

ANSI code 87
Type RMC-131D

- **Measurement of 3 phase currents**
- **Non-stabilised measurement**
- **LED indication of fault condition**
- **Timer controlled tripping**
- **LED indication for activated relay**
- **Extra change-over relay contact for signalling**
- **35 mm DIN rail or base mounting**

Application

The protective differential current relay type RMC-131D 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 overcurrent relays (RMC-122D) and double overcurrent relays (RMC-132D).

The RMC-131D is type approved by major classification societies and is applied for protection of e.g. generators in 3-phase networks against leakage currents.

Measuring principle

The relay compares the differential current of each of the 3 phases, 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 differential currents are obtained by connecting the external current transformers for each winding in parallel with inverse polarity.

The measurement is not stabilized, implying that the relay contact is activated for disconnection of the supervised unit when the differential current of the individual phases exceeds its set point, irrespective of the amperage of these.

The 3 differential currents are measured by the relay and the highest of these is selected. If this exceeds the set point, the output is activated.

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.

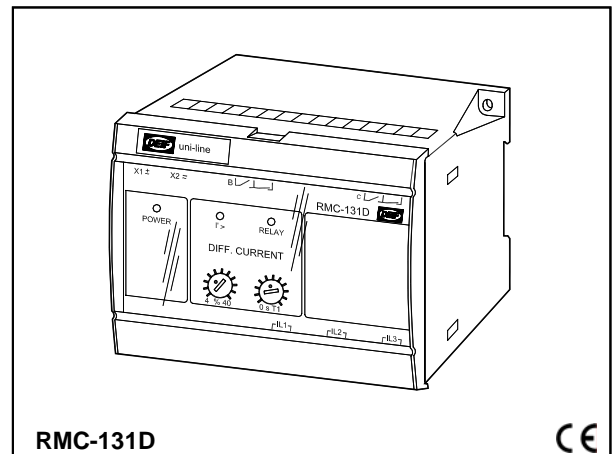
Timer function

When the set point has been exceeded, the associated 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.

Differential current relays

uni-line
4921240104H



Relay output

The RMC-131D is provided with one relay coil with 2 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 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 contact can be locked in its 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 RMC-131D is 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 RMC-131D 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.

Type RMC-131D

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 UL/cUL listed: 0.4...5.0A AC
Adjusted range:	75...100% of I_n (e.g. 0.4, 0.45, etc.) (lowest meas. range: 0.3A)
Frequency range:	40...45...65...70Hz
Differential current:	0.04...0.4 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:	1 maximum contact
Contact type:	Contact B, contact C: Normally energised ("NE"), or normally de-energised ("ND") with or without latch circuit ("L")
Relay contact:	2 sets of change-over switches
Contact ratings:	250V AC/24V DC, 8A (200 x 10 ³ change-overs at resistive load) UL/cUL listed: Resistive load only
Contact voltage:	Max. 250V AC/150V DC
Hysteresis:	2% of full scale (F.S.)
Response time:	<50 ms
Temperature:	-25...70°C (-13...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
Galvanic separation:	Between inputs, outputs and aux. voltage: 3250V - 50Hz - 1 min
Supply voltage (U_n):	57.7-63.5-100-110-127-200-220-230-240-380-400-415-440-450-660-690V AC $\pm 20\%$ (max. 3.5VA) 24-48-110-220V DC -25/+30% (max. 2W) UL/cUL listed: Only 24V DC and 110V AC DC supply must be from a class 2 power source
Climate:	HSE, to DIN 40040
EMC:	To EN 61000-6-1/2/3/4, SS4361503 (PL4) and IEC 255-3
Connections:	Max. 4 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:

Wiring:
Use 60/75°C (140/167°F) copper conductors
only

Wire size:
AWG 12-16 or equivalent

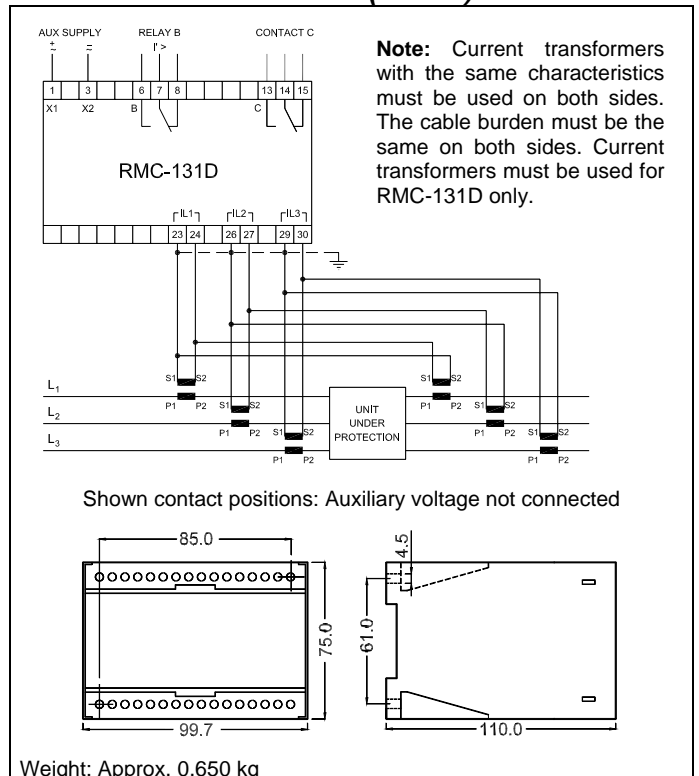
Installation:
To be installed in accordance with the NEC
(US) or the CEC (Canada)

Settings and indication

Setting of	LED/relay
Differential current set point: (4...40%) of I_n	"I">" yellow LED is lit when the set point has been exceeded, but the 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.

The relay is 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 – Measuring current (I_n) – Relay – Time delay (T1) – Supply voltage
Example: RMC-131D – 5A AC – NEL – 5 s – 440V AC

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



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