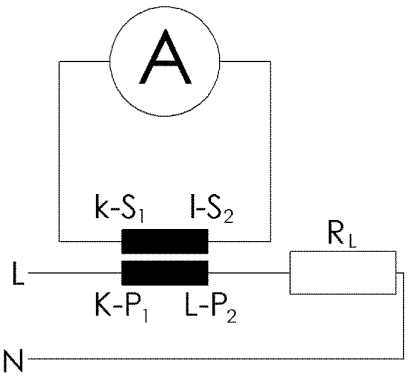
· ASK type current transformers can also be mounted on a 35 mm DIN rail using a snap-on mounting available as an accessory.

· Make the secondary connections.
Observe the markings on the secondary terminals.

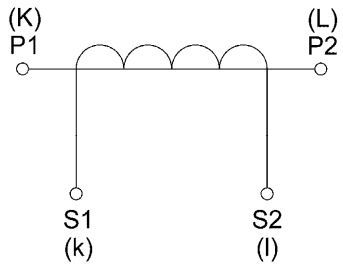
⚠ WARNING

Risk of injury due to electrical voltage at current transformers!
Current transformers which are operated exposed on the secondary side can carry hazardous live high voltage peaks which can lead to serious bodily injury or death.
Therefore please abide by the following:
· Switch off your installation before commencing work! Secure it against being switched on again! Check to be sure it is de-energized! Ground and short circuit! Cover or block off adjacent live parts!
· Avoid exposed operation of the current transformers.
· Short-circuit unloaded current transformers.
· Before interrupting the current supply, short circuit the secondary connections of the current transformers.
· If there is a test switch which automatically short-circuits the secondary current transformer lines, it is sufficient to set it to the “Test” position, provided that the short-circuiters have been checked beforehand.
· Only use current transformers that have basic insulation in accordance with IEC 61010-1.
· Even current transformers rated as safe for exposed operation are dangerous to touch if they are operated exposed.

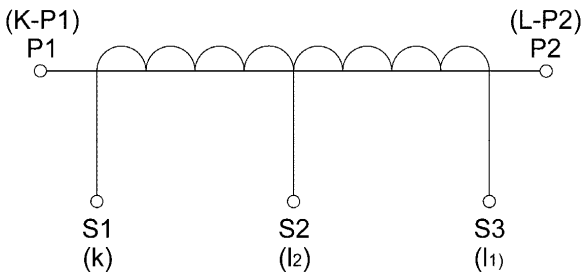
5.1 Measurement circuit



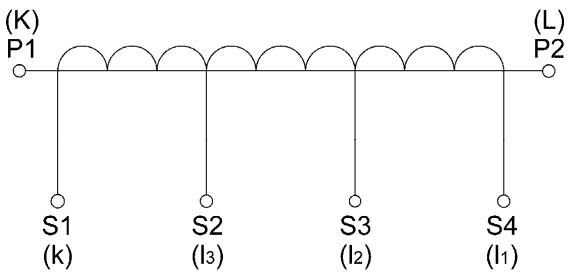
5.2 Connection labeling



Transformer with a ratio



Switchable secondary transformers ASK xxx 2U



Switchable secondary transformers ASK xxx 3U

Data in brackets corresponds to old standard DIN EN 60044-1

6. Technical data

ATTENTION
In addition to the following technical data, pay particular attention to the information on the rating plate of your device!

6.1 General technical data

Input	
Primary rated current I_{pr} (type-dependent)	see section 6.2
Thermal rated continuous current I_{cth}	1.0 x I_{pr} (100%)
Thermal rated short-time current I_{th}	60 x I_{pr} / 1 s (max. 100 kA)
Rated surge current I_{dyn}	2.5 x I_{th}
Rated frequency f_R	50 ... 60 Hz

Tab. Technical data - Input

Output	
Secondary rated current I_{sr}	see section 6.2
Accuracy class	see section 6.2
Rated power S_r (type-dependent)	see section 6.2

Tab. Technical data - Output

Operating conditions	
Ambient temperature	-5 … +50 °C
Storage temperature	-25 … +70 °C
Relative humidity (non-condensing)	5 … 85%
Operating elevation	up to 2000 m

Tab. Technical data - Operating conditions

Isolation properties	
Rated isolation level U_m in accordance with IEC 61010-1 under the following conditions: - Overvoltage category III - Pollution degree 2 - Heterogeneous electrical field	0.72 / 3 / - kV
Insulation class	E

Tab. Technical data - Isolation properties

Safety	
Protection level	IP20
Housing material	PC
UL housing classification of these types	UL94-V2

Tab. Technical data - Safety

Connection	
Primary conductor feedthrough	see section 6.2
Connection technology, secondary	Secondary terminals nickel-plated, with ± screw M 5 x 10 mm nickel-plated
Connection cross section, secondary	max. 4 mm² with wire ferrules, 6 mm² solid
Tightening torque	max. 2 Nm

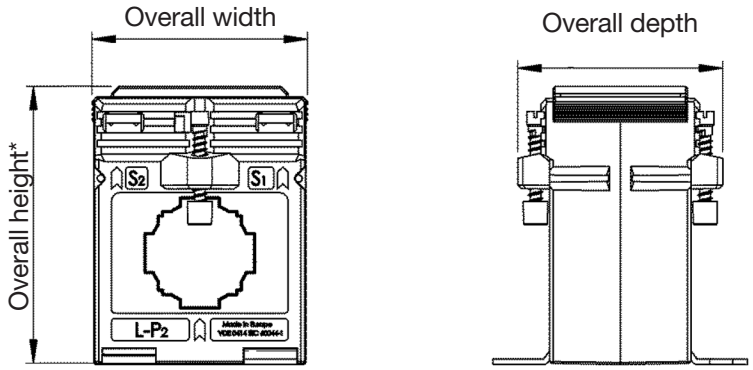
Tab. Technical data - Connection

Standards complied with
· IEC 61869-1 · IEC 61869-2 · IEC 61010-1

Tab. Technical data - Standards complied with

The latest edition of the aforementioned documents, including all amendments, applies.

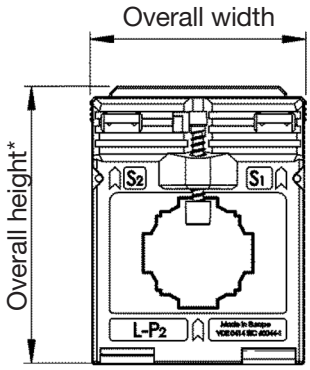
6.2 Type-specific technical data

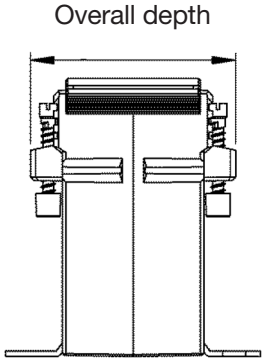


*without fastening screws

Current transformer type	ASK 21.3 (75/5)	ASK 21.3 (80/5)	ASK 21.3 (100/5)	ASK 31.3 (600/5)
Primary rated current [A]	75	80	100	600
Secondary rated current I_{sr} [A]	5	5	5	5
Rated power [VA]	2.5	2.5	3.75	5
Accuracy class	1	1	1	1
Dimensions / Weight				
Overall height [mm]	75.5	75.5	75.5	75.5
Overall width [mm]	61	61	61	61
Overall installation depth [mm]	48	48	48	48
Weight [kg]	0.30	0.32	0.32	0.30
Primary conductor feedthrough				
Rail 1 [mm]	20 x 10	20 x 10	20 x 10	30 x 10
Rail 2 [mm]	15 x 15	15 x 15	15 x 15	20 x 20
Round conductor [mm]	19.2	19.2	19.2	26

Tab. Type-specific technical data





*without fastening screws

Current transformer type	ASK 31.5 (75/5)	ASK 41.4 (250/0.1)	ASK 41.4 (400/0.1)	ASK 41.4 (600/5)	ASK 51.4 (100/5)
Primary rated current [A]	75	250	400	600	100
Secondary rated current I_{sr} [A]	5	0.1	0.1	5	5
Rated power [VA]	1.5	1.5	1.5	2.5	2.5
Accuracy class	1	0.5	0.5	1	0.5s
Dimensions / Weight					
Overall height [mm]	75.5	85.5	85.5	85.5	98.5
Overall width [mm]	61	71	71	71	86
Overall installation depth [mm]	68	58	58	58	58
Weight [kg]	0.45	0.26	0.31	0.30	0.25
Primary conductor feedthrough					
Rail 1 [mm]	30 x 10	40 x 10	40 x 10	40 x 10	50 x 12
Rail 2 [mm]	-	30 x 10	30 x 10	30 x 10	40 x 30
Round conductor [mm]	28	32	32	32	44

Tab. Type-specific technical data

NOTES

Janitza®

Janitza electronics GmbH
Vor dem Polstück 6 | 35633 Lahnau
Germany

Tel.: +49 6441 9642-0
info@janitza.com | www.janitza.com

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The latest version of the document can be found in the download area at www.janitza.com.