



-power in control



DATA SHEET



Short circuit current relay, RMC-121D

ANSI codes 50/51

- Measurement of 3-phase currents
- LED indication of fault condition
- Timer-controlled tripping
- LED indication for activated relay
- 35 mm DIN rail or base mounting



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1. General information

1.1 Application and features

1.1.1 Application

The protective current relay type RMC-121D forms part of a complete DEIF series of relays for protection and control of generators and is primarily designed for marine applications. Also available are short circuit relays (RMC-111D), combined short circuit and over-current relays (RMC-122D) and double over-current relays (RMC-132D).

1.1.2 Measuring principle

The relay measures the highest of the 3-phase currents, providing an RMS measurement at sinusoidal currents.

In order to obtain a short response time on a fault condition, the measurement is based on peak values.

The set point value is set on the front of the relay by means of a potentiometer. If exceeded, a fault signal is generated, and the associated yellow LED is lit.

1.1.3 Timer functions

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

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

1.1.4 Relay outputs

The RMC-121D is provided with one relay coil with two maximum contacts. The relay can be configured either to normally energised or normally de-energised. The contacts may be set to open or to close on activation (same function on both contacts).

Normally energised contact

Recommended for marine installations for warning and alarm purposes.

In case of an auxiliary supply dropout, the contacts are activated immediately.

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 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, that is a difference of 2 % of full scale between energising and de-energising of the relay.

Power-up/power-down circuits

The RMC-121D is provided with a 200 ms power-up circuit, ensuring the correct function of the relay on connection of the auxiliary voltage.



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

Likewise, the RMC-121D is 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.



A special version is available where the 200 ms power-down is enlarged to 1 sec.

2. Technical information

2.1 Technical specifications and dimensions

2.1.1 Technical specifications

Meas. range (I_n)	0.3-0.4-0.5-0.6-0.8-1.0-1.3-1.5-2.0-2.5-3.0-4.0-5.0 A AC UL/cUL Listed: 0.4 to 5.0 A AC
Adjusted ranges	75 to 100 % of I_n (for example 0.4, 0.45, etc.) (Lowest meas. range: 0.3 A)
Frequency range	40 to 45 to 65 to 70 Hz
Short circuit current	1.0 to $4.0 \times I_n$
Max. input current	$4 \times I_n$, continuously $20 \times I_n$ for 10 s (max. 75 A) $80 \times I_n$ for 1 s (max. 300 A)
Load	Max. 0.3 VA per phase
Outputs	2 maximum contacts
Contact type	Contact B, contact C: Normally energised ("NE"), or normally de-energised ("ND") with or without latch circuit ("L")
Relay contacts	2 sets of change-over switches
Contact ratings	250 V AC/24 V DC, 8 A (200 x 10 ³ change-overs at resistive load) UL/cUL Listed: Resistive load only
Contact voltage	Max. 250 V AC/150 V DC
Hysteresis	Minimum set point: >2 % Medium set point: >6 % Maximum set point: >18 %
Response time	<50 ms short circuit current
Temperature	-25 to 70 °C (-13 to 158 °F) (operating) UL/cUL Listed: Max. surrounding air temp. 60 °C/140 °F
Temperature drift	Set points: Max. 0.2 % of full scale per 10 °C/50 °F
Galv. separation	Between inputs, outputs and aux. voltage: 3250 V - 50 Hz - 1 min.
Supply voltage (U_n)	57.7-63.5-100-110-127-220-230-240-380-400-415-440-450-480-660-690 V AC ± 20 % (max. 3.5 VA) 24-48-110-220 V DC -25/+30 % (max. 2 W) UL/cUL Listed: Only 24 V DC and 110 V AC DC supply must be from a class 2 power source
Climate	HSE, to DIN 40040
EMC	To IEC/EN 61000-6-1/2/3/4
Connections	Max. 4.0 mm ² (single-stranded) Max. 2.5 mm ² (multi-stranded)
Materials	All plastic parts are self-extinguishing to UL94 (V1)
Protection	Case: IP40. Terminals: IP20, to IEC 529 and EN 60529

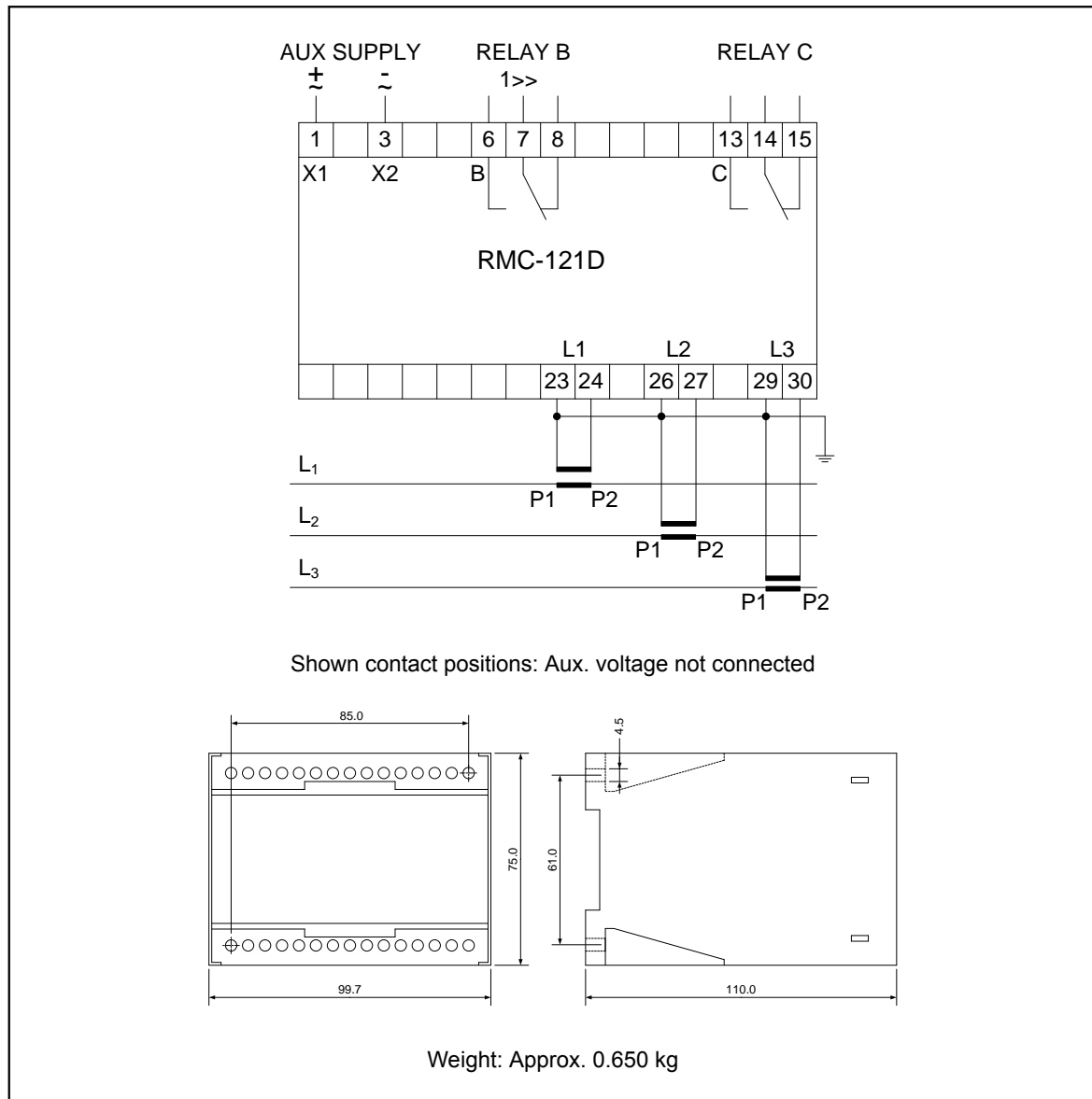
Type approval	The Uni-line components are approved by the major classification societies. For current approvals see www.deif.com or contact DEIF A/S.
UL markings	<ul style="list-style-type: none"> UL Listed only on request UL Listing will be lost if the product is re-customised outside DEIF DK's production plant Wiring: Use 60/75 °C (140/167 °F) copper conductors only Wire size: AWG 12-16 or equivalent Installation: To be installed in accordance with the NEC (US) or the CEC (Canada)

2.1.2 Settings and indication

Setting of	LED/relay
Short circuit current set point: (100 to 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 to T1) in seconds 0 to 1/0 to 5/0 to 10 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 to prevent unwanted change of the setting.

2.1.3 Connections/dimensions (in mm)



3. Ordering information

3.1 Order specifications and disclaimer

3.1.1 Available variants

Item no.	Variant no.	Variant description
2913160520	01	RMC-121D - DC supply
2913160520	02	RMC-121D - AC supply

3.1.2 Order specifications



There are no additional options to the standard variant.

Variants

Mandatory information						
Item no.	Type	Variant no.	Measuring current (I_n)	Relay	Time delay T1	Supply voltage

Example:

Mandatory information						
Item no.	Type	Variant no.	Measuring current (I_n)	Relay	Time delay T1	Supply voltage
2913160520-02	RMC-121D	02	5 A AC	NDL	1 s	440 V AC

3.1.3 Disclaimer

DEIF A/S reserves the right to change any of the contents of this document without prior notice.