

## **DATA SHEET**

# residual current operated circuit-breakers with integral overcurrent protection RCBO 1 C45/0,03/1-AC



sensitive to residual currents Type AC Article number 09915839

symbolic image



#### **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 high-quality residual current operated circuit-breakers with integral overcurrent protection from series RCBO 1 are independent of the mains voltage and have a high switching capacity of 10 kA. They are especially suited for use in British standard distribution systems, and are particularly compact thanks to a module width of just one module width unit. Two features make mounting and removal easier: terminal protection against wires being lodged behind them and the bi-stable snap-in slider. Switches with residual current characteristic AC only detect AC residual currents. They cannot detect pulsating DC residual currents so are not permitted for use as residual current operated protective devices in Germany. They are therefore only available as export models. 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 of this series have been designed in accordance with the requirements of the British Standards Institution. Due to their voltage dependance, they are not admitted for use in Germany.

#### Features

mains-voltage-dependent tripping, compact design for all rated currents, high short-circuit resistance, green/red switching position indicator, strain-relief clamps with protection against wires being lodged behind them, bi-stable snap-in slider for easy mounting and removal

#### Mounting

quick fastening to mounting rail, any installation position, supply as desired

#### Applications

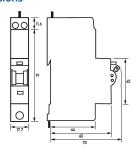
Power supplies to residential and purpose-built buildings as well as industrial facilities with TN-S, TT and TN-C-S networks. In IT networks, the RCBOs of this series can be set to switch off in the event of a second fault, Not permitted for use in TN-C networks and for protecting systems in which electronic equipment may cause pulsating or smooth DC residual currents or residual currents with frequencies not equal to 50 Hz. Comprehensive protection is not provided with an RCCB type AC. For these applications we recommend our residual current operated circuit-breakers with integral overcurrent protection Type A or our AC-DC sensitive RCBO Type B.

#### Technical Data

Technical Data	RCBO 1 C45/0,03/1-AC
Series	RCBO 1
Number of poles	1
Residual current type	AC
Rated current (AC)	45 A
Rated residual current $I\Delta n$	o.o <sub>3</sub> A
Short-time delayed	false
Selective	false
min. Operating voltage range of test circuit	184 V
max. Operating voltage range of test circuit	264 V

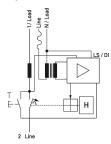
Technical Data RCBO 1 C.s/s/p.ogs/- AC Tripping characteristic C Operating voltage (AC) max. 253 V Ioad circuit Specification Ioad disconnect contact Rated voltage (AC) 230 V Rated current (AC) 45 A Rated sort-circuit current 10 kA Surge current strength 0.25 kA max. Total rated switching capacity Rated frequency 50 Hz Current heat loss per current 13.8 W path Short-circuit backup-fuse SCPD 300 A Back-up fuse type 9 GG screw-type terminal top, bottom (load circuit) Neutral conductor position right Clamping area 1 mm²25 mm² Connection Ca Maximum 2 (conductors of same type and cross-section) number of conductors per terminal Coperating position optional Mechanical endurance min. 20000 switching cycles Electrical endurance min. 20000 switching cycles Storage temperature -25 °C55 °C Ambient temperature -25 °C55 °C Housing type installation type Mounting rail (35 mm) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Protection class in Page (installed: IP.qo) Housing material thermoplastic Pro		
Operating voltage (AC)    Ioad circuit		
Specification   Specificatio		
Specification load disconnect contact Rated voltage (AC) 230 V Rated short-circuit current 10 kA Surge current strength 0.25 kA max. Total rated switching capacity Rated frequency 50 Hz Current heat loss per current path Short-circuit backup-fuse SCPD 100 A Back-up fuse type GG screw-type terminal top, bottom (load circuit) Neutral conductor position right Clamping area 1 mm² 25 mm² Connection C1 Maximum 20 (conductors of same type and cross-section) number of conductors per terminal Celepting besit to optional Mechanical endurance min. 2000 switching cycles Electrical endurance min. 2000 switching cycles Electrical endurance according to EC 60068-2 (po95%) Housing type distribution board housing Installation type Mounting rail (25 mm) Depth 75.2 mm Installation depth 75.2 mm Module widths 1 1 Design requirements/Standards EN 61009-2, EN 61009-2-1, EN 61543	Operating voltage (AC)	
Rated voltage (AC) Rated current (AC) Rated sont-circuit current 10 kA Surge current strength 20.25 kA max. Total rated switching capacity Rated frequency So Hz Current heat loss per current part before the part of the par		load circuit
Rated current (AC) Rated short-circuit current  10 kA  Surge current strength  20 capacity  Rated frequency So Hz  Current heat loss per current 13,8 W  Path Short-circuit backup-fuse SCPD 100 A  Back-up fuse type gG screw-type terminal top, bottom (load circuit)  Neutral conductor position Clamping area 1 mm² 25 mm² Connection C1 Maximum 2 (conductors of same type and cross-section)  number of conductors per terminal  Operating position Optional Mechanical endurance Electrical endurance Storage temperature 2 cs C 55 °C  Ambient temperature 2 cs C 55 °C  Ambient temperature 2 cs C 55 °C  Ambient temperature 3 cs C 55 °C  Ambient temperature 4 cs C 55 °C  Ambient temperature 5 condition type 4 distribution board housing Installation type Mounting rail (35 mm)  Housing material Hermoplastic Protection class Protectio	Specification	load disconnect contact
Rated short-circuit current Surge current strength O. 25 kA  max. Total rated switching capacity Rated frequency So Hz Current heat loss per current path Short-circuit backup-fuse SCPD Back-up fuse type GG screw-type terminal top, bottom (load circuit) Neutral conductor position right Clamping area 1 mm² 25 mm² Connection C1 Maximum number of conductors per terminal  General data Operating position Operating position Operating position Mechanical endurance Electrical endurance Storage temperature 2 25 °C 55 °C Ambient temperature 2 25 °C 45 °C Ambient temperature 3 25 °C 45 °C Climate resistance According to JEC 60068-2 (9095%) Housing type Mounting rail (35 mm) Housing material Frotection class Protection cla	Rated voltage (AC)	230 V
Surge current strength  max. Total rated switching capacity  Rated frequency  Gurrent heat loss per current path Short-circuit backup-fuse SCPD  100 A  Back-up fuse type  gG  screw-type terminal top, bottom (load circuit)  Neutral conductor position Clamping area  1 mm² 25 mm²  Connection C1 Maximum number of conductors per terminal  General data  Operating position  General data  Operating position  Mechanical endurance  Initiation and switching cycles  Storage temperature  1-25 °C 55 °C  Ambient temperature  1-25 °C 40 °C  Climate resistance  Giscolor Signem  Mounting rail (35 mm)  Housing type  Mounting rail (35 mm)  Housing material  Protection class  IP20 (installed: IP40)  Writh  102.6 mm  Depth 175.2 mm  Installation depth 103.6 Ms 1  Weight 10.196 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 610543	Rated current (AC)	45 A
max. Total rated switching capacity  So Hz  Current heat loss per current path	Rated short-circuit current	10 kA
Rated frequency Current heat loss per current path Short-circuit backup-fuse SCPD Back-up fuse type Screw-type terminal top, bottom (load circuit) Neutral conductor position Return and a summary of the	Surge current strength	0.25 kA
Current heat loss per current path  path  Short-circuit backup-fuse SCPD  Back-up fuse type  gG  screw-type terminal top, bottom (load circuit)  Neutral conductor position  Inpit  Clamping area  1 mm² 25 mm²  Connection C1 Maximum number of conductors per terminal  General data  Operating position  Operating position  Operating position  Mechanical endurance  inin. 20000 switching cycles  Electrical endurance  Storage temperature  -25 °C 5 °C  Ambient temperature  -25 °C 40 °C  Climate resistance  distribution board housing  Installation type  Mounting rail (35 mm)  Housing material  Protection class  IP20 (installed: IP40)  Width  17.7 mm  Height  102.6 mm  Depth  75.2 mm  Installation depth  Module widths  1  Weight  0.196 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61069-3  EN 61009-1, EN 61009-2-1, EN 61069-3  EN 61009-1, EN 61009-2-1, EN 61069-3  James Anders	_	10 kA
path Short-circuit backup-fuse SCPD Back-up fuse type g g screw-type terminal top, bottom (load circuit) Neutral conductor position Iright Clamping area 1 mm² 25 mm² Connection C1 Maximum number of conductors per terminal  General data Operating position Operating position Mechanical endurance Biectrical endurance Storage temperature Torage temperature Torage temperature Torage distribution board housing Housing type Torage temperature Torag	Rated frequency	50 Hz
Back-up fuse type  screw-type terminal top, bottom (load circuit)  Neutral conductor position  right  Clamping area  1 mm² 25 mm²  Connection C1 Maximum number of conductors per terminal  Ceneral data  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  -25 °C 55 °C  Ambient temperature  1 caccording to IEC 66068-2 (go95%)  Housing type  Gistribution board housing Installation type  Mounting rail (35 mm)  Housing material  Protection class  IP 20 (installed: IP40)  Width  1 27.7 mm  Height  1 102.6 mm  Depth  7 5.2 mm  Installation depth  Module widths  1  Weight  0 1.96 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61009-2-1, EN 615043		13.8 W
Screw-type terminal top, bottom (load circuit)   Neutral conductor position   right     Clamping area   1 mm² 25 mm²     Connection C2 Maximum   2 (conductors of same type and cross-section)     number of conductors per terminal     General data     Operating position   optional     Mechanical endurance   min. 2000 switching cycles     Electrical endurance   min. 4000 switching cycles     Storage temperature   -25 °C 55 °C     Ambient temperature   -25 °C 40 °C     Climate resistance   according to IEC 60068-2 (go95%)     Housing type   distribution board housing     Installation type   Mounting rail (35 mm)     Housing material   thermoplastic     Protection class   IP20 (installed: IP40)     Width   17.7 mm     Height   102.6 mm     Depth   75.2 mm     Installation depth   70.2 mm     Module widths   1     Weight   0.196 kg     Design requirements/Standards   EN 61009-2-1, EN 61043	Short-circuit backup-fuse SCPD	100 Å
Neutral conductor position  Clamping area  1 mm² 25 mm²  Connection C1 Maximum number of conductors per terminal  General data  Operating position  Mechanical endurance  Electrical endurance  Tin. 20000 switching cycles  Storage temperature  -25 °C 55 °C  Ambient temperature  -25 °C 40 °C  Climate resistance  according to IEC 60068-2 (9095%)  Housing type  distribution board housing  Installation type  Mounting rail (35 mm)  Housing material  Protection class  IP20 (installed: IP40)  Width  17.7 mm  Height  Depth  Depth  75.2 mm  Installation depth  70.2 mm  Module widths  1  Weight  0.196 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61009-2-1, EN 61090-2-1, EN 61009-2-1, EN 6	Back-up fuse type	<del>-</del>
Clamping area  1 mm² 25 mm²  Connection C1 Maximum number of conductors per terminal  General data  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Climate resistance  Housing type  distribution board housing  Installation type  Housing material  Protection class  Width  177 mm  Height  Depth  75.2 mm  Module widths  1  Weight  Occupance  12 (conductors of same type and cross-section)  2 (conductors of same type and cross-section)  12 (conductors of same type and cross-section)  13 (conductors of same type and cross-section)  14 (conductors of same type and cross-section)  15 (conductors of same type and cross-section)  16 (conductors of same type and cross-section)  16 (conductors of same type and cross-section)  17 (conductors of same type and cross-section)  18 (conductors of same type and cross-section)  20 (conductors of same type and cross-section)  21 (conductors of same type and cross-section)  22 (conductors of same type and cross-section)  23 (conductors of same type and cross-section)  24 (conductors of same type and cross-section)  25 (conductors of same type and cross-section)  26 (conductors of same type and cross-section)  26 (conductors of same type and cross-section)  27 (conductors of same type and cross-section)  28 (conductors of same type and cross-section)  29 (conductors of same type and cross-section)  20 (conductors of same type and cross-section)  21 (conductors of same type and cross-section)  22 (conductors of same type and cr		screw-type terminal top, bottom (load circuit)
Connection C1 Maximum number of conductors per terminal  General data  Operating position  Mechanical endurance  Electrical endurance  Inin. 20000 switching cycles  Electrical endurance  Min. 4000 switching cycles  Electrical endurance  Inin. 4000 switching cycles  Storage temperature  -25 °C 45 °C  Ambient temperature  -25 °C 40 °C  Climate resistance  According to IEC 60068-2 (9095%)  Housing type  Installation type  Mounting rail (35 mm)  Housing material  Thermoplastic  Protection class  IP20 (installed: IP40)  Width  17.7 mm  Height  102.6 mm  Depth  75.2 mm  Installation depth  70.2 mm  Module widths  1  Weight  0.196 kg  Design requirements/Standards  EN 61009-1-1, EN 61543	Neutral conductor position	right
number of conductors per terminal  General data  Operating position optional  Mechanical endurance min. 20000 switching cycles  Electrical endurance min. 4000 switching cycles  Storage temperature -25 °C 55 °C  Ambient temperature -25 °C 40 °C  Climate resistance according to IEC 60068-2 (9095%)  Housing type distribution board housing  Installation type Mounting rail (35 mm)  Housing material thermoplastic  Protection class IP20 (installed: IP40)  Width 17.7 mm  Height 102.6 mm  Depth 75.2 mm  Installation depth 70.2 mm  Module widths 1  Weight 0.196 kg  Design requirements/Standards EN 61009-1, EN 61009-2-1, EN 61543	Clamping area	1 mm² 25 mm²
Operating position optional  Mechanical endurance min. 20000 switching cycles  Electrical endurance min. 4000 switching cycles  Storage temperature -25 °C 55 °C  Ambient temperature -25 °C 40 °C  Climate resistance according to IEC 60068-2 (9095%)  Housing type distribution board housing  Installation type Mounting rail (35 mm)  Housing material thermoplastic  Protection class IP20 (installed: IP40)  Width 17.7 mm  Height 102.6 mm  Depth 75.2 mm  Installation depth 70.2 mm  Module widths 1  Weight 0.196 kg  Design requirements/Standards EN 61009-1-, EN 61009-2-1, EN 61543	number of conductors per	2 (conductors of same type and cross-section)
Mechanical endurancemin. 20000 switching cyclesElectrical endurancemin. 4000 switching cyclesStorage temperature-25 °C 55 °CAmbient temperature-25 °C 40 °CClimate resistanceaccording to IEC 60068-2 (9095%)Housing typedistribution board housingInstallation typeMounting rail (35 mm)Housing materialthermoplasticProtection classIP20 (installed: IP40)Width17.7 mmHeight102.6 mmDepth75.2 mmInstallation depth70.2 mmModule widths1Weight0.196 kgDesign requirements/StandardsEN 61009-1, EN 61009-2-1, EN 61543		General data
Electrical endurance  min. 4000 switching cycles  Storage temperature  -25 °C 55 °C  Ambient temperature  -25 °C 40 °C  Climate resistance  according to IEC 60068-2 (9095%)  Housing type  distribution board housing  Installation type  Mounting rail (35 mm)  Housing material  thermoplastic  Protection class  IP20 (installed: IP40)  Width  17.7 mm  Height  102.6 mm  Depth  75.2 mm  Installation depth  70.2 mm  Module widths  1  Weight  0.196 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61543	Operating position	optional
Storage temperature  -25 °C 55 °C  Ambient temperature  -25 °C 40 °C  Climate resistance  according to IEC 60068-2 (9095%)  Housing type  distribution board housing  Installation type  Mounting rail (35 mm)  Housing material  thermoplastic  Protection class  IP20 (installed: IP40)  Width  17.7 mm  Height  102.6 mm  Depth  75.2 mm  Installation depth  70.2 mm  Module widths  1  Weight  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61543	Mechanical endurance	min. 20000 switching cycles
Ambient temperature  -25 °C 40 °C  Climate resistance  according to IEC 60068-2 (9095%)  Housing type  distribution board housing  Installation type  Mounting rail (35 mm)  Housing material  thermoplastic  Protection class  IP20 (installed: IP40)  Width  17.7 mm  Height  102.6 mm  Depth  75.2 mm  Installation depth  70.2 mm  Module widths  1  Weight  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61543	Electrical endurance	min. 4000 switching cycles
Climate resistance according to IEC 60068-2 (9095%) Housing type distribution board housing Installation type Mounting rail (35 mm) Housing material thermoplastic Protection class IP20 (installed: IP40) Width 17.7 mm Height 102.6 mm Depth 75.2 mm Installation depth 70.2 mm Module widths 1 Weight 0.196 kg Design requirements/Standards EN 61009-2-1, EN 61543	Storage temperature	
Housing type Installation type Mounting rail (35 mm) Housing material Housing material Thermoplastic Protection class IP20 (installed: IP40) Width 17.7 mm Height 102.6 mm Depth 75.2 mm Installation depth 70.2 mm Module widths 1 Weight Design requirements/Standards EN 61009-1, EN 61009-2-1, EN 61543	Ambient temperature	-25 °C 40 °C
Installation type  Mounting rail (35 mm)  Housing material  thermoplastic  Protection class  IP20 (installed: IP40)  Width  17.7 mm  Height  102.6 mm  Depth  75.2 mm  Installation depth  70.2 mm  Module widths  1  Weight  0.196 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61543	Climate resistance	according to IEC 60068-2 (9095%)
Housing material thermoplastic  Protection class IP20 (installed: IP40)  Width 17.7 mm  Height 102.6 mm  Depth 75.2 mm  Installation depth 70.2 mm  Module widths 1  Weight 0.196 kg  Design requirements/Standards EN 61009-1, EN 61009-2-1, EN 61543	Housing type	distribution board housing
Protection class  IP20 (installed: IP40)  Width  17.7 mm  Height  102.6 mm  Depth  75.2 mm  Installation depth  70.2 mm  Module widths  1  Weight  0.196 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61543	Installation type	Mounting rail (35 mm)
Width       17.7 mm         Height       102.6 mm         Depth       75.2 mm         Installation depth       70.2 mm         Module widths       1         Weight       0.196 kg         Design requirements/Standards       EN 61009-1, EN 61009-2-1, EN 61543	Housing material	thermoplastic
Height 102.6 mm  Depth 75.2 mm  Installation depth 70.2 mm  Module widths 1  Weight 0.196 kg  Design requirements/Standards EN 61009-1, EN 61009-2-1, EN 61543	Protection class	IP20 (installed: IP40)
Depth 75.2 mm Installation depth 70.2 mm  Module widths 1  Weight 0.196 kg  Design requirements/Standards EN 61009-1, EN 61009-2-1, EN 61543	Width	17.7 mm
Installation depth 70.2 mm  Module widths 1  Weight 0.196 kg  Design requirements/Standards EN 61009-1, EN 61009-2-1, EN 61543	Height	102.6 mm
Module widths  1 Weight  0.196 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61543	Depth	75.2 mm
Weight 0.196 kg  Design requirements/Standards  EN 61009-1, EN 61009-2-1, EN 61543	Installation depth	70.2 mm
Design requirements/Standards EN 61009-1, EN 61009-2-1, EN 61543	Module widths	1
	Weight	0.196 kg
Power limitation category 3	Design requirements/Standards	EN 61009-1, EN 61009-2-1, EN 61543
	Power limitation category	3

### **Dimensions**



Dimensional drawing Group view

## Wiring example



Wiring diagram