IKI-50_2F R2e 1%

Universal Fault Indicator for intelligent distribution network stations

The universal fault indicator **IKI-50 R2e** is the appropriate solution for intelligent distribution substations and offers distribution system operators a high level of transparency and cost-effectiveness. The **IKI-50 R2e** includes all algorithms for selective fault detection. It is suitable for all neutral point treatments. Information on faults, load curves or limit violations is thus available on site as well as in the central network control center. Faults can be detected and localized immediately. The **IKI-50_2F R2e 1%** monitors two feeders. Its two inputs for voltage measurement are designed for ohmic sensors and allow precise measurement with a maximum measurement deviation of 1%.

Properties

Fault detection

- Directional short-circuit detection
- Directional ground short-circuit detection, directional static ground fault detection (wattmetric method), directional transient ground fault detection (wiper method), earth fault detection via pulse locating
- Suitable for all neutral point treatments
- No summing transformer required

Fault early detection

- Fault early detection by detection of transient disturbances
- Partial discharge trend detection together with CAPDIS-S2_55 (R5)

Load flow measurement

- Voltages, Currents, powers, frequencies, cos-phi, . ."
- Momentary and average values
- Limit monitoring

Network automation

- Extensive logic functions freely programmable with PC software KriesConfig

IKI-50 R2e is maintenance-free

- No battery
- Unlimited data retention
- Fault indication in case of power failure over 6 hours

Kries-Energietechnik GmbH & Co. KG
Sandwiesenstr. 19 | D-71334 Waiblingen
kries.com | service@kries.com | +49 7151 96932 0

.

Technical Data

Device data

Article number	2502487
Product designation	IKI-50_2F R2e 1% Universal fault indicator for intelligent distribution substations | 2 feeder version | Ohmic voltage inputs
Number of feeders	2
Parameterization software	KriesConfig
Configuration	Via software Kries-Config (download at kries.com), Via HMI and display (limited)

Operating elements and display

Front display	LC-Display and LEDs
Direction keys	Operation via four direction keys
Red LED (1)	Error event detected | internal energy storage empty
Yellow LED (2)	Slave test | Primary test | Device warnings
Dreen LED (3)	Status message device status
Two feeder monitoring	✓
Buffer of power supply	Capacitor (6h)

Dimensions and installation instructions

Case height x width x depth	49 x 96 x 108 mm
Cutout height x width	45 x 92 mm
Norm cutout dimensions	DIN IEC 61554:2002-08
Installation type	Panel mounting
Sheet thickness	1.5 ... 2.5 mm

Operating conditions

Operating temperature	-25°C ... 55°C
Storage temperature	-25°C ... 70°C
Humidity	max. 95 % relative Feuchte bei 40° C
Protection class	IP54 (Front)

Fault detection and failure forecast

Fault detection	Individually selectable, any combinations possible
Star point types	Short-term low-ohmic terminated neutral, Low-ohmic terminated neutral, Inductive terminated neutral, Isolated neutral
Short circuit detection I>>	✓
Directional short-circuit detection I>>	✓
Threshold current short-circuit detection I>>	100 A ... 1,000 A (adjustable in steps)
Threshold time short-circuit detection I>>	40 ms ... 1,600 ms (adjustable in steps)
Earth short-circuit detection Ie>>	✓
Directional earth short-circuit detection Ie>>	✓
Threshold current earth short-circuit detection Ie>>	40 A ... 1,000 A (adjustable in steps)
Threshold time earth short-circuit detection Ie>>	40 ms ... 1,600 ms (adjustable in steps)
Directional static earth fault detection Ie>;	✓
Threshold current static earth fault detection Ie>	2 A ... 30 A (adjustable in steps)
Directional transient earth fault detection Ie>	✓
Threshold current transient earth fault detection 3I0	1 A ... 1,000 A (freely adjustable)
Threshold voltage transient earth fault detection 3U0	1 kV ... 300 kV (freely adjustable)
Earth fault detection via pulse locating	✓
Pulse length of pulse locating	symmetrical / asymmetrical
Transient fault detection IIe>	✓
TE trend monitoring	• in connection with CAPDIS-S2_55 (R5) • Indication on display, transmission via Modbus-RTU • Partial discharge trend via frequency distribution; integration over 24h, trend over 72h
Fault reset	Auto, Manually on the device, After time (1 h ... 8 h, configurable)
Event log	The last 20 fault events are stored with event number, date, time, name of the triggering fault detection, fault direction, phase and fault current value.
Earth fault transient detection	✓
Directional earth short-circuit detection	✓

Interfaces and communication

USB interface	Mini-USB
Modbus-RTU	✓
Modbus-RTU Slave	✓
Modbus transmission rates [kBd]	9600, 19200, 38400, 57600, 115200
Slave test	✓

Interfaces and communication

Digital Inputs	4
Potential-free digital inputs	4
Digital Outputs	4
Connection cable cross section	Max. 2,5 mm
Switching capacity relay	AC: max. 62,5 VA max. 2A; max. 250 VAC DC: max. 2A @ 40 VDC
Relay outputs	4
Voltage inputs	2 (Precise voltage measurement with ohmic sensors)
Current transformer	6

Measurement values and functions

Voltage measurement	✓
Measuring range voltage	Ohmic
Phase-to-ground voltages	✓
Phase to phase voltages	✓
Measuring range voltage	0.02 kV ... 92 kV | Start of voltage measuring range: 2% of Un
Precision voltage measurement	Yes
Cross calibration	-
Current measurement	✓
Measuring range current	0.5 A ... 1,158 A (with current transformer IKI-LUM)
Zero-sequence current	✓
Conductor currents	✓
Active power	✓
Reactive power	✓
Apparent power	✓
Rotary field detection	✓
Frequency measurement	✓
Mean value determination	✓
Min-max value determination	✓
Phase position	✓
Phase shift cos-phi	✓
Limit value monitoring	Voltage, current, frequency, reactive power and voltage
Logic functions programmable	A total of 32 logic rules can be programmed.

Power supply	
Auxiliary power supply	24...230 VAC/DC (jeweils 15 %)
Power consumption	2 W
Insulation voltage	2 kV, 1 min
CT-supplied	-
Capacitor buffer	✓
Display buffer for fault indication	Unlimited data retention (independent of auxiliary power and buffer power); Error display after power failure (depending on adjustable follow-up time): • with overrun time 12 seconds: 6 hours • with run-on time 60 seconds: 4.5 hours

Compatible current transformers

Article number	Product designation
2512106_H001	IKI-LUM_d92 Split-Core Transducer with cable tie (set) | Ø 92mm
2512106_H003	IKI-LUM_d92 Split-Core Transducer for C-Cone-Bushings (set) | Ø 92mm
2512106_H004	IKI-LUM_d92 Split-Core Transducer for SIEMENS-Bushings (set) | Ø 92mm

Connecting cables CTs

Article number	Product designation
3503118_S	Connecting cable set | pluggable | Length = 3,0m
3503135_S	Connecting cable set | pluggable | Length = 5,0m
3503135_S999	Connecting cable set | pluggable | Lengths on request

Accessories

Article number	Product designation
2500486_H001	Connecting cable IKI-OAS; length = 400 mm flat plug - system plug Double flat plug sleeve
2509392	Coaxial cable| RG62 | l=2m | BNC-plug
2509395	Coaxial cable | RG62 | l=6m | BNC-plug
2502112	Y-Cable with screen and 200 kOhm burden

Article number	Product designation
2502112_H001	Y-Cable with screen

Wiring diagram