

MEDIUM VOLTAGE PRODUCT

AdvaSense™ Sensors for indoor applications

Product overview



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AdvaSense™ sensors - advanced measurement

AdvaSense™ sensors based on advanced measurement principles have been developed as successors to conventional instrument transformers in order to achieve significant reduction in dimensions, increase of safety and to provide greater rating standardization with a wider functionality range

The sensor technology has been used in ABB since the beginning of the 1990s and there are more than **380 000** sensors installed and operating to date. Conventional instrument transformers with magnetic cores are based on well-known principles that have been utilized with all their advantages as well as limitations for more than 120 years.

New protection relays place different requirements on primary measurement equipment (instrument transformers) compared to classic electromechanical relays. These new requirements also open up the opportunity for the utilization of advanced measurement principles that offer a wide range of additional benefits.

Sensors offer a state-of-the-art way of providing the current and voltage signals needed for the protection and monitoring of medium voltage power systems. These advantages can be fully used in connection with modern protection relays.

ABB sensor product portfolio consists of sensor solutions for wide range of applications. With more than 17 product families and 56 different product variants we are able to cover various applications from primary to secondary air and gas insulated switchgear.



380 000 sensors installed

Benefits

AdvaSense™ current and voltage sensors bring remarkable progress in measurement for medium voltage applications and open up numerous advantages and benefits for their users..

Fast and easy design process

- Standardized products
- Wide range of parameters covers one design
- Zero engineering
- Faster and simplified project documentation
- Flexible for last-minute changes

Quick delivery time

- Product available on stock
- Quick dispatch
- Minimized office process
- No clarification delays

Minimized cost during the life cycle

- Saves time and money during planning and execution
- Reduces operating costs

Flexibility

- Flexibility towards varying load flows
- Possibility to connect different equipment/load
- Upgrade of switchgear parameters without additional costs

Safety and reliability

- Ferroresonance free
- Low voltage signals
- No need to use VT fuses
- Secondary can be left open or short-circuited
- Easy and reliable connection to protection relays
- Increased safety for personnel during testing and operation



AdvaSense™ current sensors

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01 Current sensors installed in air insulated switchgear (UniGear ZS1 Digital)

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02 Current sensor installed on cable connector

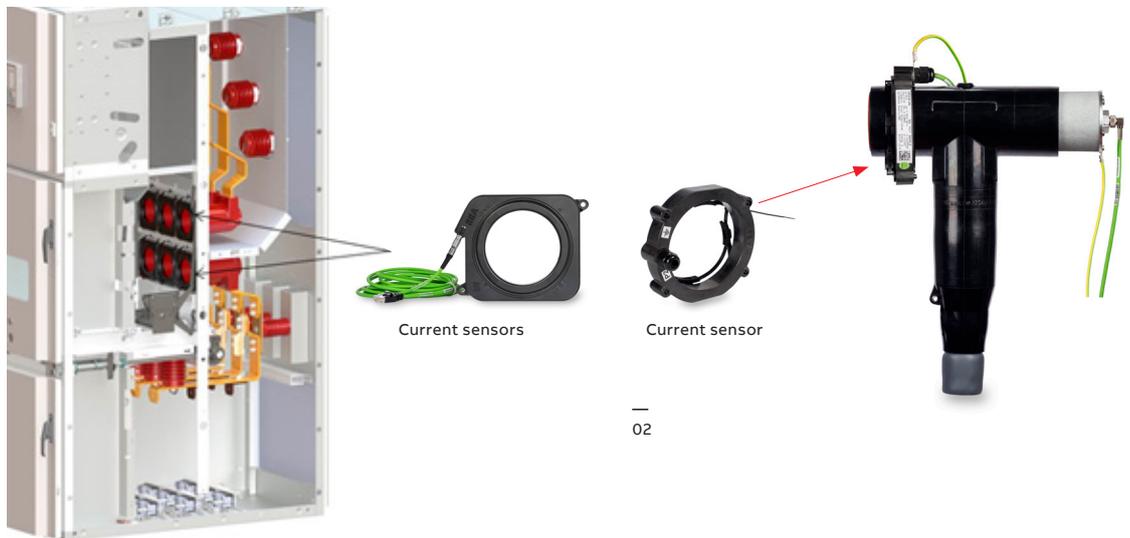
The AdvaSense™ current sensors are based on the principle of Rogowski coil. The sensor consists of an air-core winding, immune of any risk of saturation as it has no ferromagnetic core. It is linear over the whole measuring range. The output signal is a voltage, which is proportional to the derivative of the current. A digital integration of this voltage is carried out by protection relay and gives the measured current. The AdvaSense™ current sensors are suitable for both measuring and protection purposes.

Applications

- Primary and secondary air insulated switchgear
- Primary and secondary gas insulated switchgear
- Suitable for new installations as well as for retrofit purposes

Ratings

- Rated primary current of application: up to 4 000 A
- Rated short-time thermal current: up to 85 kA/3s
- Frequency: 50/60 Hz
- Accuracy class: up to 0.5/5P1060-A2



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AdvaSense™ current sensors

KECA 80 Cxxx

The current sensors type KECA 80 Cxxx are intended for use in current measurement in medium voltage air insulated switchgear type UniGear ZS1 and ZS2. For use in other application please contact ABB. Four versions of current sensors with different inner diameters in the range from 104 mm up to 260 mm enable covering wide range of applications. The KECA 80 Cxxx current sensors shall be installed over a bushing insulator, insulated cable or any other type of insulated conductor.

Applications

- Air insulated switchgear
- Rated primary current of application:
 - KECA 80 C104 up to 4 000 A
 - KECA 80 C165 up to 4 000 A
 - KECA 80 C184 up to 4 000 A
 - KECA 80 C216 up to 4 000 A
 - KECA 80 C260 up to 3 150 A

Ratings

- Highest voltage for equipment: 0.72 kV
- Rated primary current: 80 A
- Cable length: 3.5, 5, 6.5 m
- Inner diameter:
 - KECA 80 C104: 104 mm
 - KECA 80 C165: 165 mm
 - KECA 80 C184: 184 mm
 - KECA 80 C216: 216 mm
 - KECA 80 C260: 260 mm



KECA 250 B1

The current sensor type KECA 250 B1 is intended for use in current measurement in medium voltage air insulated switchgear. The KECA 250 B1 current sensor shall be installed over a bushing insulator, insulated cable or any other type of insulated conductor.

Applications

- Air insulated switchgear
- Rated primary current of application: up to 4 000 A

Ratings

- Highest voltage for equipment: 0.72 kV
- Rated primary current: 250 A
- Cable length: 5 m
- Inner diameter: 69 mm



KECA 80 C85

The current sensor type KECA 80 C85 is intended for use in current measurement in medium voltage gas insulated switchgear. The KECA 80 C85 current sensor shall be installed over a bushing insulator, insulated cable, insulated & shielded cable connectors or any other type of insulated conductor. The current sensor is equipped with a clamping system which provides easy and fast installation and therefore makes the sensor suitable for retrofit purposes.

Applications

- Gas insulated switchgear
- Suitable for new installations as well as for retrofit purposes
- Rated primary current of application: up to 4 000 A

Ratings

- Highest voltage for equipment: 0.72 kV
- Rated primary current: 80 A
- Cable lengths: 2.2, 3.4, 3.6, 5 m
- Inner diameter: 85 mm



KECA 80 D85

The current sensor type KECA 80 D85 is intended for use in current measurement in medium voltage air and gas insulated switchgear. The KECA 80 D85 current sensor shall be installed over a bushing insulator, insulated cable, insulated & shielded cable connectors or any other type of insulated conductor. The current sensor is split core type which provides easy and fast installation and therefore makes the sensor suitable for retrofit purposes.

Applications

- Air and gas insulated switchgear
- Suitable for new installations as well as for retrofit purposes
- Rated primary current of application: up to 4 000 A

Ratings

- Highest voltage for equipment: 0.72 kV
- Rated primary current: 80 A
- Cable length: 5 m
- Inner diameter: up to 85 mm



AdvaSense™ voltage sensors

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01 Voltage sensors installed in air insulated switchgear (UniGear ZS1 Digital)

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02 Voltage sensor installed on cable connector

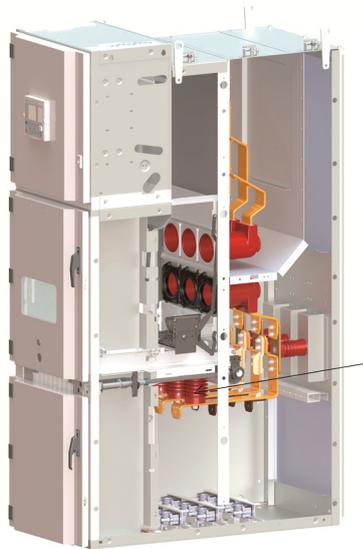
The AdvaSense™ voltage sensors are based on resistive or capacitive dividers. These sensors are non-saturable and linear over the whole measuring range. The output signal is a voltage, which is proportional to the primary voltage. The AdvaSense™ voltage sensors are suitable for both measuring and protection purposes.

Applications

- Primary and secondary air insulated switchgear
- Primary and secondary gas insulated switchgear
- Suitable for new installations as well as for retrofit purposes

Ratings

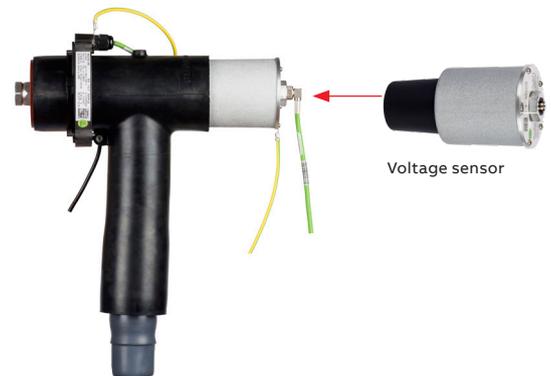
- Rated primary voltage of application: up to 48 kV
- Frequency: 50/60 Hz
- Accuracy class: 0.5/3P



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Voltage sensors



Voltage sensor

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KEVA B

The voltage sensors type KEVA B are intended for use in voltage measurement in air insulated switchgear. The voltage sensors KEVA B have been designed to be used as a post insulator but can be used as a stand-alone unit as well.

Applications

- Air insulated switchgear
- Suitable for new installations as well as for retrofit purposes
- Rated primary voltage of application: up to 48 kV

Ratings

- Highest voltage for equipment: up to 48 kV
- Rated primary voltage: $15/\sqrt{3}$, $22/\sqrt{3}$, $33/\sqrt{3}$, $34.5/\sqrt{3}$, $45/\sqrt{3}$
- Cable length: 5.5, 7, 9.9 m



KEVA C

The voltage sensors type KEVA C are intended for use in voltage measurement in gas insulated medium voltage switchgear. The voltage sensors are designed as easy replacement of originally used insulating plugs in the cable connectors. Due to their compact size and optimized design sensors can be used for retrofit purposes as well as in new installations.

Applications

- Gas insulated switchgear
- Suitable for new installations as well as for retrofit purposes
- Rated primary voltage of application: up to 40.5 kV
- Compatible with cable connectors from Nexans-Euromold; NKT (ABB) Kabeldon; TE connectivity-Raychem; Cellpack; Südkabel and Prysmian.
- Compatible with ABB IEDs (ratio 10 000:1) same as 3rd party IEDs (secondary output 3.25V)

Ratings

- Highest voltage for equipment: up to 40.5 kV
- Secondary output:
 - 10 000:1 for ABB IEDs
 - 3.25V for 3rd party IEDs
- Cable lengths: 2.5; 5; 8; 10 m



AdvaSense™ combined sensors

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01 Combined sensors installed in air insulated switchgear (UniSec)

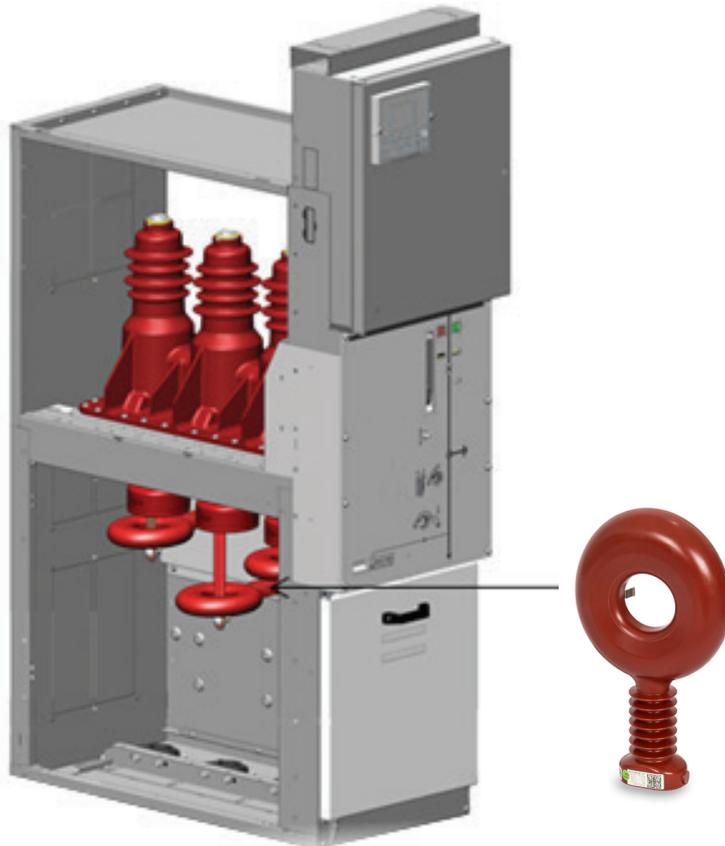
AdvaSense™ combined sensors integrate current and voltage measurements into one compact device. The current measurement is based on the principle of Rogowski coil. The voltage measurements are based on resistive or capacitive dividers. These sensors are non-saturable and linear over the whole measuring range. The AdvaSense™ combined sensors are suitable for both measuring and protection purposes.

Applications

- Primary and secondary air insulated switchgear
- Secondary gas insulated switchgear
- Suitable for new installations

Ratings

- Rated primary current of application: up to 3 200 A
- Rated primary voltage of application: up to 40.5 kV
- Frequency: 50/60 Hz
- Current accuracy class: up to 0.5/5P630
- Voltage accuracy class: up to 0.5/3P



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KEVCR

The combined sensor type KEVCR 24 BA2 is intended for use in current and voltage measurements in air insulated switchgear. Small size and optimized design enable easy integration into air insulated switchgear.

Applications

- Air insulated switchgear
- Rated primary current of application: up to 2 000 A
- Rated primary voltage of application: up to 24 kV

Ratings

- Highest voltage for equipment: 42 kV
- Rated primary current: 500 A
- Rated primary voltage: $22/\sqrt{3}$
- Cable length: 3.2 m



KEVCY

The combined sensors type KEVCY are intended for use in current and voltage measurements in gas insulated switchgear. KEVCY are compact and very small sensors designed to be used as bushing.

Applications

- Gas insulated switchgear
- Rated primary current of application: up to 630 A
- Rated primary voltage of application: up to 40.5 kV

Ratings

- Highest voltage for equipment: up to 40.5 kV
- Rated primary current: 80 A
- Rated primary voltages: $22/\sqrt{3}$, $33/\sqrt{3}$, $35/\sqrt{3}$
- Cable length: 2.2 m



KEVCD

The combined sensors type KEVCD are intended for use in current and voltage measurements in air insulated switchgear. KEVCD are block type sensors designed according to the DIN 42600 size requirements.

Applications

- Air insulated switchgear
- Rated primary current of application: up to 3 200 A
- Rated primary voltage of application: up to 24 kV

Ratings

- Highest voltage for equipment: up to 24 kV
- Rated primary currents: 80 or 1 600 A
- Rated primary voltages: $11/\sqrt{3}$, $15/\sqrt{3}$, $22/\sqrt{3}$
- Cable lengths: 5, 6.5, 7.5 m





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