



## DATA SHEET

# RMP-111D

Overload relays  
ANSI code 32



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# 1. General information

- Protection of prime mover
- 3-phase measurement
- LED indication of alarm condition
- Timer-controlled tripping
- LED indication for activated relay

## 1.1 Application and features

### 1.1.1 Application

The protective overload relay type RMP-111D forms part of a complete DEIF series of relays for protection and control of generators and is applicable to both marine and land-based installations. Also available are reverse power relays (RMP-121D) and combined overload and reverse power relays (RMP-112D).

The RMP-111D is type-approved by major classification societies and is applied for protection of the prime mover against overload.

This is especially required if the prime mover is undersized in proportion to the AC generator.

### 1.1.2 Measuring principle

The relay measures all 3-phase currents and phase voltages.

The TDM (Time-Division-Multiplication) principle ensures an accurate measurement of the RMS value of the power ( $3 \times U \times I \times \cos\phi$ ), irrespective of wave form and asymmetry.

The RMP-111D is available with the following couplings:

2W3	2-element 3-phase 3-wire, unbalanced load
3W3(4)	3-element 3-phase 3-wire (4-wire), unbalanced load

If the power exceeds a 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.

### 1.1.3 Timer functions

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

### 1.1.4 Relay outputs

The RMP-111D is provided with an output with a maximum contact, either normally energised or normally de-energised.

The contact may be set to open or to close on activation.

#### Normally energised contact

Recommended for land-based 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 contacts can be locked in their warning position, even if the input power returns 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.



#### **INFO**

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

Likewise, the RMP-111D 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.

## 2. Technical information

### 2.1 Technical specifications and dimensions

#### 2.1.1 Technical specifications

<b>Meas. current (<math>I_n</math>)</b>	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
<b>Adjusted range</b>	75 to 100 % of $I_n$ (for example 0.4, 0.45, etc.) (lowest meas. range: 0.3 A)
<b>Overload</b>	$4 \times I_n$ , continuously, $20 \times I_n$ for 10 s (max. 75 A) $80 \times I_n$ for 1 s (max. 300 A)
<b>Load</b>	Max. 0.5 VA per phase
<b>Meas. voltage (<math>U_n</math>)</b>	57.7-63.5-100-110-127-200-220-230-240-380-400-415-440-450-480-660-690 V AC UL/cUL Listed: 57.7 to 450 V AC
<b>Overload</b>	$1.2 \times U_n$ , continuously, $2 \times U_n$ for 10 s
<b>Load</b>	2 k $\Omega$ /V
<b>Frequency range</b>	40 to <u>45</u> to <u>65</u> to 70 Hz
<b>Output</b>	1 maximum contact
<b>Contact type</b>	Relay B: Normally energised ("NE"), or normally de-energised ("ND") with or without latch circuit ("L")
<b>Relay contact</b>	1 change-over relay
<b>Contact ratings</b>	250 V AC/24 V DC, 8 A (200 x 10 <sup>3</sup> change-overs at resistive load) UL/cUL Listed: Resistive load only
<b>Contact voltage</b>	Max. 250 V AC/150 V DC
<b>Hysteresis</b>	2 % of full scale
<b>Response time</b>	<400 ms
<b>Temperature</b>	-25 to 70 °C (-13 to 158 °F) (operating) UL/cUL Listed: Max. surrounding air temp. 60 °C/140 °F
<b>Temperature drift</b>	Set points: Max. 0.2 % of full scale per 10 °C/50 °F
<b>Galv. separation</b>	Between inputs, outputs and aux. voltage: 3250 V - 50 Hz - 1 min.
<b>Supply voltage (<math>U_n</math>)</b>	57.7-63.5-100-110-127-220-230-240-380-400-415-440-450-480-660-690 V AC $\pm 20$ % (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
<b>Climate</b>	HSE, to DIN 40040
<b>EMC</b>	To IEC/EN 61000-6-1/2/3/4
<b>Connections</b>	Max. 4.0 mm <sup>2</sup> (single-stranded) Max. 2.5 mm <sup>2</sup> (multi-stranded)
<b>Materials</b>	All plastic parts are self-extinguishing to UL94 (V1)
<b>Protection</b>	Case: IP40. Terminals: IP20, to IEC 529 and EN 60529
<b>Type approval</b>	The Uni-line components are approved by the major classification societies. For current approvals see <a href="http://www.deif.com">www.deif.com</a> or contact DEIF A/S.
<b>UL markings</b>	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)

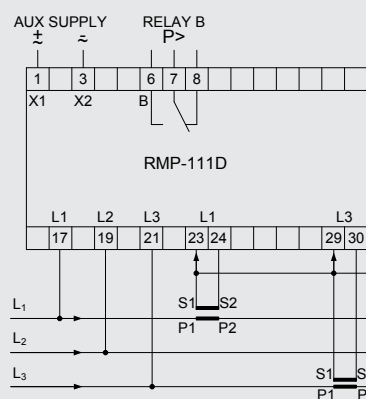
## 2.1.2 Settings and indication

Setting of	LED/relay
<b>Overload set point:</b> (25 to 125 %) of $P_n$	"P>" yellow LED is lit when the set point has been exceeded, but the contact not yet activated.
<b>Time delay:</b> (0 to 20 s) in seconds	Contact is activated and red LED lit after the timer has expired.

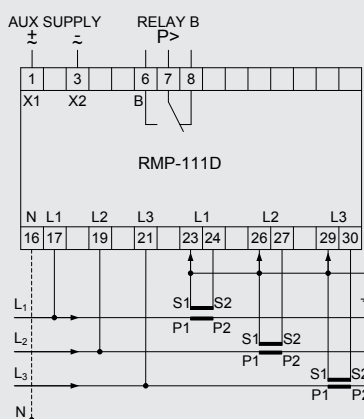
The relay is furthermore equipped with a green LED marked "POWER" for indication of power ON. Once the relay has been mounted and adjusted, the transparent front cover may be sealed to prevent unwanted change of the setting.

## 2.1.3 Connections/dimensions (in mm)

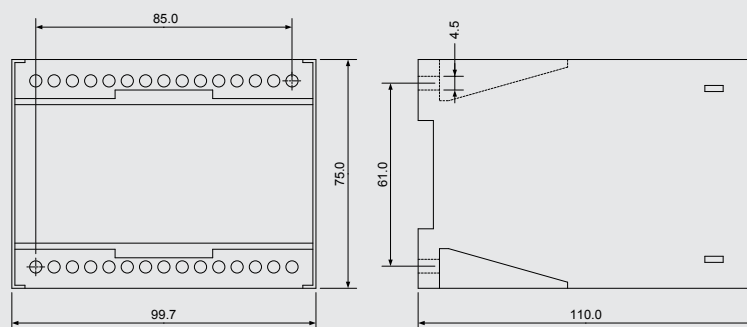
2W3



3W3(4)



Shown contact positions: Aux. voltage not connected



Weight: Approx. 0.650 kg

## 3. Ordering information

### 3.1 Order specifications and disclaimer

#### 3.1.1 Available variants

Item no.	Variant no.	Variant description
2913310060	01	RMP-111D - DC supply
2913310060	02	RMP-111D - AC supply

#### 3.1.2 Order specifications



##### INFO

There are no additional options to the standard variant.

##### Variants

Mandatory information							
Item no.	Type	Variant no.	Coupling	Measuring power ( $P_n$ )	Measuring voltage	Relay B	Supply voltage

Example:

Mandatory information							
Item no.	Type	Variant no.	Coupling	Measuring power ( $P_n$ )	Measuring voltage	Relay B	Supply voltage
2913310060-01	RMP-111D	01	3W4	0 to 100 W	3 × 63.5 V AC	ND	230 V AC



##### INFO

Measuring power ( $P_n$ ) = Primary power / (CT ratio × VT ratio)

#### 3.1.3 Disclaimer

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