

MEDIUM VOLTAGE PRODUCT

AdvaSense™ Current Sensors KECA 80 C184; KECA 80 C216

Instructions for installation, use and
maintenance



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AdvaSense™ KECA 80 C184 and KECA 80 C216 Current Sensors

Instructions for installation, use and maintenance

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01 Example of rating plate (label)

1. Operating Conditions

The AdvaSense™ sensor should be mounted in dry, indoor conditions without excess ingress of dust and corrosive gases. The sensor shall be protected against unusually heavy deposits of dust or similar pollution, as well as against direct sunshine. The sensor is designed for standard ambient temperature between -25°C and +80°C (storage and transportation temperature between -40°C and +80°C). The altitude for mounting should be lower than 1000 m above sea level.

The sensor may also be used at higher altitudes when agreed upon with the manufacturer.

The current sensors type KECA 80 C184 and KECA 80 C216 are intended for use in current measurement in medium voltage switchgear. The sensors are intended to be used in factory installation if there will be requirement for current measurement. The cases of sensors are made from plastic, the internal parts are shielded and this shielding is earthed. The primary conductor shall be insulated for the application voltage. The insulation of primary conductor determines the highest permissible system voltage.

2. Technical Details

Technical details for each individual current sensor are mentioned on the rating plate placed on the sensor surface. Values mentioned on the rating plate shall not be exceeded.

KECA 80 C216 Low-power passive current tr.
Ipr: 80 A Kpcr: 50 derivative cl: 0.5-A2/5P 85kA
U_{sr}: 0.15/0.18 V 0.72/3-/1/0.82 kV -30/80 °C E
CFI: 1.0020 φ₀ cor: +0.0030° fr: 50/60 Hz
I_{th}/I_{dyn}: 85(3s)/230 kA IEC 61869-10 24 MAY 2019
0.95 kg Made by ABB S/N 1VLT5419001588



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01

KECA 80 C184	Sensor type code
S/N	Serial number
I _{pr}	Rated primary current in A
U _{sr}	Rated secondary voltage in V corresponding to a given rated frequency in Hz
cl	Rated accuracy class
K _{pcr}	Rated extended primary current factor
C _{fs}	Correction factors for current sensor. Correction factors are measured and calculated separately for each sensor. Values are given separately for amplitude (aI) and phase (pI), it is the number by which the output of sensor shall be multiplied.
fr	Rated frequency in Hz
I _{th} /I _{dyn}	Rated short-time (3s) thermal current in kA and rated dynamic current in kA (peak)
IEC 61869-10	IEC – standards referred to
24 MAY 2019	Date of manufacturing

Tab. 1. Labels abbreviation definitions

02 Example of data stored in 2D Bar Code

POSITION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
DATA	K	E	C	A	8	0	C	1	8	4							S	/	N	
POSITION	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
DATA	1	V	L	T	5	4	1	9	0	0	1	5	8	7					2	4
POSITION	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	
DATA	O	C	T	2	0	2	0			C	F	:							1	0
POSITION	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75		
DATA	0	2	0		F	o	c	o	r	:		+ 0		.	0	0	3	0		

03 Example of Amplitude (aI) and Phase error (pI) correction factors setting for current sensor into REF615

02

04 Installation of current sensor KECA 80 C184 / KECA 80 C216 to the SWG monoblock



05 Fasten the sensor KECA 80 C184 / KECA 80 C216 by nuts, screwed by moment 0.15 - 0.20 Nm

06 Connector RJ45

07a Connector RJ45 (IEC 60044-8)

07b Connector RJ45 (IEC 61869-10)

Group/Parameter Name	IED Value	PC Value	Unit	Min	Max
Analog inputs					
Current(3LCT) 1					
Current(3LCT)					
Primary current		80,0	A	1,0	6000,0
Amplitude Corr A		1,0200		0,9000	1,1000
Amplitude Corr B		1,0200		0,9000	1,1000
Amplitude Corr C		1,0200		0,9000	1,1000
Normal current		80	A	39	4000
Rated secondary Val		3,000	mV/Hz	1,000	50,000
Angle Corr A		0,0030	deg	-20,0000	20,0000
Angle Corr B		0,0030	deg	-20,0000	20,0000
Angle Corr C		0,0030	deg	-20,0000	20,0000

03

3. Instructions for Installation

Mounting

The sensor placement is around the internal spout inside the SWG's monoblock and softly pushed onto four isolative screws (see Fig. 4). Fixation glue is applied on the end of the thread and then the sensor is fastened by four plastic closed nuts and tightened by 0.15 – 0.20 Nm (see Fig. 5.).



04



05

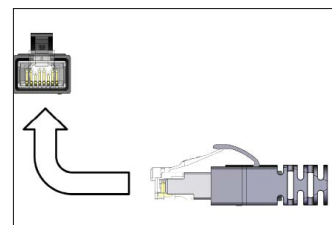
Secondary connections

The secondary cable is a special shielded cable designed to give maximum EMI shielding. The cable is separable part of

each sensor and cannot be changed or withdrawn due to the guarantee of accuracy and performance of the sensor. The cable shall be connected directly (or via a connector adapter if needed) to Intelligent Electronic Device (e.g. protection relay). The electrical shielding of cable is connected to connector shielding and shall be earthed on IED side. The cable shall be fixed close to metal wall or inserted inside of metal cable tray far from power cables! The maximal bending radius for the cable is 7.5x cable diameter. The cable cannot be moved if the temperature is below 0°C. If cable, connector or connector grommet is damaged please contact the manufacturer for instructions.

Connection to the IED

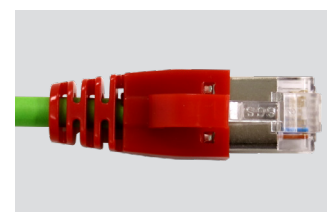
The sensor cable is terminated by shielded RJ-45 plug connector (EIA/TIA 568A Standard) that shall be connected to the inputs of the IED. The sensor plug connector pin's assignment is shown on Fig. 8/Fig. 9. (Front view).



06



07a



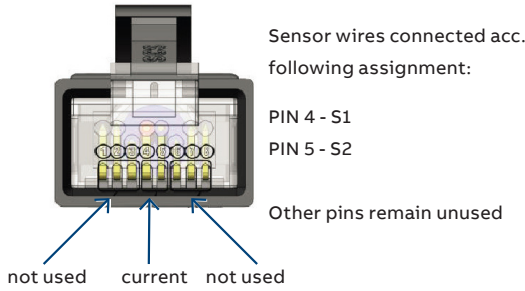
07b

Note: It is recommended to use a cable tie to fasten long sensor cables approximately 10 cm from the RJ-45 socket.

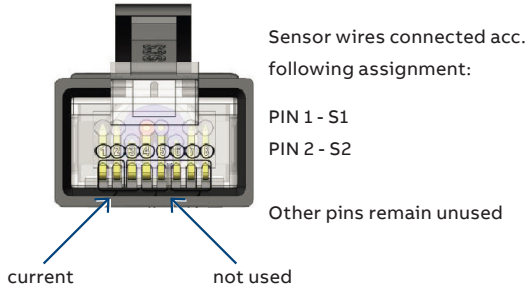
—
08 KECA 80 Cxxx sensor
plug connector pin's as-
signment (IEC 60044-8)

—
09 KECA 80 Cxxx sensor
plug connector pin's as-
signment (IEC 61869-10)

—
10
LEMO/ODU connector



—
08



—
09

A cable not connected to the IED can be left open or short-circuited without any harm for the sensor. Even during a primary short-circuit the voltage in the secondary circuit of the current sensor will be below 100 V. Nevertheless it is a good safety practice to earth cables not connected to the IED.

RJ-45 plug connector has 8 contacts and locking latch coupling. The sensor connector plug shall be inserted properly with the IED matting receptacle before completing the coupling with the bayonet lock. Take care and do not use excessive force to plug-in and plug-out these connectors.

The used RJ-45-type connectors (EIA/TIA 568A Standard) are screened and designed to guarantee low resistance shielding; they are particularly adapted to applications where electromagnetic compatibility (EMC) is important. The connectors are robust but it is necessary to be careful during their assembly – do not use force!

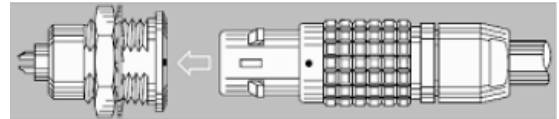
Connection to the sensor

The connection between cable and sensor is provided by LEMO/ODU push-pull type connector, see Fig. 10.



Female part
(casted)

Male part
(on cable)



—
10

4. Instructions for Use

The current sensors are used:

- To convert large currents in the primary circuit of the network to the appropriate signal for the secondary equipment (e.g. IEDs)
- To insulate primary and secondary circuits from each other
- To protect secondary equipment from harmful effects or large currents during abnormal situations in the network

The use of a sensor for other purposes than those described above is forbidden.

Routine test report

The routine test report includes following tests:

- Verification of terminal marking
- Power-frequency withstand test on secondary circuits (see Note 1)
- Test for accuracy

Correction factors are measured separately for each sensor during routine testing and are marked on the rating plate. The use of correction factors is required condition in order to achieve the declared accuracy class.

Note 1: The maximum power-frequency test voltage for current sensor secondary terminals (connector) is 0.5 kV. Test voltage can be connected between short-circuits signal wires and the earth.

5. Instructions for Maintenance

Excessive dust or other kinds of pollution must be brushed off the sensor. Polluted sensors can be cleaned with spirit, petrol or toluene. Otherwise, during normal use the sensors do not need any additional maintenance.

6. Transport and Storage

The permissible transport and storage temperature for sensors is from -40 to +80°C. During transport and storage the sensors must be protected against direct sunshine. The sensors are delivered packed into wooden boxes or transport pallets.

7. Recommended Procedure for Disposal of the Sensor

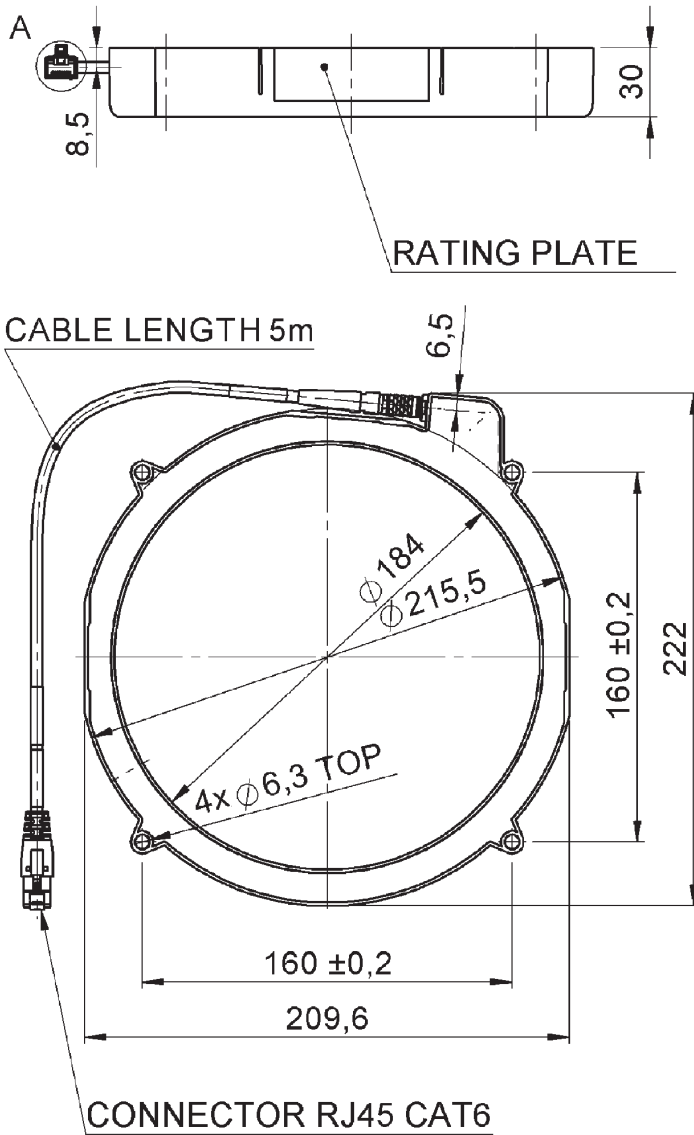
The sensor does not contain environmentally hazardous materials. For disposal of the product after it has been taken out of use, local regulations, if there are any, should be followed.

Dimensional Drawing

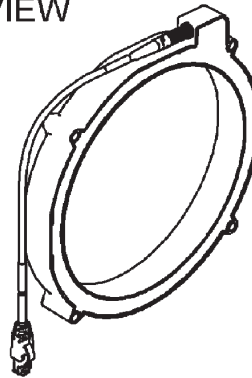
KECA 80 C184

Outline drawing number: 2RKA017253A0001

Weight: 0.65 kg



3D VIEW



CONNECTOR RJ45 CAT6
IEC 60044-8

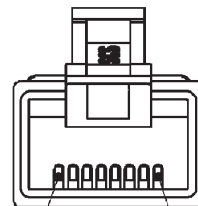


A 2 : 1

PIN 1 PIN 8

PIN 4 - COIL START (S1)
PIN 5 - COIL END (S2)

CONNECTOR RJ45 CAT6
IEC 61869-10



A 2 : 1

PIN 1 PIN 8

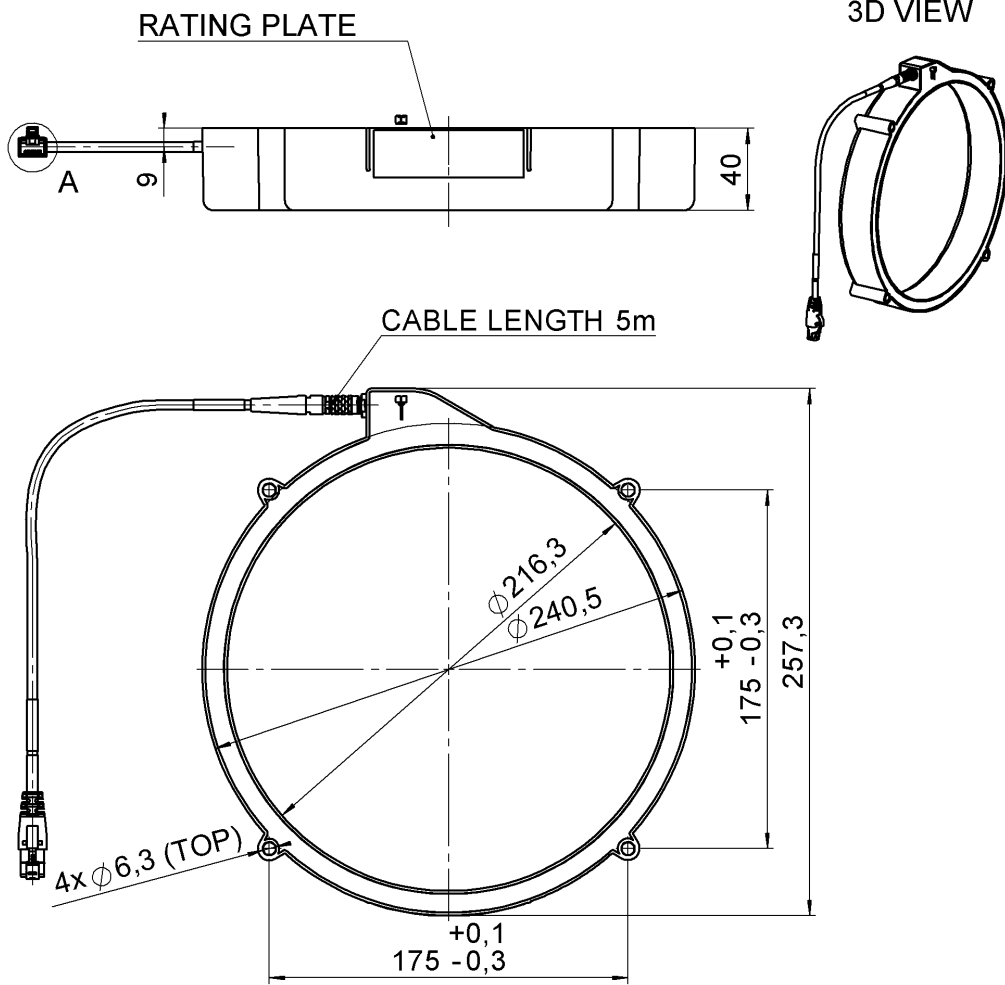
PIN 1 - COIL START (S1)
PIN 2 - COIL END (S2)

Dimensional Drawing

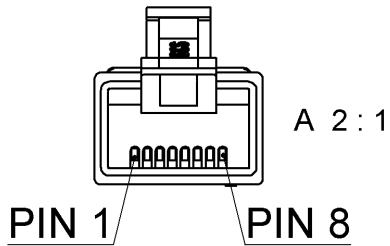
KECA 80 C216

Outline drawing number: 2RKA017322A0001

Weight: 0.95 kg

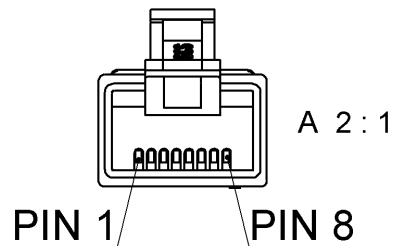


CONNECTOR RJ45 CAT6
IEC 60044-8



PIN 4 - COIL START (S1)
PIN 5 - COIL END (S2)

CONNECTOR RJ45 CAT6
IEC 61869-10



PIN 1 - COIL START (S1)
PIN 2 - COIL END (S2)

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