ETEK ELECTRIC

RESIDUAL CURRENT CIRCUIT BREAKER WITH RESIDUAL DIRECT CURRENT DETECTING DEVICE(RDC-DD)

EKL6-63EV

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Thank you for choosing EK Series Residual Current Circuit Breakers. Please read this manual before installation, operation and maintenance.

OVERVIEW

Residual Current Circuit Breaker is a switch that must be used against electrical shocks occurring in the respective grid and endangering human lives or against fires resulting from the mistakes in isolation. Residual Current Circuit Breaker is produced in the following two types with its fully “electromechanical” operating principle:

- Life Protection (30 mA)

STANDARD AND QUALITY CERTIFICATES

IEC/EN61008-1 IEC/EN62955

CE CB RoHS

Technical data

Electrical characteristics	
Standard	IEC/EN61008-1,IEC/EN62955
Type	EV
Poles	2P(1P+N),4P(3P+N)
Rated current(A)	16,25,32,40,63
Rated residual operating current $I_{\Delta n}$（mA）	30
Rated frequency	50/60Hz
Insulation voltage (Ui)	230/240V~ (2P) 400/415V~ (4P)
Rated impulse withstand voltage (Uimp)	4 kV

Making and breaking capacity (Im/$I_{\Delta m}$)	25/40 A	500 A
	63/100A	10In
Conditional rated short circuit current (Inc/$I_{\Delta c}$)		10,000 A
Degree of protection	Device only	IP20 IP40 with screw shield
	Device in modular enclosure	IP40 Insulation classe II
Endurance (O-C)	Electrical	> 2 000 cycles
	Mechanical	> 5 000 cycles
Operating temperature		-25°C to +55°C

This type of RCCB is also the protective device for 6 mA DC.

* The relevant tests about character of 6 mA DC were done according to IEC 62955:2018.

* The rating 6mA DC is only for In:16A to 63A, $I_{\Delta n}$30mA.

Tripping Current Range

Lagging Angle	$I_{\Delta n} > 0.01A$	$I_{\Delta n} \leqslant 0.01A$
0°	$0.35I_{\Delta n} \leqslant I_{\Delta} \leqslant 1.4I_{\Delta n}$	$0.35I_{\Delta n} \leqslant I_{\Delta} \leqslant 2I_{\Delta n}$
90°	$0.25I_{\Delta n} \leqslant I_{\Delta} \leqslant 1.4I_{\Delta n}$	$0.25I_{\Delta n} \leqslant I_{\Delta} \leqslant 2I_{\Delta n}$
135°	$0.11I_{\Delta n} \leqslant I_{\Delta} \leqslant 1.4I_{\Delta n}$	$0.11I_{\Delta n} \leqslant I_{\Delta} \leqslant 2I_{\Delta n}$

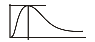
Standard value of maximum breaking time when DC residual current occurs(s)		
6 mA	60 mA	200 mA
10	0.3	0.1

Tripping current range of RDC-DD under pulsating DC current current range of RDC-DD under pulsating DC current

Lag angle α	Tripping current A	
	Lower limit (all $I_{\Delta n}$ values)	Upper limit (all α values)
0°	$I_{\Delta n} \leqslant 6mA$ $0.35I_{\Delta n}$ $I_{\Delta n} > 6mA$ 4.5mA	$I_{\Delta n} \leqslant 6mA$ $2I_{\Delta n}$ [a] $I_{\Delta n} > 6mA$ $1.4I_{\Delta n}$
90°	$I_{\Delta n} \leqslant 6mA$ $0.25I_{\Delta n}$ $I_{\Delta n} > 6mA$ 6.3mA	
135°	$0.11I_{\Delta n}$	

[a] In the United States, for $I_{\Delta n}$<6mA, can accept 30mA

Surge current proof



RCCB’s surge capacity. Not tripping at standardized 8/20us surge-current waves acc.to VDE 0432 Part 2 with surge current values of up to 250A.

Suitable for smooth direct current

The product can detect residual current under smooth direct current and the current range is 3~6mA.

Pulsating direct current sensitive

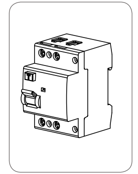
They react to AC and pulsating DC fault current which reach 0 or almost 0 within one time period of the mains frequency.

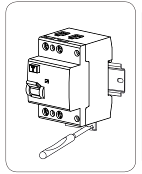
PRODUCT ASSEMBLY

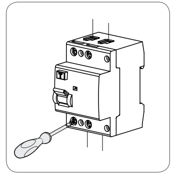
- Product calibrating and programming are performed during manufacturing and each product is offered to sales after a through quality control. There are no maintenance or programming tasks that the users can perform.

WARNING

- Ensure that the power is cut off before the assembly of the products.
- Connection and assembly of the electrical devices should be carried out only by the technical personnel having certificate of competency.





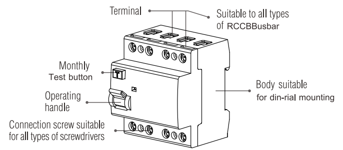


Cable sections	13mm
Momentum power for electrical terminal connection	2.5Nm max.
Tools required for product assembly (Allen key, screwdriver etc.)	5.3-6.0 (including 6.0)
Suitable panel and rail for product assembly	35mm Din rail

THINGS TO CONSIDER DURING RESIDUAL CURRENT CIRCUIT BREAKER ASSEMBLY

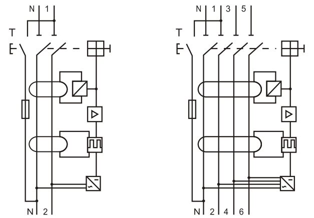
- The nominal currents of the Residual Current Circuit Breaker should be at values in line with the size of the protected grid.
- The installation should be grounded.
- In two-pole Residual Current Circuit Breaker, one phase and one neutral, and in four-pole Residual Current Circuit Breaker, one phase wire and one neutral wire,three phase wire +one neutral wire should be connected.
- To test Residual Current Circuit Breaker, “Test Monthly” button should be pressed. This test should be repeated once a month. Phase and neutral should never be bypassed to test Residual Current Circuit Breaker.
- Grounding resistance should be maximum 2160 ohm for 30 mA Residual Current Circuit Breaker and 216 ohm for 300 mA Residual Current Circuit Breaker.

PRODUCT FUNCTIONS



IEC/EN61008-1
IEC/EN62955

Type EV



Overall and Installation Dimension(mm)