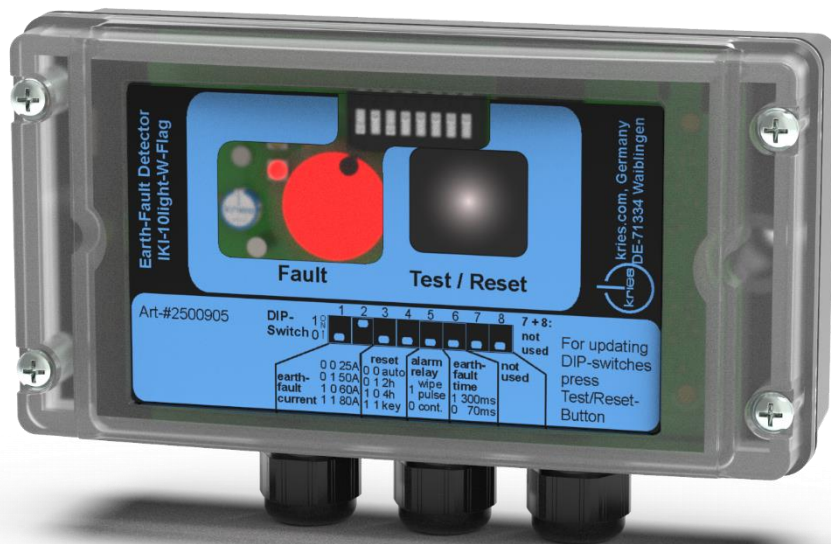


IKI-10 light



Specification and installation tips

December 12th 2019 | Update 003

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1 Legal information

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2 General Description

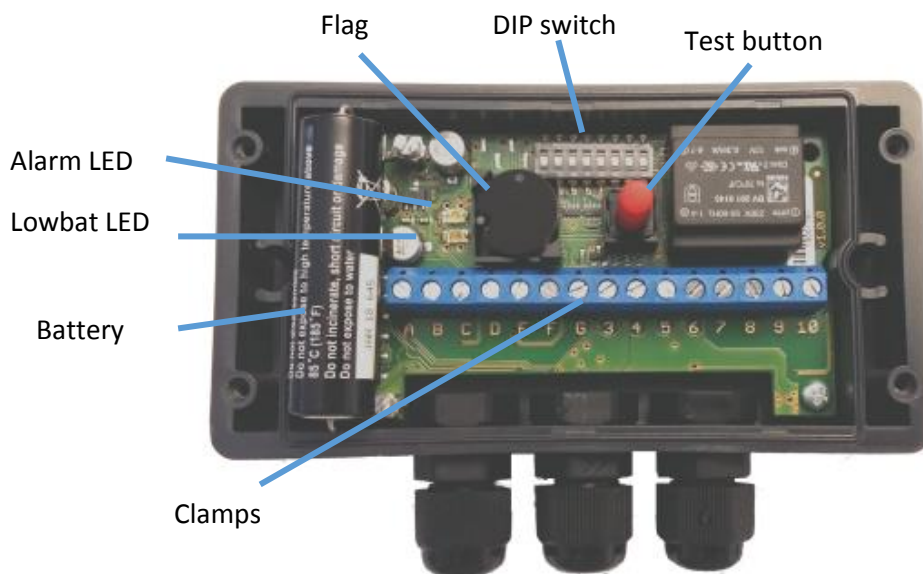
The IKI-10light serves the detection of earth-faults in high voltage networks with single or three core cables and low ohmic or shortly low ohmic earthed terminal.

There are different types of IKI-10light available:

Part number: 2500905_H1xx_Sxxx - with LED and Flag

Part number: 2500905_H2xx_Sxxx - with LED, Flag and Low battery indication

Parts of the IKI-10light-W-R2



3 Installation precautions and START-UP

Due to electrostatic charging, there is danger in high electrostatic voltages which may result in the malfunction of the device. You should therefore discharge yourself e.g. by touching of an earthed conductor, before you start to open the device.

The connection of the IKI-10light to the 100...240VAC auxiliary voltage and to the balanced core CT is only allowed if power supply and high voltage is switched off. During installation the five rules of security have to be followed! The danger of reverse voltage in high voltage networks has to be considered if voltage tests are performed.

Balanced core CT which are not connected must be short-circuited (danger of electric shock due to touching of the sensor wires). The CT may only be mounted on high voltage cables, if they are safe from contact. During installation of cabling and CT the minimum clearance to the high voltage may not be violated. Only CTs, which are released by the manufacturer, may be used. Both mounting holes at the backside of wall-mountable

type housing have to be sealed separately during mounting process of IKI-10light. Non-used cable entry points have to be sealed too.

The preset pick-up current is 80 A. In cable networks it is recommended not to reduce this value to avoid erroneous indication due to capacitive currents arising during switching and earth-fault ignition.

4 Connection of the balanced core CT

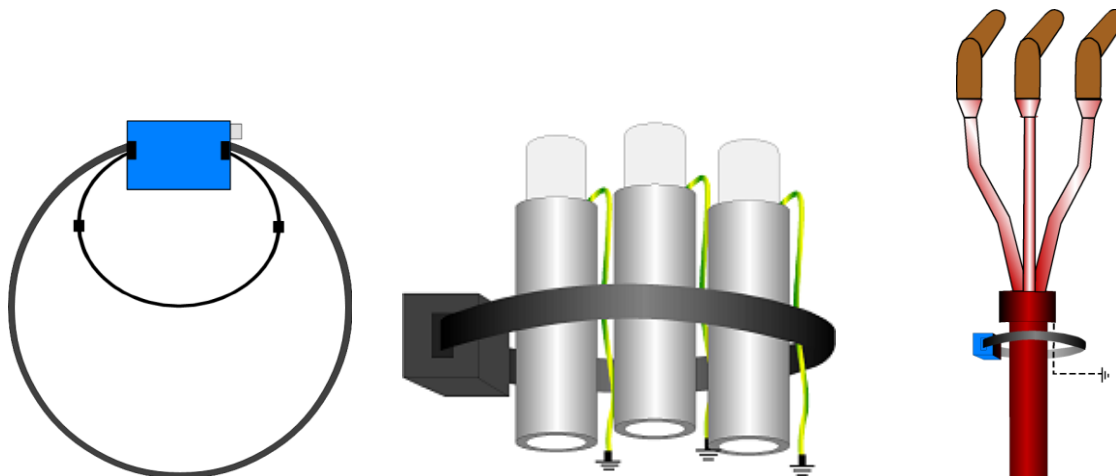
The CT is mounted around the three single cores or the cable-triple of the high voltage cable. The CT has to be fixed against the cable with the cable ties.

To guarantee correct measurement it is required to lead current-leading cable-shields of single-core cables back through the balanced core CT again so that only the primary cable current will be measured.

Balanced Core CT

on single core cable

on three core cable



The insulated shields must be led back through the split-core of the CT, i.e. it must not have contact with mass potential before it is fed back.

5 Power supply

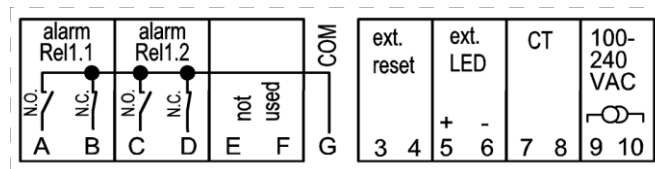
The IKI-10light is a self powered device with a lithium-battery on board. Additional a supply-voltage can be installed (100..240 VAC, 50..60Hz) and also used for reset-purpose (see item 7.2). The expected life-time of the battery is at least 10 years if the device is not powered by additional AC-power supply and at least 25 years if the device is powered by additional AC-power supply. If the additional power supply is installed the battery is only used during power loss.

6 Clamp terminal

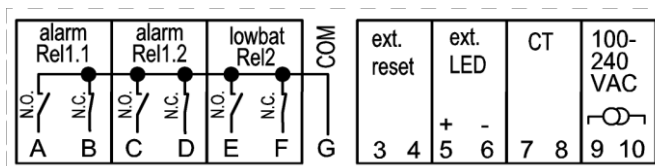
The connection of the clamp terminal is shown below.

Clamp A and G:	Alarm-relay1.1 contact normally open NO
Clamp B and G:	Alarm-relay1.1 contact normally closed NC
Clamp C and G:	Alarm-relay1.2 contact normally open NO
Clamp D and G:	Alarm-relay1.2 contact normally closed NC
Clamp E and G:	Lowbat2 contact normally open NO, optional
Clamp F and G:	Lowbat2 contact normally closed NC, optional
Clamp 3 and 4:	External Reset
Clamp 5 and 6:	External LED
Clamp 7 and 8:	Input for balanced core CT, no polarity of the CT
Clamp 9 and 10:	Auxiliary voltage input 100...240 VAC, 50...60Hz

Standard: 2500905_H1xx_Sxxx

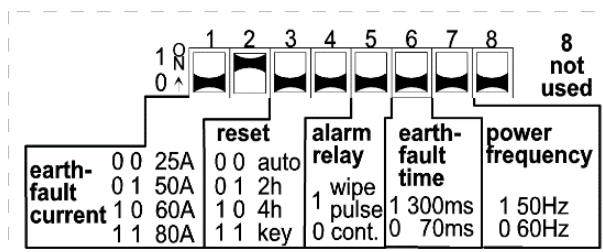


Low battery: 2500905_H2xx_Sxxx

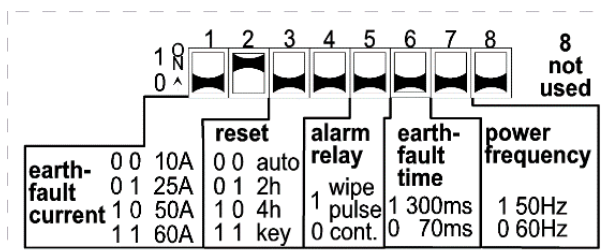


7 Setting and function of the DIP switches

2500905_H1xx_S001
2500905_H2xx_S001



2500905_H1xx_S002
2500905_H2xx_S002



The arrangement and the function of the DIP switches is shown above. In the upper position the DIP switches are ON (position 1). The black symbols in the figure depict the position of the switch lever.

The DIP switches are located on the circuit board. For adjusting the DIP switches the housing must be opened. **The new settings are applied after pressing the Test / Reset button.**

7.1 Earth-fault pick-up current and over-current duration

The pick-up current can be adjusted using the DIP switches 1 and 2. If the measured current is higher than the adjusted pick-up value for a period longer than earth-fault time earth-fault alarm is activated. The earth-fault time can be adjusted using the DIP switch 6.

7.2 Reset of alarm

If the reset button is pressed, an alarm event can always be reset independent of the settings of the device. If a reset is performed, the alarm relay is also reset. Using DIP switches 3, 4 an additional reset mode is selectable:

- | | |
|---------------|--|
| auto: | If an earth-fault is detected it will be displayed. After 10s the IKI-10light checks for the presence of the auxiliary supply 100...240 VAC. If the auxiliary supply is present, the alarm event will be reset. If the auxiliary supply is not present, the alarm event will be reset as soon as the auxiliary supply is available again.
If the alarm is not reset by the auxiliary supply (e.g. if aux. supply is not installed or fuses are damaged) IKI-10light will be reset after 4h to avoid useless discharging of battery by endless LED-blinking. |
| 2h: | If an earth-fault is detected, it will be displayed and an internal countdown timer will be started. After 2h the alarm event will be reset. The timer is restarted by any additional earth-fault that occurs in the meantime. |
| 4h: | If an earth-fault is detected, it will be displayed and an internal countdown timer will be started. After 4h the alarm event will be reset. The timer is restarted by any additional earth-fault that occurs in the meantime. |
| Reset button: | If the reset key is pressed an earth-fault alarm event is reset. |

7.3 Alarm relay

If an earth-fault is detected, the alarm relay is energized. The potential-free contacts (NO clamp A-G + C-G and NC clamp B-G + D-G) of the alarm relay are activated simultaneously.

The alarm relay-function can be programmed by DIP-switch 5 either as continuous or wiping contact. In case of an earth-fault and selection of continuous contact the contacts are activated and remain in their activated position until the alarm is reset. If wiping

contact is selected, the contacts are reset after 3s. During an alarm simulation the alarm relays are activated.

7.4 Remote reset

By connecting a dry contact¹ (NO) (activation for minimum 2s) to the reset-input (clamps 3-4) alarms can be reset. Remark: If the reset input is always activated (free contact closed), occurring faults will be ignored!

7.5 Power frequency

For selection of power frequency (50/60 Hz) use DIP7.

7.6 Low battery indication – 2500905_H2xx_Sxxx

The low battery indication is an optional feature. If the device was ordered with low battery indication, the voltage of the battery will be monitored and a relay contact for low battery indication is available on clamp E-G and F-G.

If the battery voltage drops below a critical value, the “lowbat” relay is energized. The potential-free contacts (NO clamp E-G and NC clamp F-G) of the lowbat relay are activated simultaneously. The yellow Lowbat-LED starts to blinking. This signals that the battery should be replaced shortly. The remaning lifetime of the battery is up to approximately 500h.

8 Alarm simulation

To check the wiring of the alarm relay and the alarm indication, the device can be switched into alarm mode by pressing the reset button for a period of 5s. All relay contacts are activated and the alarm relay simulation is signaled by the LED. During the alarm relay simulation all internal measurement systems are switched off. To re-enter the standby mode, the simulation has to be stopped by pressing the reset button at least 1s. The simulation will be stopped automatically after 2h if no reset is performed.

9 Technical Data

Earth-fault threshold current	Adjustable by DIP switches #1 and #2 on the circuit-board (25A, 50A, 60A, 80A) for _S001 (10A, 25A, 50A, 60A) for _S002
Accuracy	15 %

¹ It is not allowed to connect other devices than dry contacts to the reset-input. If the leads are conducted nearby other leads with fast or high current changes, a shielded cable has to be used. The shield has to be connected to clamp 4.

Power frequency	Adjustable by DIP-switch # 7: 50Hz and 60Hz
Over-current duration	Adjustable by DIP-switch # 6: 70ms, 300ms for _S001 and _S002
Reset	By reset-button or external dry contact (normally open) connected at terminals 3-4 (see 7.4). Additional features selectable by the user: reset after 2h / 4h or if the auxiliary supply is present (see 7.2).
Alarm transmission	simultaneously switching potential-free relay contacts, 2x NC, 2x NO with a common root function programmable by DIP-switch # 5: continuous contacts or wiping contacts $U_{max} = 110V_{dc}, 125V_{ac}$ $I_{max} = 1A, 30VA (62W \text{ ohmic})$
Power supply	Lithium-battery, life-time at least 10 years Optional external aux.-supply at clamps 9,10: 100...240VAC, 50/60Hz
Degree of protection	IP 65
Housing	Wall-mountable plastic housing;
Dimensions	See figure below
Ambient temperature	-25°C...+75°C
Balanced core CT	See additional information

Dimensions:

