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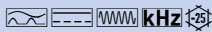

DATA SHEET

modular residual current devices

DMRCD 1 B+

AC/DC sensitive type B+

Article number 09340400



Function

MRCs (modular residual current devices) consist of a combination of residual current transformers with an evaluation unit and a separate, external switch-off device, e.g. a circuit-breaker. In this configuration, they allow the implementation of the "Protection via the automatic disconnection of the supply" measure as per DIN VDE 0100-410 and IEC 60364-4-41. They are primarily useful when no RCCBs or CRBs can be used due to high load currents or mains voltages. The MRCD detects the residual current and evaluates it in terms of its level and duration. If the residual response current thresholds and the response time are exceeded, it activates a separate switch-off device that disconnects the system part for which it is responsible from the power supply. Modular residual current circuit-breakers of series DMRCD has a number of usable total current transformers and therefore also a number of conductor cross-sections or rated currents. The bar display provides a view of the current residual current. The alarm is triggered at a fixed response threshold. The current level of the residual current, and the point where the response thresholds are exceeded can be seen on a 10-way LED display on the front of the device housing. A faulty connection to the external residual current transformer is immediately indicated by the alarm LED through a flashing pattern and by the activation of the signal contacts. The adjustable response delay in the range from 0.1 s to 1 s (in increments of 100 ms) makes it possible to prevent a response to brief residual current impulses, e.g. lightning strikes and switching overvoltage. This approach allows for selectivity of devices switched in series, simplifying the localisation of faults. Two independent, potential-free changeover contacts provide the option of passing on the alarm to optional indicator panels, indicator lights, acoustic signalling devices, touch panels, PLCs, etc. Modular residual current devices with characteristic B+ detect pulsating and smooth DC residual currents as well as AC residual currents up to 100 kHz. This variant is suitable for monitoring circuits with frequencies from 50 Hz to 60 Hz. The residual response current can be adjusted to .

Features

suitable for detecting type B+ residual currents, monitored frequency range 0 Hz (DC) – 100 kHz, rated residual operating current can be adjusted at five levels, large selection of connectible residual current transformers, rated voltage of monitored circuit up to 690 V, with alarm relay, the response thresholds for the pre-alarm can be set from 10 % to 90 % of the response threshold for the alarm, the set value for the pre-alarm threshold is displayed as a continuously lit LED on the bar display, two potential-free changeover contacts for pre-alarm and main alarm, selectivity adjustable at ten levels, dependent on auxiliary voltage, compact, robust plastic housing, easy mounting, complies with DIN EN 60947-2 / VDE 0660-101, DIN VDE 0664-110 (B+), VDE 0100-410 / IEC 670364-4-41 and VDE 0100-530

Mounting

quick fastening to mounting rail, any installation position

Applications

The monitoring device is suitable for use in power supplied to purpose-built buildings and industrial facilities with TN-S, TN-C-S networks, IT networks and direct current networks, such as in server rooms for data centres, laboratories, in the automotive industry and in conjunction with photovoltaic and UPS systems with frequency converters without transformers, air conditioning systems, frequency converters, switching power supplies, high-frequency converters, printing machines and packaging machines. , Suitable for monitoring DC circuits and systems in which electronic equipment may generate smooth DC residual currents or residual currents with frequencies not equal to 50 Hz.

Notes

Residual currents are detected separately by external residual current transformers from series DCT, which are ordered separately. No more than one transformer can be operated on one evaluation unit. The maximum cable length from the control relay to the transformer is 10 m. The VDE certification is only fulfilled with approved switch-disconnector combinations and undervoltage trips (see DMRCD operating instructions). To meet DIN VDE 0100-410, the electrical system must be isolated from the mains by an external isolating device with a response time of less than 15 ms.

Accessories

residual current transformer DCT Type B+, cables DTCC, connecting plugs DTCC

Subject to technical changes

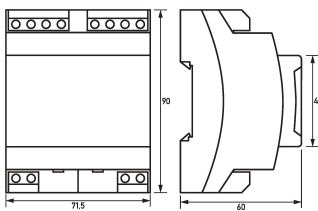
Technical Data

Technical Data	DMRCD 1 B+
Series	DMRCD 1 B+
Error memory existent	true
Selectivity adjustable	true
Residual operating current $I_{\Delta n}$ (measuring ranges) AC	0.03 A, 0.1 A, 0.3 A, 1 A, 3 A
Residual operating current $I_{\Delta n}$ (measuring ranges) DC	0.03 A, 0.1 A, 0.3 A, 1 A, 3 A
Frequency range response residual current Type A	50 Hz ... 60 Hz
Frequency range response residual current Type AC	50 Hz ... 60 Hz
Frequency range residual response current Type B	0 Hz ... 100 kHz
adjustment values delay at $I_{\Delta n} = 30 \text{ mA}$	0 s
adjustment values delay at $I_{\Delta n} \geq 100 \text{ mA}$	0.06 s, 0.1 s, 0.2 s, 0.3 s, 0.4 s, 0.5 s, 0.7 s, 0.9 s, 1 s
Response time at $I_{\Delta n} = 30 \text{ mA}$	$1 \cdot I_{\Delta n} = 45 \text{ ms}$; $2 \cdot I_{\Delta n} = 35 \text{ ms}$; $5 \cdot I_{\Delta n} = 25 \text{ ms}$; $10 \cdot I_{\Delta n} = 25 \text{ ms}$
Response time at $I_{\Delta n} \geq 100 \text{ mA}$	adjustment values non-response lag time + 100 ms
Response threshold range of the pre-alarm	10 % ... 90 %
Response threshold range of the main alarm	75 % ... 100 %
Rated voltage U_n of circuit monitored	0 V ... 690 V
Rated frequency f_n of circuit monitored	0 Hz ... 400 Hz
Control elements	range switch for residual response current, range switch for pre-alarm threshold, range switch for non-response lag time, reset button, test key
Current transformer external	DCT 35 B+, DCT 70 B+, DCT 105 B+
Operating voltage (AC)	230 V (85 V ... 264 V)
Operating frequency	50 Hz, 60 Hz
Internal consumption	max. 6 W
Rated impulse withstand voltage	4 kV
	Display pre-alarm, residual response current
Number	2
Type	LED, LED bar display, relays
nominal response residual current range	10 % ... 100 %
	Display main alarm, residual response current
Type	LED, LED bar display, relays
	Display operation
Type	LED
	pre-alarm output
Specification	relays
Rated voltage (AC)	230 V
Rated current (AC)	5 A
Rated frequency	50 Hz ... 60 Hz
Overvoltage class	III
	main alarm output
Specification	relays

Subject to technical changes

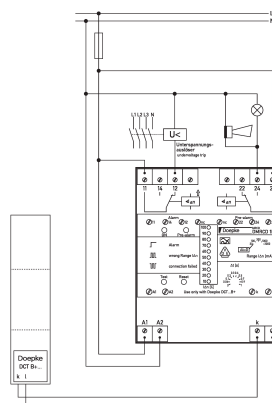
Technical Data	DMRCD 1 B+
Rated voltage (AC)	230 V
Rated current (AC)	5 A
Rated frequency	50 Hz ... 60 Hz
	screw-type terminal (load circuit)
Cross section solid	1-wire: 0.2 mm ² ... 4 mm ²
Cross section flexible with ferrule	0.2 mm ² ... 2.5 mm ²
Tightening torque	max. 0.6 Nm
	RJ45 (transformer input)
Connection design	female
	General data
Operating position	optional
max. Operating altitude above MSL	2000 m
Storage temperature	-40 °C ... 85 °C
Ambient temperature	-25 °C ... 65 °C
Housing type	distribution board housing
Installation type	Mounting rail (35 mm)
Housing material	polycarbonate (PC)
Specification housing cover	transparent
Protection class	IP40
sealable	true
Width	71.6 mm
Height	89.7 mm
Depth	62.2 mm
Installation depth	62.2 mm
Module widths	4
Design requirements/Standards	EN 60947-2 Annex M, EN 60664
Degree of pollution according to EN 60664	2

Dimensions



Dimensional drawing Group view

Wiring example



Wiring diagram

Subject to technical changes