## Doepke



# **DATA SHEET**

residual current operated circuit-breakers with integral overcurrent protection DRCBO 4 C13/0,30/3N-B+ AC/DC sensitive type B+, fire protection according to VDE 0100-420 Article number 09948333

6000 🔁 💳 WWW kHz 🕸 🕾 KV G

### 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 4-pole

#### **Technical Data**

Technical Data	DRCBO 4 C13/0,30/3N-B+
Series	DRCBO 4
Number of poles	3+N
Residual current type	B+
Rated current (AC)	13 A
Rated residual current IAn	0.3 A
Short-time delayed	true
Selective	false

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Technical Data     DRCB0 4 Cs2(x)2(x)2(x)18+       min. Operating voltage range of test circuit     100 V       max. Operating voltage range of test circuit     254 V       Minimum rated operating voltage (Type A)AC operation)     0 V AC       Minimum rated operating voltage (Type B operation)     50 V AC       Non-trip time     10 ms       Tripping frequency     0 Hz	
test circuit     or V AC       Minimum rated operating voltage (Type A/AC operation)     0 V AC       Minimum rated operating voltage (Type B operation)     50 V AC       Non-trip time     10 on ns       Tripping frequency     0 H2 20 kH2       Maximum disconnection times     1 · Idn: s 300 ms; 5 · Idn: s 40 ms       Tripping characteristic     C       Operating voltage (AC)     max. 440 V       Internal consumption     max. 440 V       Internal consumption     max. 1.3 W       Specification     Ioad disconnect contact       Rated voltage (AC)     230 V, 400 V       Rated voltage (AC)     33 A       Rated soltacruent (AC)     3 kA       Surge current strength     3 kA       max. Total rated switching capacity     6 kA       Rated inpulse withstand voltage     4 40 V       Rated inpulse withstand voltage     4 kV       Rated inpulse withstand voltage     1.8 W       Back-up fuse type     gG       Overvoltage class     III       Rated inpulse withstand voltage     2 (conductors of same type and cross-section)       Number of conductor position <t< td=""><td></td></t<>	
voltage (Type A/AC operation)       Minimum rated operation)       soltage (Type B operation)       Non-trip time       1 o ms       Tripping frequency       o Hz 20 kHz       Maximum disconnection times       1 · IΔn: ≤ 300 ms; 5 · IAn: ≤ 40 ms       Tripping characteristic       C       Supply side       Operating voltage (AC)       max	
voltage (Type B operation)       Non-trip time     10 ms       Tripping frequency     0 H2 20 kHz       Maximum disconnection times     1 · I/Δn: ≤ go ms; 5 · I/Δn: ≤ 40 ms       Tripping characteristic     C       Supply side     up       Operating voltage (AC)     max. 440 V       Internal consumption     max. 1, 3 W <b>Objection</b> load dircuit       Specification     load disconnect contact       Rated voltage (AC)     230 V, 400 V       Rated voltage (AC)     230 V, 400 V       Rated voltage (AC)     33 A       Rated solt-circuit current     6 kA       Surge current strength     3 kA       max. Total rated switching capacity     6 kA       Rated insulation voltage     440 V       Rated insulation voltage     4kV       Rated insulation voltage     50 Hz       Current heat loss per current path     1.8 W       path     20 G       Overvoltage class     III       Neutral conductor position     right       Connection c1 Maximum number of conductors per terminal     2 (conductors of same type and cross-section	
Tripping frequency   0 Hz 20 kHz     Maximum disconnection times   1 · I Δn: ≤ 300 ms; 5 · I Δn: ≤ 40 ms     Tripping characteristic   C     Supply side   up     Operating voltage (AC)   max. 440 V     Internal consumption   max. 1.3 W     Specification   Ioad disconnect contact     Rated voltage (AC)   230 V, 400 V     Rated voltage (AC)   3 A     Rated short-circuit current   6 kA     Surge current strength   3 kA     max. Total rated switching capacity   6 kA     Rated inpulse withstand voltage   440 V     Rated inpulse withstand voltage   4 kV     Rated frequency   50 Hz     Current heat loss per current path   1.8 W     Back-up fuse type   gG     Overvoltage class   III     Connection C1 Maximum number of conductors per terminal top, bottom (load circuit)     number of conductors per terminal   2 (conductors of same type and cross-section) number of conductors per terminal     Consection solid   1-wire: 1 mm²35	
Maximum disconnection times   1 · Idn: ≤ 300 ms; 5 · Idn: ≤ 40 ms     Tripping characteristic   C     Supply side   up     Operating voltage (AC)   max. 440 V     Internal consumption   max. 1.3 W     Specification   Ioad disconnect contact     Rated voltage (AC)   230 V, 400 V     Rated voltage (AC)   230 V, 400 V     Rated short-circuit current   6 kA     Surge current strength   3 kA     max. Total rated switching capacity   6 kA     Rated insulation voltage   440 V     Rated insulation voltage   4 kV     Rated frequency   50 Hz     Current heat loss per current path   1.8 W     Back-up fuse type   gG     Overvoltage class   III     Neutral conductor position   right     Connection C1 Maximum number of conductors per terminal top, bottom (load circuit)   1.8 mt² 10 mm²     Consection sold   1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²     Consection stranded   1-wire: 1 mm² 25 mm²; 2-wire: 1 mm² 10 mm²	
Tripping characteristicCSupply sideupOperating voltage (AC)max. 440 VInternal consumptionmax. 3.3 WSpecificationload circuitSpecificationload disconnect contactRated voltage (AC)230 V, 400 VRated short-circuit current6 kASurge current strength3 kAmax. Total rated switching capacity6 kARated insulation voltage440 VRated insulation voltage4 kVRated frequency50 HzCurrent heat loss per current path1.8 WBack-up fuse typegGOvervoltage classIIIScrew-type terminal top, bottom (load circuit) rightConnecting Capacity flexible1-wire: 1 mm² 35 mm², 2-wire: 1 mm² 10 mm²Cross section solid1-wire: 1 mm² 25 mm², 2-wire: 1 mm² 10 mm²Tightening torque2 Nm 2.4 Nm	
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Canadada	
General data	
Operating position optional	
Mechanical endurance min. 5000 switching cycles	
Electrical endurance min. 2000 switching cycles	
Ambient temperature -25 °C 40 °C	
Climate resistance according to IEC 60068-2-30	
Shock resistance 20 g / 20 ms Duration	
Fatigue limit> 5 g (f $\leq$ 80 Hz, duration > 30 min.)	
Housing type distribution board housing	
Installation type Mounting rail (35 mm)	
Width 80 mm	

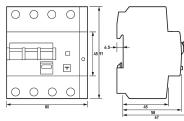
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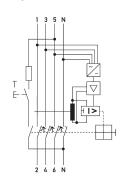
Technical Data	DRCBO 4 C13/0,30/3N-B+
Height	91 mm
Depth	73.5 mm
Installation depth	67 mm
Module widths	4.5
Weight	0.323 kg
Design requirements/Standards	VDE 0664-20, VDE 0664-40, VDE 0664-401, EN 61009-1, EN 62423, ÖVE/ÖNORM E 8601
Power limitation category	3
Degree of pollution	2
Certifications	VDE

### Dimensions

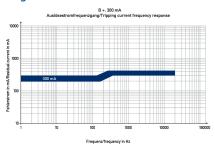
Dimensional drawing Group view



Wiring example



Diagrams



Characteristic B+ 300 mA

Wiring diagram