



Single Module Type B RCBO

CE EK

Overview

EKL19-40B is a single-module Type B Residual Current Breaker with Overcurrent Protection (RCBO) introduced by ETEK Electric. This advanced circuit protection device efficiently handles overcurrent, short circuits, and earth fault leakages, while being specifically designed to detect complex waveforms and DC residual currents. The compact single-module design, combined with its bidirectional wiring capability, makes it an ideal solution for modern electrical installations and the renewable energy sector.

EKL19-40B operates at a rated voltage of 230/240V and supports a maximum current of up to 40A. It features a residual current sensitivity of 30mA and a short-circuit rating of 6kA. Additionally, it offers both B curve and C curve characteristics, making it an ideal solution for safeguarding sensitive electronic equipment like electric vehicle chargers, solar panels, and heat pumps.

Features

- Compact Design: Single-module (18mm) structure saves distribution board space, making it ideal for modern, space-efficient installations or retrofits.
- Bidirectional Wiring Capability: Enables conductors to be terminated from either the top or bottom terminals, providing installation flexibility across diverse panel configurations while maintaining uniform electrical characteristics.
- · Comprehensive Protection: Offers overload, short circuit, and residual current protection to ensure circuit safety.
- DC Residual Current Detection: Specifically designed for complex waveforms and DC residual currents, ideal for EV chargers, solar PV systems, and heat pumps.
- High Performance: 6kA short circuit rating with B or C curve options to meet diverse application needs.
- Standard:

IEC 61009-1: Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules

IEC62423: Type B residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)

Application Acenarios



EV Charging Stations



Photovoltaic (PV) Systems



UPS Systems



Industrial Welding Equipment

EKL19-40B RCCB with Overcurrent Protection



Technical Data

Protection Ground fault, Overcurrent and short circuit Type of trip Ground fault; Electronic Residual current type B: residual AC, pulsating and smooth DC current, high frequency (≤1 kHz) No. of poles 1P+N (18mm, with switched neutral) Insulation voltage (U) 500V Rated voltage (Ue) 230/240V- Rated currents (In) 6,8,10,13,62,02,53,240A Rated sensitivity currents (Ian) 30mA Residual current off-time under (Ian) ≤0.1s Rated residual making and breaking capacity (Iam) 500A (In ≤50A) Rated frequency 50/60Hz Rated inpulse withstand voltage (Ulimp) (1.2/50µs) 4AB Rated inpulse withstand voltage (Ulimp) (1.2/50µs) 4AB Dielectric test voltage 3 Fire resistance (glow-wire test) 650±15°C (Handle) Fire resistance (glow-wire test) 960±15°C (Handle) Instantaneous tripping characteristics 8:3in-5in; C: Sin-10in Instantaneous tripping characteristics 8:3in-5in; C: Sin-10in Electrical life 4,000 Cycles Mechanical life 1,000 Cycles Contact position indication	Standard	IEC/EN 61009-1, IEC/EN 62423				
Type of trip Residual current type Residual Current type Residual Current type Residual Current type Residual Current (pi) Routinge (Ui) Rated voltage (Ui) Rated voltage (Ue) Rated currents (In) Residual current off-time under (Ian) Residual current off-time under (Ian) Rated residual making and breaking capacity (Iam) Rated frequency Rated short-circuit capacity (Icn) Rated impulse withstand voltage (Uinp) (1.2/50µs) Rated impulse withstand voltage (Uinp) (1.2/50µs) Pierre resistance (glow-wire test) Referral tripping characteristics Referral tripping within an hour Referral tripping characteristics Referral tripping within an hour R	Protection	Ground fault, Overcurrent and short circuit				
Residual current type Residual AC, pulsating and smooth DC current, high frequency (<1 kHz) No. of poles 1P+N (18mm, with switched neutral) Insulation voltage (Ui) Rated voltage (Ue) Rated voltage (Ue) Rated currents (In) Rated sensitivity currents (Ian) Residual current off-time under (Ian) Residual current off-time under (Ian) Rated residual making and breaking capacity (Iam) Rated sensitivity currents (Ian) Rated sensitivity currents (Ian) Rated insulation woltage (Uim) Rated frequency Rated frequency Rated short-circuit capacity (Icn) Rated short-circuit capacity (Icn) Rated insulate withstand voltage (Uimp) (1.2/50µs) Rated impulse withstand voltage (Uimp) (1.2/50µs) Rated insulate withstand voltage (Uimp)		Groundfault: Electronic				
No. of poles 1P+N (18mm, with switched neutral) Insulation voltage (Ue) 500V Rated voltage (Ue) 230/240V~ Rated currents (In) 6,8,10,13,16,20,25,32,40A Rated sensitivity currents (Ian) 30mA Residual current off-time under (Ian) <0.1s	Type of trip	Overload and short circuit: Thermo-magnetic				
Insulation voltage (UP) 500V Rated voltage (Ue) 230/240V~ Rated currents (In) 6,8,10,13,16,20,25,32,40A Rated sensitivity currents (Ian) 30mA Residual current off-time under (Ian) <0.1s	Residual current type	B: residual AC, pulsating and smooth DC current, high frequency (≤1 kHz)				
Rated voltage (Ue) 230/240V~ Rated currents (In) 6,8,10,13,16,20,25,32,40A Rated sensitivity currents (Ian) 30mA Residual current off-time under (Ian) ≤ 0.1s Rated residual making and breaking capacity (Iam) 500A (In ≤ 50A) Rated frequency 50/60Hz Rated short-circuit capacity (Icn) 6kA Energy limiting class 3 Rated impulse withstand voltage (Uimp) (1.2/50µs) 4kV Dielectric test voltage 2kV (50/60Hz, 1 min.) 960±15°C (Enctosure) 650±10°C (Handle) Fire resistance (glow-wire test) 650±10°C (Handle) Thermal tripping characteristics 1.13In No tripping within an hour Instantaneous tripping characteristics B: 31n-51n; C: 51n-10In Electrical life 4,000 Cycles Mechanical life 10,000 Cycles Contact position indication green OFF / red ON Protection degree IP20 Ambient temperature -25°C ~ +55°C Storage temperature -30°C ~ +70°C Terminal connection type Cable / Pin-type busbar Max. terminal size for cable <td>No. of poles</td> <td>1P+N (18mm, with switched neutral)</td>	No. of poles	1P+N (18mm, with switched neutral)				
Rated currents (In) Rated sensitivity currents (Ian) Residual current off-time under (Ian) Residual current off-time under (Ian) Rated residual making and breaking capacity (Iam) Rated frequency Rated frequency Rated short-circuit capacity (Icn) Rated short-circuit capacity (Icn) Rated impulse withstand voltage (Uimp) (1.2/50µs) Rated frequency Rated frequency Rated frequency Solvo/fooHz Rated frequency Solvo/fooHa Rated frequency Solvo/fooH	Insulation voltage (Ui)	500V				
Rated sensitivity currents (IAn) Residual current off-time under (IAn) Rated residual making and breaking capacity (IAm) Rated frequency Rated frequency So/60Hz Rated short-circuit capacity (Icn) Energy limiting class Rated impulse withstand voltage (Uimp) (1.2/50µs) Price resistance (glow-wire test) Thermal tripping characteristics Thermal tripping characteristics Reterinal life Contact position indication Protection degree Ambient temperature Storage temperature Terminal connection type Max. terminal size for cable Max. tightening torau in Amount (IAm) Sound (Ian) Sound (Ia	Rated voltage (Ue)	230/240V~				
Residual current off-time under (Ian) ≤0.1s Rated residual making and breaking capacity (Iam) 500A (In≤50A) Rated frequency 50/60Hz Rated short-circuit capacity (Icn) 6kA Energy limiting class 3 Rated impulse withstand voltage (Uimp) (1.2/50µs) 4kV Dielectric test voltage 2kV (50/60Hz, 1 min.) Fire resistance (glow-wire test) 650±10°C (Enclosure) Fire resistance (glow-wire test) 650±10°C (Handle) 1.13In No tripping within an hour 1.45In Tripping within an hour Instantaneous tripping characteristics B: 3In-5in; C: 5In-10In Electrical life 4,000 Cycles Mechanical life 10,000 Cycles Contact position indication green OFF / red ON Protection degree IP20 Ambient temperature -25°C -+55°C Storage temperature -30°C -+70°C Terminal connection type Cable / Pin-type busbar Max. terminal size for cable 16mm² Max. tightening torque 2.0N.m Installation Mounting on 35mm DIN rail	Rated currents (In)	6,8,10,13,16,20,25,32,40A				
Rated residual making and breaking capacity (lam) Rated frequency Rated short-circuit capacity (lcn) Energy limiting class Rated impulse withstand voltage (Uimp) (1.2/50µs) Rated impulse withstand voltage (Uimp) (1.2/50µs) Price resistance (glow-wire test) Fire resistance (glow-wire test) Rated impulse withstand voltage 2kV (50/60Hz, 1 min.) 960±15°C (Enclosure) 650±10°C (Handle) 1.13In No tripping within an hour 1.45In Tripping within an hour Instantaneous tripping characteristics B: 3In-5In; C: 5In-10In Electrical life 4,000 Cycles Mechanical life 10,000 Cycles Contact position indication Protection degree IP20 Ambient temperature -25°C ~ +55°C Storage temperature -30°C ~ +70°C Terminal connection type Cable / Pin-type busbar Max. teminal size for cable Max. tightening torque Installation Mounting on 35mm DIN rail	Rated sensitivity currents (Ian)	30mA				
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Rated impulse withstand voltage (Uimp) (1.2/50µs) Dielectric test voltage 2kV (50/60Hz, 1 min.) 960±15°C (Enclosure) 650±10°C (Handle) 1.13In No tripping within an hour Instantaneous tripping characteristics B: 3In-5In; C: 5In-10In Electrical life 4,000 Cycles Mechanical life 10,000 Cycles Contact position indication Protection degree Ambient temperature 125°C ~ +55°C Storage temperature Terminal connection type Cable / Pin-type busbar Max. tightening torque Installation Mounting on 35mm DIN rail	Rated short-circuit capacity (Icn)	6kA				
Dielectric test voltage	Energy limiting class	3				
Fire resistance (glow-wire test) 650±10°C (Enclosure) 650±10°C (Handle) 1.13In No tripping within an hour 1.45In Tripping within an hour Instantaneous tripping characteristics 8: 3In-5In; C: 5In-10In Electrical life 4,000 Cycles Mechanical life 10,000 Cycles Contact position indication green OFF / red ON Protection degree IP20 Ambient temperature -25°C ~ +55°C Storage temperature -30°C ~ +70°C Terminal connection type Cable / Pin-type busbar Max. terminal size for cable Max. tightening torque Installation Mounting on 35mm DIN rail	Rated impulse with stand voltage (Uimp) (1.2/50 μ s)	4kV				
Fire resistance (glow-wire test) 1.13In No tripping within an hour 1.45In Tripping within an hour Instantaneous tripping characteristics B: 3In-5In; C: 5In-10In Electrical life 4,000 Cycles Mechanical life 10,000 Cycles Contact position indication Protection degree Ambient temperature -25°C ~ +55°C Storage temperature Terminal connection type Cable / Pin-type busbar Max. tightening torque Installation Mounting on 35mm DIN rail	Dielectric test voltage	2kV (50/60Hz, 1 min.)				
Thermal tripping characteristics 1.13In No tripping within an hour 1.45In Tripping within an hour Instantaneous tripping characteristics B: 3In-5In; C: 5In-10In Electrical life 4,000 Cycles Mechanical life 10,000 Cycles Contact position indication Protection degree IP20 Ambient temperature -25°C ~ +55°C Storage temperature -30°C ~ +70°C Terminal connection type Max. terminal size for cable Max. tightening torque Installation Mounting on 35mm DIN rail	Fire registance (glow wire test)	960±15°C (Enclosure)				
Thermal tripping characteristics 1.45In Tripping within an hour Instantaneous tripping characteristics B: 3In-5In; C: 5In-10In Electrical life 4,000 Cycles Mechanical life 10,000 Cycles Contact position indication green OFF / red ON Protection degree IP20 Ambient temperature -25°C ~ +55°C Storage temperature -30°C ~ +70°C Terminal connection type Cable / Pin-type busbar Max. terminal size for cable Max. tightening torque 2.0N.m Installation Mounting on 35mm DIN rail	rife resistance (glow-wife test)	650±10°C (Handle)				
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Mechanical life10,000 CyclesContact position indicationgreen OFF / red ONProtection degreeIP20Ambient temperature-25°C ~ +55°CStorage temperature-30°C ~ +70°CTerminal connection typeCable / Pin-type busbarMax. terminal size for cable16mm²Max. tightening torque2.0N.mInstallationMounting on 35mm DIN rail	Instantaneous tripping characteristics	B: 3ln-5ln; C: 5ln-10ln				
Contact position indication Protection degree IP20 Ambient temperature -25°C ~ +55°C Storage temperature -30°C ~ +70°C Terminal connection type Cable / Pin-type busbar Max. terminal size for cable Max. tightening torque Installation Mounting on 35mm DIN rail	Electrical life	4,000 Cycles				
Protection degree IP20 Ambient temperature -25°C ~ +55°C Storage temperature -30°C ~ +70°C Terminal connection type Cable / Pin-type busbar Max. terminal size for cable 16mm² Max. tightening torque 2.0N.m Installation Mounting on 35mm DIN rail	Mechanical life	10,000 Cycles				
Ambient temperature -25°C ~ +55°C Storage temperature -30°C ~ +70°C Terminal connection type Cable / Pin-type busbar Max. terminal size for cable Max. tightening torque 16mm² 2.0N.m Installation Mounting on 35mm DIN rail	Contact position indication	green OFF / red ON				
Storage temperature -30°C ~ +70°C Terminal connection type Cable / Pin-type busbar Max. terminal size for cable 16mm² Max. tightening torque 2.0N.m Installation Mounting on 35mm DIN rail	Protection degree	IP20				
Terminal connection type Cable / Pin-type busbar Max. terminal size for cable 16mm² Max. tightening torque 2.0N.m Installation Mounting on 35mm DIN rail	Ambient temperature	-25°C ~ +55°C				
Max. terminal size for cable16mm²Max. tightening torque2.0N.mInstallationMounting on 35mm DIN rail	Storage temperature	-30°C ~ +70°C				
Max. tightening torque 2.0N.m Installation Mounting on 35mm DIN rail	Terminal connection type	Cable / Pin-type busbar				
Installation Mounting on 35mm DIN rail	Max. terminal size for cable	16mm²				
	Max. tightening torque	2.0N.m				
Incomingmethod Bi-directional	Installation	Mounting on 35mm DIN rail				
	Incomingmethod	Bi-directional				

EKL19-40B RCCB with Overcurrent Protection

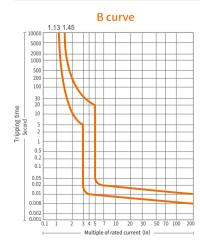


Product Selection Form

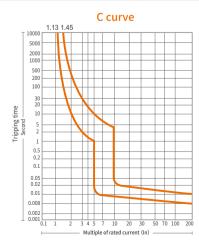
Poles	Curve	Туре	Sensitivity	Rated Current (A)	EAN-13	Ref No.		
				6A	6942012157980	EKL19-40B-1NB0630		
9				8A	6942012157997	EKL19-40B-1NB0830		
N 1200 1 5				10A	6942012158000	EKL19-40B-1NB1030		
4 64				13A	6942012158017	EKL19-40B-1NB1330		
ETOK DALIPARE BEO DALIP DALIPARE DALIPA	В			16A	6942012143075	EKL19-40B-1NB1630		
DOCTO				20A	6942012143082	EKL19-40B-1NB2030		
				25A	6942012143099	EKL19-40B-1NB2530		
1P+N				32A	6942012143105	EKL19-40B-1NB3230		
		В	30mA	40A	6942012143112	EKL19-40B-1NB4030		
				6A	6942012158024	EKL19-40B-1NC0630		
9						8A	6942012158031	EKL19-40B-1NC0830
N : 20m 1 }					10A	6942012158048	EKL19-40B-1NC1030	
() Gl ====				13A	6942012158055	EKL19-40B-1NC1330		
ETOK ECLIPAGE COLOR DESCRIPTION	С			16A	6942012143129	EKL19-40B-1NC1630		
1P+N				20A	6942012143136	EKL19-40B-1NC2030		
				25A	6942012143143	EKL19-40B-1NC2530		
				32A	6942012143150	EKL19-40B-1NC3230		
				40A	6942012143167	EKL19-40B-1NC4030		

Tripping Characteristic

	Rated	Thermal release					Magnetic release			
Curve	current	Non-trip	Trip	Non-trip time	Trip time	Ambient temperature	Hold current	Trip current	Trip time	Ambient temperature
В	C 40A	1.13ln		≤1h			3In ≥0.1	≥0.1		
В	6-40A		1.45In		<1h	2006 - 506		5In	<0.1	Normal
-	C 404	1.13In		≤1h		30°C+5°C	5In		≥0.1	temperature
C	6-40A		1.45In		<1h			10ln	<0.1	



Universal use - socket outlet, lighting device



Resistive & inductive loads with low inruch current

- lamp, high starting current motor

EKL19-40B RCCB with Overcurrent Protection

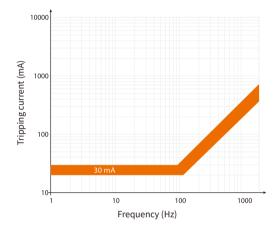


Type B RCDs - Standard values of break time and non-actuating time for residual direct currents which result from rectifying circuits and for residual smooth direct current.

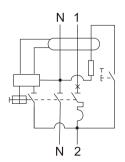
Tripping times					
Туре	Fault currents	Tripping time at			
	Alternating currents	1×I∆n	2×I∆n	5×l∆n	500A
	Pulsating DC currents	1.4×I∆n	2×1.4×I∆n	5×1.4×I∆n	500A
	Smooth DC currents	2×I∆n	2×2×I∆n	5×2×l∆n	500A
Standard		Max. 0.3s	Max. 0.15s	Max. 0.04s	Max. 0.04s

Type B RCDs - Residual non-operating and operating current according to frequencies which differ from the rated frequency 50/60 Hz

Frequency (Hz)	Residual non-operating current (I∆n)	Residual operating current (I△n)
150	0.5 l∆n	2.4 l∆n
400	0.5 lan	6 l∆n
1000	1 lΔn	14 l∆n



Circuit Diagram



Dimension (mm)

