

ANSI codes 50/51

Types RMC-111D, RMC-122D, RMC-132D

- **Short circuit/overcurrent**
- **3 phase measurement**
- **LED indication of fault condition**
- **Timer controlled tripping**
- **LED indication for activated relay**
- **35 mm DIN rail or base mounting**

Application

The protective current relays types RMC-111D, RMC-122D and RMC-132D form part of a complete DEIF series of relays for protection and control of generators. The relays are applicable to both marine and land-based installations. Also available are differential current relays (RMC-131D).

The relays are type approved by major classification societies.

RMC-111D (ANSI codes 50/51)

This short circuit relay is applied in cases where only protection against short circuit currents is required ($I>>$).

RMC-122D (ANSI codes 50/51)

This combined short circuit and overcurrent relay is applied for protection of generators against both overcurrents and short circuit currents ($I> + I>>$).

RMC-132D (ANSI codes 50/51)

This double overcurrent relay is applied in cases where protection against overcurrents at two levels is required ($I> + I>$).

Measuring principle

The relays measure the highest of the 3 phase currents, providing an RMS measurement at sinusoidal currents.

The measurement is based on average values for $I>$, peak values for $I>>$. If a current exceeds a set point, the output is activated.

The set point values are set on the front of the relays by means of potentiometers. If exceeded, a fault signal is generated, and the associated yellow LED is lit.

Timer functions

When the set point is exceeded, its timer starts and will run as long as the fault condition prevails.

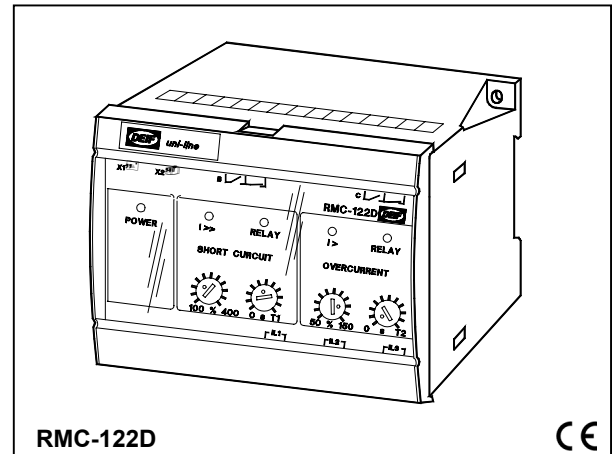
The delay (3 ranges) does not depend on the exceeding of the set point.

If the fault disappears, the timer is reset. When the timer expires, the contact is activated and the associated red LED is lit.

Current relays

uni-line

4921240102D



Relay outputs

The relays are provided with outputs as follows:

RMC-111D:	$I>>$	1 max. contact
RMC-122D:	$I> + I>>$	2 max. contacts
RMC-132D:	$I> + I>$	2 max. contacts

which are either normally energised or normally de-energised contacts. The contact(s) may be set to open or to close on activation.

Normally energised contact

Recommended for land-based installation for warning and alarm purposes. In case of an auxiliary supply drop-out, the contact is immediately activated.

Normally de-energised contact

Recommended for marine installations for regulating and control purposes. An auxiliary supply failure will not result in an unwanted activation of the contact.

Latch circuit

The contacts can then be locked in their warning position, even if the input currents return to normal (add "L" to contact type in order specifications, if this is required).

The latch circuit is reset by disconnecting the auxiliary supply.

Hysteresis

In order to avoid "chatter" on the relay contacts the contact functions are provided with a hysteresis, i.e. a difference of 2% of full scale between energising and de-energising of the relay.

Power-up/power-down circuits

The relays are provided with a 200 ms power-up circuit, ensuring the correct function of the relay on connection of the auxiliary voltage.

Note: Normally energised contacts are not activated (contact does not open/close) until 200 ms after connection of the auxiliary voltage.

Likewise, the relays are provided with a 200 ms power-down circuit, ensuring supervision and maintenance of any set point exceedings for 200 ms after disconnection of the auxiliary voltage.

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Technical specifications

Meas. range (I_n): 0.3-0.4-0.5-0.6-0.8-1.0-1.3-1.5-2.0-2.5-3.0-4.0-5.0A AC
adjusted ranges: 75...100% of I_n (e.g. 0.4, 0.45, etc.)
 (lowest meas. range: 0.3A).

Frequency range: 40...45...65...70Hz.

Short circuit current: 1.0...4.0 x I_n .

Overcurrent: 0.5...1.5 x I_n

Max. input current: 4 x I_n , continuously,
 20 x I_n for 10 s (max. 75A)
 80 x I_n for 1 s (max. 300A).

Load: Max. 0.3VA per phase.

Output(s): 1(2) maximum contact(s)

contact type: Relay B (+relay C):
 normally energised ("NE"), or
 normally de-energised ("ND")
 with or without latch circuit ("L")

relay contacts: 1 change-over switch per relay

contact ratings: 250V-8A-2000VA (AC)
 24V-8A-200W (DC)
 (200 x 10³ change-overs at resistive load)

contact voltage: Max. 250V (AC).
 Max. 150V (DC).

Hysteresis: 2% of full scale (F.S.).

Response time: <50 ms short circuit current
 <500 ms overcurrent.

Temperature: -25...70°C (operating).

Temperature drift: Set points:
 max. 0.2% of full scale per 10°C.

Galvanic separation: Between inputs, outputs and aux.
 voltage: 3250V - 50Hz - 1 min.

Supply voltage (U_n): 57.7-63.5-100-110-127-200-220-230-
 240-380-400-415-440-450-660-690VAC
 ±20% (max. 3.5VA)
 24-48-110-220V DC -25/+30%
 (max. 2W).

Climate: HSE, to DIN 40040.

EMC: To EN 50081-1/2, EN 50082-1/2,
 SS4361503 (PL4) and IEC 255-3.

Connections: Max. 4 mm² (single-stranded).
 Max. 2.5 mm² (multi-stranded).

Materials: All plastic parts are self-extinguishing to
 UL94 (V1).

Protection: Case: IP40. Terminals: IP20,
 to IEC 529 and EN 60529.

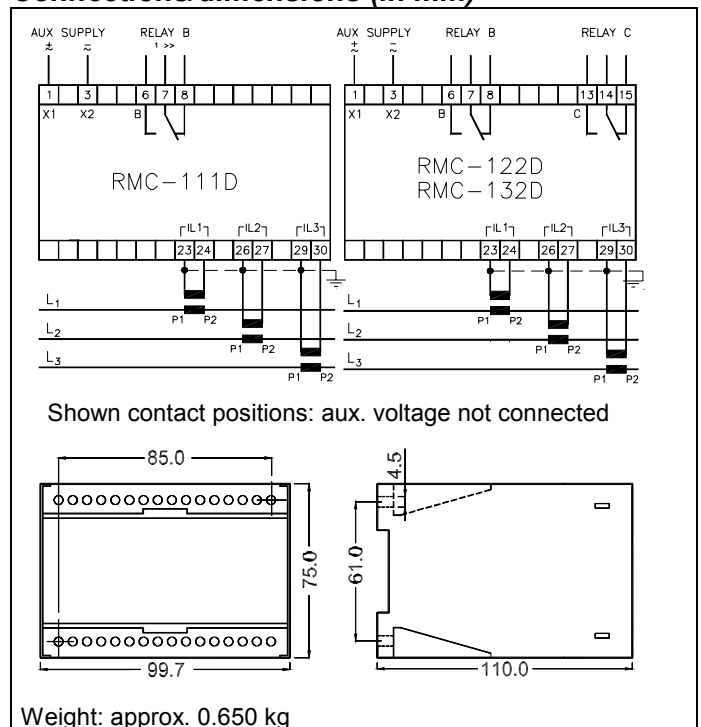
Type approval: The uni-line components are approved
 by the major classification societies. For
 current approvals see www.deif.com or
 contact DEIF A/S.

Settings and indication

Setting of	LED/relay
Short circuit current set point: (100...400%) of I_n	"I>>" yellow LED is lit when the set point has been exceeded, but the output contact not yet activated.
Time delay: (0-T1) in seconds 0...1/0...5/0...10 s	Contact is activated and red LED lit after the timer has expired.
Overcurrent set point(s): (50...150%) of I_n	"I>" yellow LED is lit when the set point has been exceeded, but the output contact not yet activated.
Time delay: (0...T2) in seconds 0...20/0...60/0...120 s	Contact is activated and red LED lit after the timer has expired.

The relays are furthermore equipped with a green LED marked "POWER" for indication of power ON. Once the relay has been mounted and adjusted, the transparent front cover may be sealed, preventing unwanted change of the setting.

Connections/dimensions (in mm)



Order specifications

**Type – Meas. current (I_n) – Relay B – (Relay C) –
 Time delay (T1 – T2) – Supply voltage**

Examples:

RMC-122D – 5A AC – NDL – ND – 1 s – 400V AC
 RMC-111D – 1A AC – NE – 5 s – 380V AC

Due to our continuous development we reserve the right to supply equipment which may vary from the described.



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