ETEK ELECTRIC

Always For Your Safety

EKL19-40
RCCB With Overcurrent Protection (RCBO)
Usage Manual

Load Standard:IEC/EN 61009-1
Thank you for choosing EK Series RCCB with Overcurrent Protection. please read this User Manual carefully before installing and using the device and keep it properly for future reference.

Safety Notice

Make sure to read this manual carefully before installation, operation, maintenance and inspection, and correctly install and use this product according to the manual.

⚠ Danger:

- Do not operate the breaker with wet hands;
- Never touch the conductive parts in use;
- Make sure that the product is de-energized during maintenance and care;
- Do not test the product by means of short circuit;

⚠ Attention:

- The installation, repair and maintenance shall be implemented by qualified personnel;
- All features of the product have been set when delivery, do not disassemble or modulate the product at your own discretion;
- Before use, make sure that the working voltage, rated current, frequency and features of the product meet the working requirements;
- For wiring, the top terminals are for lining and the bottom are for loading. Pay attention to the wiring sequence of multi-phase electricity system. Tighten the screw when the cable is connected with the torque 1.2N•m, where the cables cannot be loose and exacted meanwhile the bare cables can't be exposed in the air.
- The product cannot protect the risk caused by touching both line and phase.
- The product's protection degree is IP20, with no dust protection. When it is used in dusty environment, please install it in a concealed distribution box.
- Stop using the product, if the it is found broken or making noise.
- Close the products after fixing the problems when it tripped because of overload, and short-circuit. Or the endurance will be decreased.
- The product should not be tested with megger.
  The product should protect from rain drops and decent.
- Make proper disposal of industrial wastes for end-of-life products.
  Thank you for your cooperation.

Conditions of Normal Use Installation and Transportation

Conditions of normal use and installation

(1) The ambient temperature ranges between -5℃and +40℃ with average value in 24h not exceeding +35℃;
(2) Altitude: ≤2000m;
(3) The relative humidity should not exceed 50% at a maximum temperature of +40℃; the relative humidity is allowed to increase while under lower temperature, for instance 90% for temperature +20%, but should take condensation into consideration when temperature is changed.
(4) The external magnetic field near the installation site of the residual current circuit breaker shall not exceed 5 times the geomagnetic field in any direction;
(5) It shall be installed in medium free of explosion risk and gas or dust that may cause metal corrosion or damage to insulation;
(6) It shall be installed in places where there is no shock and vibration, or rain and snow either;
(7) Pollution class: 2;
(8) Installation category: II & III;
(9) It shall be installed in distribution box, distribution cabinet or box;
(10) Negative wiring is allowed for the product;
(11) For products with N pole, the phase line shall be connected to the pole with the indication N.

Conditions of normal storage and transportation

(1) Temperature range: -25℃ - +55℃;
(2) Relative humidity: ≤95%;
(3) The product shall be handled with care during transportation without upside down. Avoid violent collision.

Main Technical and Performance Parameters

Main technical parameters of the circuit breaker

Model No	Type	Tripping Curve	In (A)	Number of oles	Rated Voltage Ue	Icn/Ics	I△n(mA)
EKL19-40	AC,A	B,C	6,10,16,20,25,32,40	1P+N	230(240)V	6000A	10,30, 100,300mA

CHARACTERISTICS

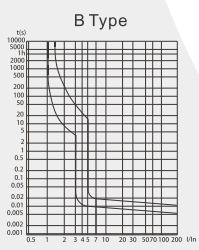
Type	Tripping current I△/A		
AC	0.5I△n<I△<I△n		
A	Lagging Angle	I△n>0.01A	I△n≤0.01A
	0°	0.35I△n≤I△≤1.4I△n	0.35I△n≤I△≤2I△n
	90°	0.25I△n≤I△≤1.4I△n	0.25I△n≤I△≤2I△n
	135°	0.11I△n≤I△≤1.4I△n	0.11I△n≤I△≤2I△n

CHARACTERISTICS CURVES

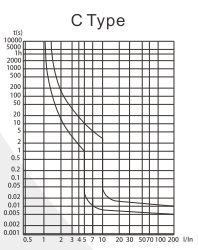
EKL19-40 30~35℃

	ThermalTripping			MagneticTripping		
	No tripping current	Tripping current	Time Limits t	Hold current	Trip current	Time Limits t
B Curve	1.13× IN		⩾1h	3× IN		⩾0.1s
		1.45× IN	<1h		5× IN	<0.1s
C Curve	1.13× IN		⩾1h	5× IN		⩾0.1s
		1.45× IN	<1h		10× IN	<0.1s

B Type

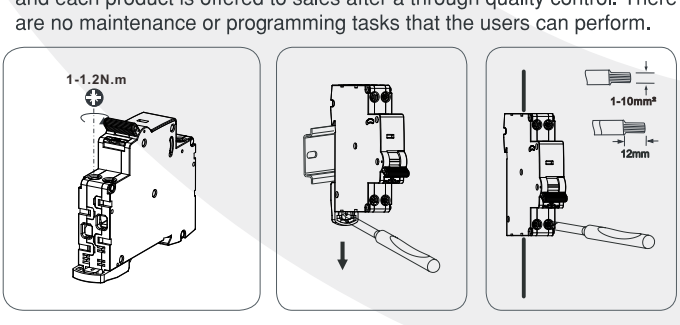


C Type

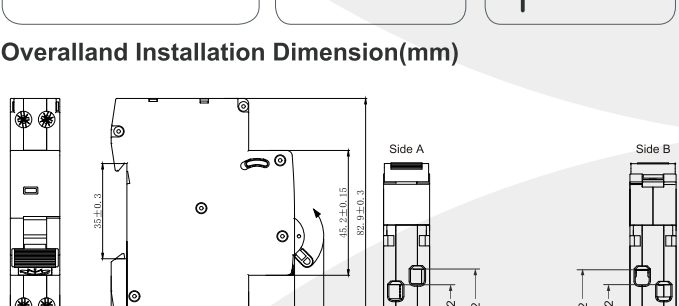


PRODUCT ASSEMBLY

- 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.



Overalland Installation Dimension(mm)



Installation, Use and Maintenance

Before breaker installation:

(1) Check whether the technical parameters of the product meet the use requirements;
(2) Before use, users shall check the insulation resistance respectively between the two poles (except for single pole), the pole and the shell, the pole and the mounting rail, the incoming and the outgoing line end with a 500V megohmmeter. Do not use the product if the insulation resistance is below 5MΩand contact the supplier timely for exchange.
(3) Close and open the breaker for several times to check whether the operation mechanism is reliable or clamping stagnation exists in the mechanism;
(4) The reference temperature for the breaker of this series is $+30^{+5℃}_{0}$
(5) The sectional area of connecting conductor shall fit the rated current of the circuit breaker. See table 1;

Table 1 Rated current and section area of the connecting wire

Rated current	A	6	10	16, 20	25	32	40
Cross-section of conductor	mm^2	1	1.5	2.5	4	6	10
Wiring tightening torque	N .m	Both power supply terminal and load terminal are 1.2					

(6) The breaker of this series adopts DIN rail mounting method, for which TH35-7.5 steel DIN rail shall apply.
(7) When the ambient temperature changes, the rated current shall be corrected accordingly. For temperature correction coefficient, see table 2.

Table 2

Influence of ambient temperature on load carrying capacity

Rated current(A)	Correction factor for ambient temperature								
	-25C⁰	-20C⁰	-10C⁰	0C⁰	10C⁰	20C⁰	30C⁰	40C⁰	55C⁰
6	7.62	7.50	7.20	6.90	6.66	6.30	6.00	5.64	5.28
10	12.70	12.50	12.00	11.50	11.10	10.50	10.00	9.40	8.80
16	20.32	20.00	19.20	18.40	17.76	16.80	16.00	15.04	14.08
20	25.40	25.00	24.00	23.00	22.20	21.00	20.00	18.80	17.60
25	31.75	31.25	30.00	28.75	27.75	26.25	25.00	23.50	22.00
32	40.64	40.00	38.40	36.80	35.52	33.60	32.00	30.08	28.16
40	50.80	50.00	48.00	46.00	44.40	42.00	40.00	37.60	35.20

Maintenance and care

(1) The installation, repair and maintenance shall be implemented by qualified personnel;
(2) It must be ensured that the product is de-energized;
(3) Maintenance and care shall be conducted once a year under normal operation condition. The details of maintenance and care are shown in table 3.

Table 3 Maintenance and care

Item	Content
Appearance	Free of dust and condensation. Clean, if any. With no damage No change of color for the shell and connecting terminal
Wiring terminal connection	Tighten according to the torque stipulated in table 3 and ensure it does not loosen.
Handle closing/opening operation	Operation shall be smooth and flexible

Unpacking Inspection

After unpacking, the user must check whether the product is intact, whether the exposed metal is rusty and whether the product is defective due to improper transportation or custody. In case of above phenomenon, do not use the product and timely contact the supplier.

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