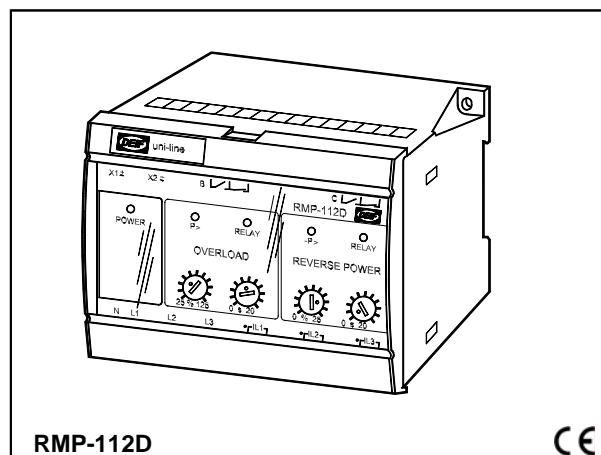


ANSI code 32
Type RMP-112D

Overload/reverse power relays

uni-line
4921240110F

- **Combined overload and reverse power**
- **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 overload and reverse power relay type RMP-112D 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 reverse power relays (RMP-121D).

The RMP-112D is type approved by major classification societies and is applied for protection of the prime mover against overload and for protection against reverse power.

Protection of the prime mover against overload is especially required if this is undersized in proportion to the AC generator. Supervision of the reverse power will prevent a generator running in parallel with other generators from running as a motor - thus protecting the prime mover - and will at the same time ensure that the remaining generators connected to the system are not disconnected due to overload of these.

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 both the active power and the reverse power ($3 \times U \times I \times \cos\phi$), irrespective of wave form and asymmetry. The RMP-112D 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 either the power (P>) or the reverse power (-P>) exceeds its set point, the associated output is activated. The set points are set on the front of the relay 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, 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.

Relay outputs

The RMP-112D is provided with 2 outputs:

- overload, a maximum contact (normally energised or normally de-energised)
- reverse power, a minimum contact (normally energised or normally de-energised)

The contacts 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, i.e. a difference of 2% of full scale between energising and de-energising of the relay.

Power-up/power-down circuits

The RMP-112D 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 RMP-112D 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 RMP-112D

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 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)
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) UL/cUL listed: 57.7...450V AC
Overload:	1.2 x U_n , continuously, 2 x U_n for 10 s
Load:	2kΩ/V
Frequency range:	40...45...65...70Hz
Outputs:	1 max. and 1 min. contact
Contact type:	Relays B + C: normally energised ("NE"), or normally de-energised ("ND") with or without latch circuit ("L")
Relay contacts:	1 change-over switch per contact
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:	<400 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 ±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

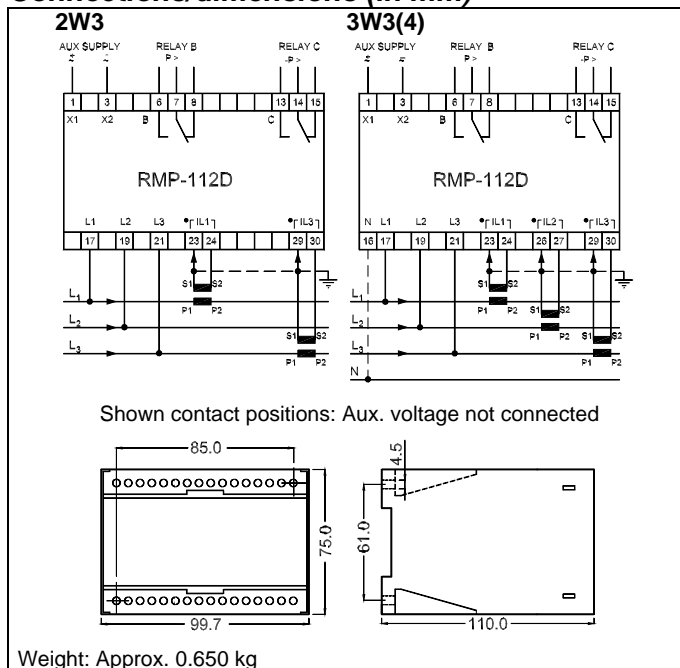
UL markings, cont.: Wire size:
AWG 12-16 or equivalent
Installation:
To be installed in accordance with the
NEC (US) or the CEC (Canada)

Settings and indication

Setting of	LED/relay
Overload set point: (25...125%) of P_n	"P>" yellow LED is lit when the set point has been exceeded, but the output contact not yet activated.
Reverse power set point: (0...25%) of P_n	"-P>" yellow LED is lit when the set point has been exceeded, but the output contact not yet activated.
For both: 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) - Meas. voltage - Relay B - Relay C - Supply voltage

Example:
RMP-112D - 3W3 - 0..100W - 3 x 110V AC - NDL - NE
230V AC

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

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



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