

ANSI code 32
Type RMP-121D

- **Protection against "motoring"**
- **Single 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 reverse power relay type RMP-121D 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 overload relays (RMP-111D) and combined overload and reverse power relays (RMP-112D).

The RMP-121D is type approved by major classification societies.

The protective reverse power relay will prevent a generator running in parallel with other generators from running as a motor ("motoring") in case of lost prime mover torque, and will thus protect the prime mover, at the same time ensuring that the remaining generators connected to the system are not overloaded.

The RMP-121D likewise protects against reverse power arisen from an increase of the power of other generators connected to the system.

Measuring principle

The applied TDM (Time-Division-Multiplication) principle ensures an accurate measurement of the RMS value of the power ($U \times I \times \cos-\phi$), irrespective of wave form. The RMP-121D is available with the following connections:

- 1W single phase
- 1W3 1 element 3 phase 3 wire, balanced load
- 1W4 1 element 3 phase 4 wire, balanced load

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

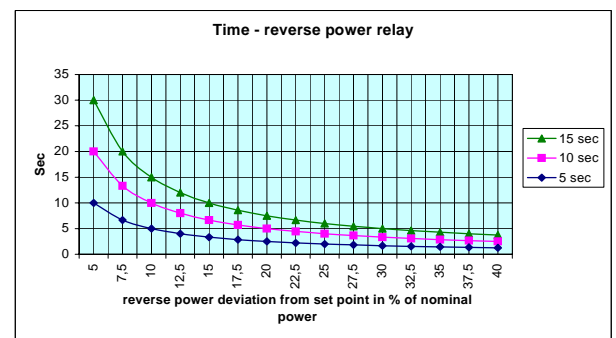
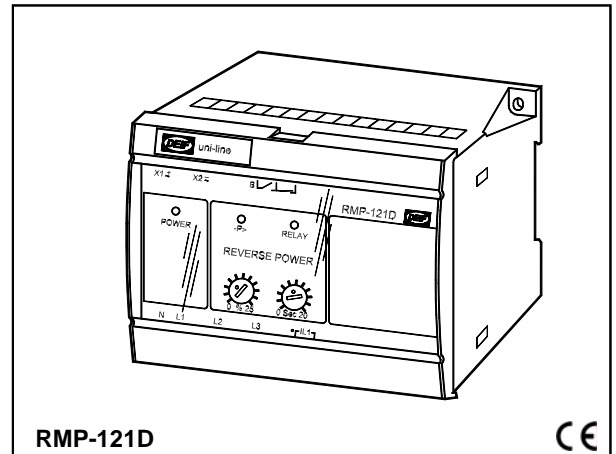
The RMP-121D can be delivered with two different timer characteristics:

- Normal timer characteristic means that the delay does not depend on the exceeding of the set point.
- Inverse timer characteristic means that if the -P set point is exceeded by 10% of nominal power, the inverse timer functionality gives the same delay as the time potentiometer. If the -P set point is exceeded by 20% of nominal power, the delay will be half the value set on the time potentiometer.

Reverse power relays

uni-line

4921240106G



Relay output

The RMP-121D is provided with an output with a minimum 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 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 contact can then be locked in its warning position, even if the input returns to normal (add "L" to contact type in order specifications, if this is required). Disconnecting the auxiliary supply resets the latch circuit.

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 RMP-121D 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 until 200 ms after connection of the auxiliary voltage.

Likewise, the RMP-121D is provided with a 200 ms power-down circuit, ensuring supervision for 200 ms after disconnection of the auxiliary voltage.

Type RMP-121D

Technical specifications

Meas. current (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 range: 75...100% of I_n (e.g. 0.4, 0.45, etc.) (lowest meas. range: 0.3A)
 overload: 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. 0.5VA per phase

Meas. voltage (U_n): (see supply voltage - AC ranges).

overload: 1.2 x U_n , continuously,
 2 x U_n for 10 s
 load: 2k Ω /V

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

Output: 1 minimum contact.

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

relay contact: 1 change-over switch.

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: <400 ms

Temperature: -25...70°C (operating).

Temperature drift: Set points:
 max. $\pm 0.2\%$ of F.S. per 10°C.

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

Supply voltage (U_n): 57.7-63.5-100-110-127-200-220-230-240-380-400-415-440-450-660-690V
 AC $\pm 20\%$ (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.

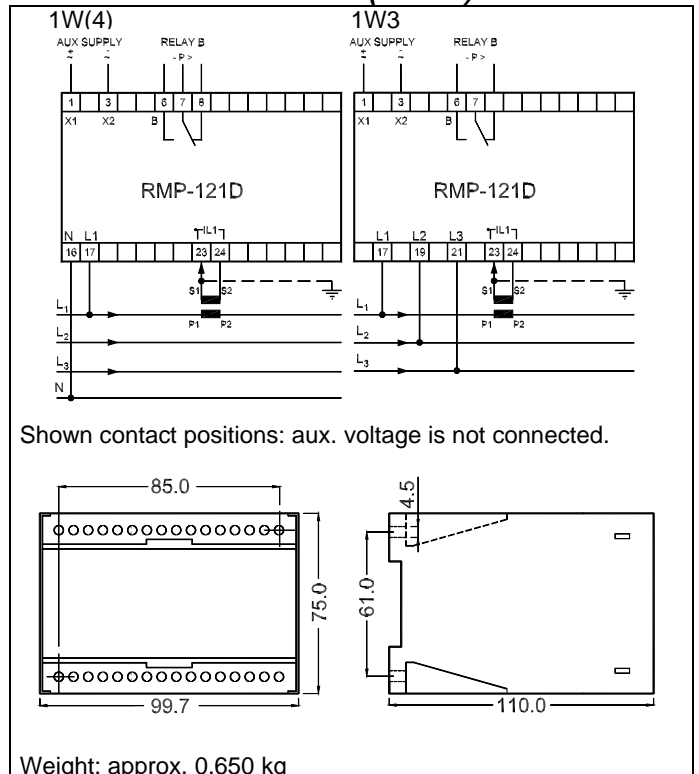
Settings and indication

Setting of	LED/relay
Reverse power set point: (0...25%) of $-P_n$	"-P>" yellow LED is lit when the set point has been exceeded, but the relay not yet activated.
Time delay: (0...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, preventing unwanted change of the setting.

Connections/dimensions (in mm)



Order specifications

Type - Coupling - Meas. power ($-P_n$) - Measuring voltage - Relay B - Supply voltage - Timer characteristic

Example:

RMP-121D - 1W3 - 0...100W - 110V AC - NEL - 220V DC - Normal timer characteristic

$$\text{Meas. power } (P_n) = \frac{\text{Primary power}}{\text{CT ratio} \times \text{VT ratio}}$$

Notice specify phase to phase voltage for coupling 1W3 and 1W4

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



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