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6000 🔁 💷 WWW kHz 🕸 🕸 KV G

DATA SHEET

Article number 09949332

residual current operated circuit-breakers with integral overcurrent protection DRCBO 4 C10/0,30/1N-B+ AC/DC sensitive type B+, fire protection according to VDE 0100-420



Function

RCCB/MCB combinations (RCBO) are residual current operated circuit-breakers with integral overcurrent protection for protecting systems in the event of a short-circuit and overload as per the requirements of VDE 0100 Part 430, and for protecting persons, farm animals and material items in the event of earth leakage currents as per VDE 0100 Part 410. Overload tripping occurs at currents in the overload range through a short-time delayed, heat-sensitive bimetal trip and at short-circuit currents through an electromagnetic instantaneous trip. The DRCBO 4 have a rated switching capacity of 6 kA. They provide a labelling area in addition to the tripping indicator. Type B+ residual current circuit-breakers detect smooth DC residual currents and all other residual currents at frequencies up to 20,000 Hz. The operating voltage required for this is taken from the mains supply. Correct power supply is ensured when the voltage between the mains conductors is \geq 50 V. Pulsating and AC residual currents are detected independent of the mains voltage. RCBOs with tripping characteristic C are primarily suitable for power circuits with high switch-on or peak currents, as their short-circuit trip value is five to ten times the rated current. Devices in standard design are intended for monitoring circuits with a rated voltage of 230 V or 400 V and a rated frequency of 50 Hz.

Features

AC/DC sensitive for residual currents with frequencies of o Hz (smooth direct current) up to 20,000 Hz, mains-voltage-independent tripping when type A residual currents occur, compact design for all rated currents, switch position indicator, separate indication of tripping cause, strain-relief clamps with a wide terminal cross-section range on both connection sides, neutral conductor right, labelling area

Mounting

quick fastening to mounting rail, any installation position, supply preferably from above

Applications

commercial and industrial installations with TT, TN-S and TN-C-S systems, where power electronics equipment is used without galvanic isolation from the mains, e.g. frequency converters, switching power supplies, high-frequency converters, photovoltaic installations and UPS equipment with frequency converters without transformers, Type B+ and type B RCBOs with characteristic curve NK should be used where fire protection is legally required.

Notes

suitable for use in 50 Hz AC networks, RCBOs are also available for other frequencies upon request, not designed for use in direct current networks or on the output side of controlled electrical equipment such as frequency converters

Accessories

auxiliary switches DRCBO 4 Hi 2, wiring components DRCBO 4-busbars 2-pole, wiring components DRCBO 4-busbars 4-pole

Technical Data

Technical Data	DRCBO 4 C10/0,30/1N-B+
Series	DRCBO 4
Number of poles	1+N
Residual current type	B+
Rated current (AC)	10 A
Rated residual current IAn	0.3 A
Short-time delayed	true
Selective	false

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The experts in residual current protection technology

min Operating voltage range of test circuit max. Operating voltage range of test circuit max. Operating voltage range of test circuit minum rated operating voltage (Type AAC operation) Non-trip time 10 ms Tripping frequency 0 Hz 20 kHz Non-trip time 10 ms Tripping frequency 0 Hz 20 kHz 10 ms 10 m	Technical Data	DRCBO 4 C10/0,30/1N-B+
test circuit Minimum rated operating voltage (Type A/AC operation) Minimum rated operating voltage (Type beraiton) Non-trip time 10 or ms Tripping frequency 0 Haimum rated operating voltage (Type beraiton) Non-trip time 10 or ms Tripping frequency 0 perating voltage (AC) max. 3, W Operating voltage (AC) max. 3, W Specification Boad disconnect contact Rated order (AC) 20 order and trip time Specification Internal consumption Rated voltage (AC) 20 order and trip time Specification Internal consumption Rated voltage (AC) 20 order and trip time Specification Stand trip time 30 A max. Total rated switching Ga A Correct test loss per current tack Rated insolution voltage A tack of those trip time Rated insolution voltage Correct test loss per current tack system Ga Corerot tack system </td <td></td> <td></td>		
voltage (Type AAC operation) Minimum rate doperating Voltage (Type B operation) Non-trip time i o ms Tripping frequency OH2 ao kH2 Maximum disconnection times i Lan: s goo ms, 5 - Lan: s 40 ms Tripping frequency Operating voltage (AC) Operating voltage (AC) C Operati		254 V
Minimum rated operation) go V AC voltage (Type B operation) 0 Hz ao kHz Maximum disconnection times 1 · I∆n: ≤ go ms; 5 · I∆n: ≤ go ms Tripping characteristic C Supply side up Operating voltage (AC) max. 1.3 W Internal consumption max. 1.3 W Specification load circuit Specification load circuit Specification load circuit Stated short-circuit current 6 KA Surge current strength 3 kA Stated short-circuit current 6 KA Surge current strength 3 kA Rated insulation voltage 4 kV Rated insulation voltage 4 kV Rated insulation voltage 4 kV Rated insulation voltage 1.4 W path 1 Back-up fuse type go Hz Current heat loss per current path 1.4 W path 2 (conductors of same type and cross-section) Connection C1 Maximum number of conductors per current ight 2 (conductors of same type and cross-section) Cons		o V AC
Non-trip time 10 ms Tripping frequency 0 Hz	Minimum rated operating	50 V AC
Maximum disconnection times 1 · Lbn: ≤ 300 mS; 5 · Lbn: ≤ 40 ms Tripping characteristic C Operating voltage (AC) max. 253 V Internal consumption max. 1.3 W Specification load disconnect contact Rated voltage (AC) 230 V Rated voltage (AC) 230 V Rated sourcit circuit current 6 kA Surge current strength 3 kA max. Total rated switching 6 kA capacity 6 kA Surge current strength 3 kA max. Total rated switching 6 kA capacity 6 kA Rated insulation voltage 4 kV Rated insulation voltage 4 kV Rated frequency 50 Hz Current heat loss per current path 1.4 W path 3 Back-up fuse type gG Overvoltage class III Neutral conductor position right Connecting capacity flexible 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 20 mm ² Cross section solid 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 20 mm ² Consecting capacity flexible	Non-trip time	10 MS
Maximum disconnection times 1. Ibn: ≤ 300 ms; 5. Ibn: ≤ 40 ms Tripping characteristic C Operating voltage (AC) max. 253 V Internal consumption max. 1.3 W Operating voltage (AC) max. 1.3 W Specification load disconnect contact Rated voltage (AC) 230 V Rated source contact 230 V Rated source contact 6 kA Surge current strength 3 kA max. Total rated switching capacity 6 kA capacity 6 kA Rated insulation voltage 4 kV Rated fineupony 50 Hz Current heat loss per current path 1.4 W path 26 G Deveroltage class III Neutral conductor position right Connecting conductors per terminal top, bottom (load circuit) Neutral conductors per terminal top, bottom (load circuit) Neutral conductors per terminal 1-wire: 1 mm ² 35 mm ² ; 2-wire: 1 mm ² 30 mm ² Cross section solid 1-wire: 1 mm ²	Tripping frequency	0 Hz 20 kHz
Tripping characteristic C Supply side up Operating voltage (AC) max. 253 V Internal consumption max. 1;3 W Specification load disconnect contact Rated voltage (AC) 230 V Rated voltage (AC) 230 V Rated voltage (AC) 230 V Rated short-circuit current 6 kA Surge current strength 3 kA max. Total rated switching capacity 6 kA Stated involtage 4 k0 V Rated involtage 4 k0 V Rated finpulse withstand voltage 4 kV Rated finpulse withstand voltage 4 kV Rated finpulse withstand voltage 9 G Ourrent heat loss per current 1.4 W path 1 Decivery to gG 0 Overvoltage class III Connection C1 Maximum 2 (conductors of same type and cross-section) number of conductors per terminal 1-wire: 1 mm ²		1 · IΔn: ≤ 300 ms; 5 · IΔn: ≤ 40 ms
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path gG Back-up fuse type gG Overvoltage class III III screw-type terminal top, bottom (load circuit) Neutral conductor position right Connection C1 Maximum 2 (conductors of same type and cross-section) number of conductors per terminal 2 (conductors of same type and cross-section) Cross section solid 1-wire: 1 mm ² 35 mm ² ; 2-wire: 1 mm ² 10 mm ² Connecting capacity flexible 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 26 mm ² 10 mm ² Operating position optional	Rated frequency	50 Hz
Overvoltage class III screw-type terminal top, bottom (load circuit) Neutral conductor position right Connection C1 Maximum 2 (conductors of same type and cross-section) number of conductors per terminal 2 (conductors of same type and cross-section) Cross section solid 1-wire: 1 mm ² 35 mm ² ; 2-wire: 1 mm ² 10 mm ² Connecting capacity flexible 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Cross section stranded 1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ² Tightening torque 2 Nm 2.4 Nm General data Operating position Operating position optional Mechanical endurance min. 5000 switching cycles Electrical endurance min. 2000 switching cycles Ambient temperature -25 °C 40 °C Climate resistance 20 g / 20 ms Duration Fatigue limit > 5 g (f ≤ 80 Hz, duration > 50 min.) Housing type distribution board housing Installation type Mounting rail (35 mm) Housing material thermoplastic Protection class IP20 (installe	•	1.4 W
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Neutral conductor positionrightConnection C1 Maximum number of conductors per terminal2 (conductors of same type and cross-section)Cross section solid1-wire: 1 mm² 35 mm²; 2-wire: 1 mm² 10 mm²Connecting capacity flexible1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Connecting capacity flexible1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Cross section stranded1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Tightening torque2 Nm 2.4 NmGeneral dataOperating positionOperating positionoptionalMechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesClimate resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing material1P20 (installed: IP40)	Overvoltage class	III
Connection C1 Maximum number of conductors per terminal2 (conductors of same type and cross-section)Cross section solid1-wire: 1 mm² 35 mm²; 2-wire: 1 mm² 10 mm²Connecting capacity flexible1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Cross section stranded1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Tightening torque2 Nm 2.4 NmGeneral dataOperating positionOperating positionoptionalMechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesAmbient temperature-25 °C 40 °CClimate resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing material1P20 (installed: IP40)		screw-type terminal top, bottom (load circuit)
number of conductors per terminalCross section solid1-wire: 1 mm² 35 mm²; 2-wire: 1 mm² 10 mm²Connecting capacity flexible1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Cross section stranded1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Cross section stranded1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Cross section stranded1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Cross section stranded2 Nm 2.4 NmGeneral dataOperating positionOperating positionoptionalMechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesClimate resistanceaccording to IEC 60068-2-30Shock resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialThermoplasticProtection classIP20 (installed: IP40)	Neutral conductor position	right
Connecting capacity flexible1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Cross section stranded1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Tightening torque2 Nm 2.4 NmGeneral dataOperating positionoptionalMechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesClimate resistanceaccording to IEC 60068-2-30Shock resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typeMounting rail (35 mm)Housing materialthermoplasticProtection classIP20 (installed: IP40)	number of conductors per	2 (conductors of same type and cross-section)
Cross section stranded1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²Tightening torque2 Nm 2.4 NmGeneral dataGeneral dataOperating positionoptionalMechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesClimate resistance-25 °C 40 °CClimate resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialIP20 (installed: IP40)	Cross section solid	1-wire: 1 mm ² 35 mm ² ; 2-wire: 1 mm ² 10 mm ²
Tightening torque2 Nm 2.4 NmGeneral dataOperating positionoptionalMechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesAmbient temperature-25 °C 40 °CClimate resistanceaccording to IEC 60068-2-30Shock resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialIP20 (installed: IP40)	Connecting capacity flexible	1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ²
General dataOperating positionoptionalMechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesAmbient temperature-25 °C 40 °CClimate resistanceaccording to IEC 60068-2-30Shock resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialIP20 (installed: IP40)	Cross section stranded	1-wire: 1 mm ² 25 mm ² ; 2-wire: 1 mm ² 10 mm ²
Operating positionoptionalMechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesAmbient temperature $-25 ^{\circ}C \dots 40 ^{\circ}C$ Climate resistanceaccording to IEC 60068-2-30Shock resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialIP20 (installed: IP40)	Tightening torque	2 Nm 2.4 Nm
Mechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesAmbient temperature $-25 ^{\circ}C \dots 40 ^{\circ}C$ Climate resistanceaccording to IEC 60068-2-30Shock resistance $20 g / 20 ms$ DurationFatigue limit> 5 g (f < 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialthermoplasticProtection classIP20 (installed: IP40)		General data
Mechanical endurancemin. 5000 switching cyclesElectrical endurancemin. 2000 switching cyclesAmbient temperature $-25 ^{\circ}C \dots 40 ^{\circ}C$ Climate resistanceaccording to IEC 60068-2-30Shock resistance $20 g / 20 ms$ DurationFatigue limit> 5 g (f < 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialthermoplasticProtection classIP20 (installed: IP40)	Operating position	optional
Electrical endurancemin. 2000 switching cyclesAmbient temperature-25 °C 40 °CClimate resistanceaccording to IEC 60068-2-30Shock resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialIP20 (installed: IP40)		
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Climate resistanceaccording to IEC 60068-2-30Shock resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialthermoplasticProtection classIP20 (installed: IP40)		
Shock resistance20 g / 20 ms DurationFatigue limit> 5 g (f ≤ 80 Hz, duration > 30 min.)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialthermoplasticProtection classIP20 (installed: IP40)		
Fatigue limit > 5 g (f ≤ 80 Hz, duration > 30 min.) Housing type distribution board housing Installation type Mounting rail (35 mm) Housing material thermoplastic Protection class IP20 (installed: IP40)		
Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialthermoplasticProtection classIP20 (installed: IP40)		
Installation typeMounting rail (35 mm)Housing materialthermoplasticProtection classIP20 (installed: IP40)		
Housing materialthermoplasticProtection classIP20 (installed: IP40)		
Protection class IP20 (installed: IP40)		-
		•
vviatn 44 mm		
	width	44 mm

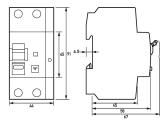
Doepke

The experts in residual current protection technology

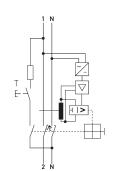
Technical Data	DRCBO 4 C10/0,30/1N-B+
Height	91 mm
Depth	73.5 mm
Installation depth	67 mm
Module widths	2.5
Weight	0.2 kg
Design requirements/Standards	VDE 0664-20, VDE 0664-40, VDE 0664-401, EN 61009-1, EN 62423, ÖVE/ÖNORM E 8601
Power limitation category	3
Degree of pollution	2
Certifications	VDE

Dimensions

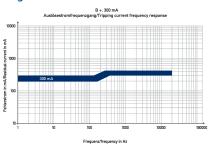
Dimensional drawing Group view



Wiring example



Diagrams



Characteristic B+ 300 mA

Wiring diagram