is now part of

KRIES IKI-55

ADVANCED SUBSTATION CONTROL UNIT FOR UNDERGROUND NETWORKS UP TO 52 kV

RETROFIT YOUR INSTALLATION INTO A SMART GRID AND IMPROVE GRID RELIABILITY WITH COST-EFFECTIVE SOLUTIONS

APPLICATIONS

- Underground power grids
- Medium voltage switchgears
- Smart grid systems

RELEVANT STANDARDS AND TEST REPORTS

- IEEE 495
- EN 60529, EN 61000
- IEC 61010

KEY FEATURES

- Power load monitoring
- Enables fault detection, reducing downtime (SAIDI)
- Remote control and network automation
- Maintenance-free
- Partial discharge detection with CAPDIS-S2_55
- Wide range of communication protocols (Modbus, MQTT, REST and IEC 104)

The TE Connectivity (TE) Kries IKI-55 substation control unit is the advanced upgrade of the IKI-50, designed specifically for secondary substation applications ranging from 3 to 52 kV

The IKI-55 is an intelligent solution that addresses the evolving challenges of decentralized energy supply, and the increasing demands for power availability and quality in distribution networks. It provides unparalleled transparency, onsite or remotely, through a SCADA integration system, and is compatible with a wide range of communication protocols - ensuring seamless integration with various systems.

It can operate as a Modbus master providing robust control and monitoring capabilities. In addition to monitoring grid parameters such as voltage, current and power, the IKI-55 also supports power quality (PQ) and disturbance monitoring, enhancing overall grid transparency and reliability.

The IKI-55 allows the network owner to interact with a switchgear from a control center. It also allows to set an automatic switch in the case of unplanned outages or for maintenance, from one power feeder to another during unplanned outages or maintenance activities, thereby reducing operational costs and improving grid reliability.

It also ensures a continuous and reliable power supply through detailed, real-time data and robust fault management-elevating the efficiency and reliability of energy distribution networks.

TECHNICAL DATA

Device data	
Number of feeders	1
Configuration	Via HMI and display (limited), using software Kries-Config (download at kries.com)

Operating elements and display	
Front display	LC-Display and LEDs
Direction keys	1 - 4 for navigation in menu
Red LED (1)	Error event detected
Yellow LED (2)	Device warnings
Green LED (3)	Status message device state
Yellow LED (4)	Fault detected in the direction of the busbar
Red LED (4)	Error event detected in the direction of the cable

Dimensions and installation instructions	
Case height x width x depth	48 x 96 x 110 mm
Cutout height x width	45 x 92 mm
Norm cutout dimensions	DIN IEC 61554:2002-08
Installation type	Panel mounting

Operating conditions	
Operating temperature	-40°C to +70°C / -40°F to 158°F
Storage temperature	-40°C to +80°C / -40°F to 176°F
Protection class front side	IP 54
Protection class	IP 40 / Front IP 54
System frequency	50 Hz / 60 Hz (selectable)

Fault detection and failure forecast	
Fault detection	Individually selectable, any combination 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>>	50 A to 1000 A
Threshold time short-circuit detection I>>	40 ms to 5 s
Earth short-circuit detection Ie>>	✓
Directional earth short-circuit detection Ie>>	✓
Threshold current earth short-circuit detection Ie>>	10 A to 1000 A
Threshold time earth short-circuit detection Ie>>	40 ms to 5 s
Directional static earth fault detection Ie>;	✓
Threshold current static earth fault detection Ie>	2 A to 30 A
Threshold time static earth fault detection Ie>	200 ms to 2 s
Directional transient earth fault detection Ie>	✓
Threshold current transient earth fault detection 3I0	1 A to 1000 A
Threshold voltage transient earth fault detection 3U0	0.1 kV to 100 kV
Earth fault detection via pulse locating	✓
Pulse length of pulse locating	Symmetrical / Asymmetrical

Fault detection and failure forecast	
Transient fault detection IIe>	✓
TE trend monitoring	• In conjunction with CAPDIS-S2_55 (R5) • Indication on the display, transmission via Modbus-RTU • Partial discharge trend via frequency distribution • Integration over 24 h, trend over 72 h
Fault reset	Auto | Manually on the device | After time (1 h to 8 h, configurable)
Reset setting	Time: 1 to 8 h | manual, auto
Event log	20 events
Fault recorder	✓
Fault record - formats	Comtrade
Fault record - number	20
Fault record - recording duration	2.5 s at 50 Hz | 2.09 s at 60 Hz
Fault record - frequency	6.4 kHz at 50 Hz | 7.68kHz at 60 Hz Fault record
Fault record - pretrigger	0.31 s at 50 Hz | 0.258 s at 60 Hz
Earth fault transient detection	✓
Directional earth short-circuit detection	✓

Interfaces and transmission protocols	
USB interface	Mini-USB
Transmission protocols	Version IKI-55 M: Modbus-RTU (Slave) All other versions: MQTT, REST, IEC 60870-5-104, Modbus-RTU
Modbus-RTU	✓
Modbus RTU Master	✓
Modbus-RTU Slave	✓
Modbus transmission rates [kBd]	9600, 19200, 38400, 57600, 115200
MQTT	✓
REST API	✓
IEC 60870-5-104 Slave	✓
LAN connection	✓
Slave test	✓
Digital inputs	6
Digital inputs - switching thresholds	ON > 19 VDC / OFF < 10 VDC
Digital inputs - voltage ranges	24 DC to 60 VDC
Digital inputs - current consumption	Max. 6 mA
Digital outputs	6
Digital outputs for 1.5 pole switching	2
Digital outputs - connections	Push-in, Connection of solid and stranded conductors: 0.08 to 0.5 mm^2 Connection of stranded conductors with ferrule: 0.25 to 0.34 mm^2
Digital outputs - variants	Floating
Digital outputs - switching capacity	1 A at 30 VDC
Digital outputs - dielectric strength	Max. 80V
Voltage input input impedance	2 MOhm, 50 pF
Voltage input input range	0,4 V to 4,1 V
Voltage input measurement accuracy	1 %
Voltage input transformation ratio	10000:1 (settable)
Voltage input standard	IEC 61869-11

Interfaces and transmission protocols	
Current input version	Rogowski current sensor
Current input input impedance	10 MOhm, 50 pF
Current input measuring range	0.1 A up to 2000 A
Current input measuring accuracy	1 %, +- 0.5 A
Current input ratio	50 A / 22.5 mV (50Hz) (settable)
Current input standard	IEC 61869-10
Voltage inputs	1 (With additional adapter 2: 2x LRM/CAPDIS or 1x LRM/CAPDIS + 1x precision 3.25 V)

Measurement values and functions	
Voltage measurement	✓
Phase to ground voltages	✓
Phase to phase voltages	✓
Precision voltage measurement	✓
Current measurement	✓
Active power	✓
Reactive power	✓
Apparent power	✓
Rotary field detection	✓
Frequency measurement	✓
Limit value monitoring	Parameterizable
Logic functions programmable	A total of 32 logic rules can be programmed

Power supply	
Auxiliary power supply	24 VDC/AC +/-20%
Power input - power consumption	0.5 A
Power supply input - connections	Connection of solid and stranded conductors: 0.2 to 2.5 mm2 Connection of stranded conductors with ferrule: 0.25 to 1.5 mm2 Connection of stranded conductors with ferrule, without plastic collar: up to 2.5 mm2
CT-supplied	-

Learn more: TE.com/smartgrid

Kries is now part of TE Connectivity

Connect with us:

TE.com/energy-contact