



## DATA SHEET

### modular residual current devices

#### MFR

sensitive to pulsating and alternating currents Type A

Article number 09340198



#### 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 from the MFR series have a compact design and an increased rated voltage of up to 500 V AC. The residual response current level is determined by the corresponding transformer selected for this series. The devices also have two potential-free NO contacts for controlling the switch-off device. Modular protective devices with residual current characteristic A detect sinusoidal AC currents as well as pulsating DC residual currents. Devices in standard design are intended for monitoring circuits with a rated voltage of 500 V and a rated frequency of 50 Hz.

#### Features

suitable for detecting type A and AC residual currents as well as pulsating DC residual currents, connection for external residual current transformer series MFIW, rated residual currents are determined by the transformer, compact design, 2 potential-free contacts, opening when trip occurs, high immunity against transient residual currents

#### 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 and IT networks, such as in server rooms for data centres, laboratories, in the automotive industry and in conjunction with air conditioning systems, printing machines and packaging machines, Not permitted for use in TN-C networks and direct current networks; not permitted for monitoring systems in which electronic equipment may cause DC residual currents or residual currents with frequencies not equal to the rated frequency of the RCCB.

#### Accessories

auxiliary switches DHI

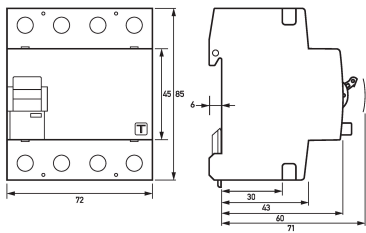
#### Technical Data

Technical Data	MFR
Series	MFR
Error memory existent	false
Short-time delayed	true
adjustment values delay at $I_{\Delta n} = 30 \text{ mA}$	0 s
Response time (textual)	< 40 ms (for rated residual current)
max. adjustable residual operating current $I_{\Delta adj} \text{ AC}$	0.3 A, 0.5 A, 1 A
Frequency range response residual current Type A	50 Hz
Frequency range response residual current Type AC	50 Hz

Subject to technical changes

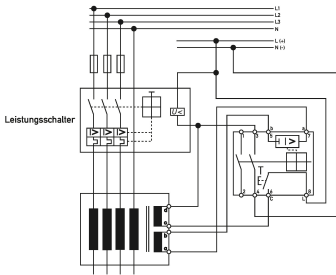
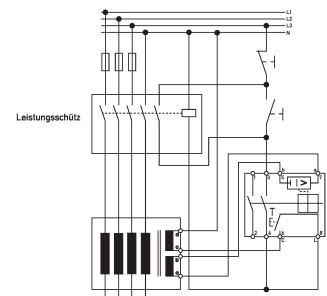
Technical Data	MFR
Rated frequency of circuit monitored	50 Hz
Rated voltage U <sub>em</sub> of circuit monitored AC	199 V ... 500 V
Current transformer external	MFIW 35/0,3, MFIW 35/0,5, MFIW 35/1,0, MFIW 70/0,3, MFIW 70/0,5, MFIW 70/1,0, MFIW 105/0,3, MFIW 105/0,5, MFIW 105/1,0, MFIW 140/0,3, MFIW 140/0,5, MFIW 140/1,0
Operating voltage (AC)	230 V, 400 V, 500 V
Operating frequency	50 Hz
Rated impulse withstand voltage	4 kV
	<b>Display (switch position)</b>
Number	1
Type	operating lever
	<b>main alarm output</b>
Specification	relays
Rated voltage (AC)	500 V (450 V ... 550 V)
Rated current (AC)	16 A
Rated frequency	50 Hz
Back-up fuse type	B16
Overvoltage class	III
	<b>screw-type terminal (load circuit)</b>
Clamping area	1.5 mm <sup>2</sup> ... 50 mm <sup>2</sup>
Tightening torque	max. 3 Nm
	<b>screw-type terminal (transformer input)</b>
Clamping area	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Tightening torque	max. 3 Nm
	<b>General data</b>
Operating position	optional
max. Operating altitude above MSL	2000 m
Storage temperature	-40 °C ... 85 °C
Ambient temperature	-25 °C ... 40 °C
Housing type	distribution board housing
Installation type	Mounting rail (35 mm)
Housing material	polycarbonate (PC)
Protection class	IP20
sealable	true
Width	72 mm
Height	85 mm
Depth	75 mm
Installation depth	71 mm
Module widths	4
Weight	0.366 kg
Design requirements/Standards	EN 60947-2 Annex M
Degree of pollution	2

Dimensions



Dimensional drawing Group view

Wiring example



Wiring diagram

Wiring diagram with power contactor