

ANSI codes 27/59, 59, 27

Type RMV-112D, RMV-122D, RMV-132D

- **Undervoltage/overvoltage**
- **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 voltage relays types RMV-112D, RMV-122D and RMV-132D form part of a complete DEIF series of relays for protection and control of generators and are applicable to both marine and land-based installations. Also available are voltage relays for single phase measurement (RMV-142D).

The relays are type approved by major classification societies.

The voltage relays are applied for protection of generators, motors and transformers against adverse system voltage conditions. The relay supervises all 3 phase voltages. The following types are available:

- type RMV-112D (ANSI codes 27/59)
undervoltage and overvoltage relay ($U< + U>$)
- type RMV-122D (ANSI code 59)
overvoltage relay (2 levels: $U> + U>$)
- type RMV-132D (ANSI code 27)
undervoltage relay (2 levels: $U< + U<$).

Measuring principle

The relays measure all 3 phase voltages, providing an RMS measurement of sinusoidal voltages.

Undervoltage/overvoltage ($U< + U>$)

If the voltage either drops below the lower set point or exceeds the upper set point, the associated output is activated.

Overvoltages ($U>$ and $U>$)

The highest input voltage is detected, and if this exceeds its set point, the output is activated.

Undervoltages ($U<$ and $U<$)

The lowest input voltage is detected, and if this is lower than the set value, the output is activated.

The set point values are set on the front of the relays by means of potentiometers.

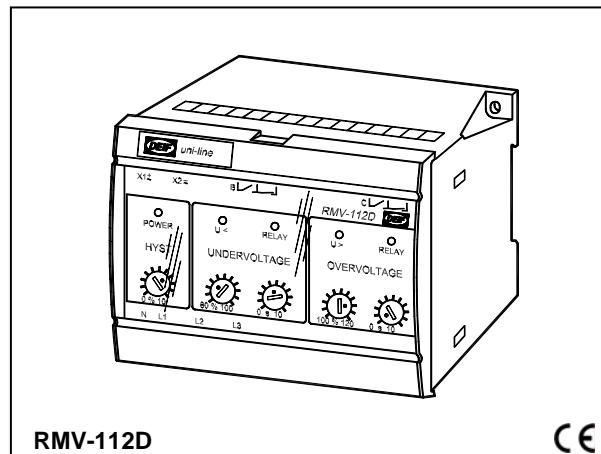
Timer functions

When a set point is exceeded, its 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 and its built-in hysteresis circuit are activated, and the associated red LED is lit.

Voltage relays

uni-line

4921240096F



Hysteresis

The relays are provided with an adjustable hysteresis (common to both contacts), i.e. a difference of 1...10% of U_n between energising and de-energising of the relay. The relay is deactivated when the fault voltage equals or is less than the preset hysteresis.

Relay outputs

The relays are provided with 2 outputs: $U<$ outputs with a minimum contact, $U>$ outputs 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 contact can be locked in its warning position, even if the input voltages 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.

Power-up/power-down circuits

The relays are 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 relays are 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.

Types RMV-112D, RMV-122D, RMV-132D

Technical specifications

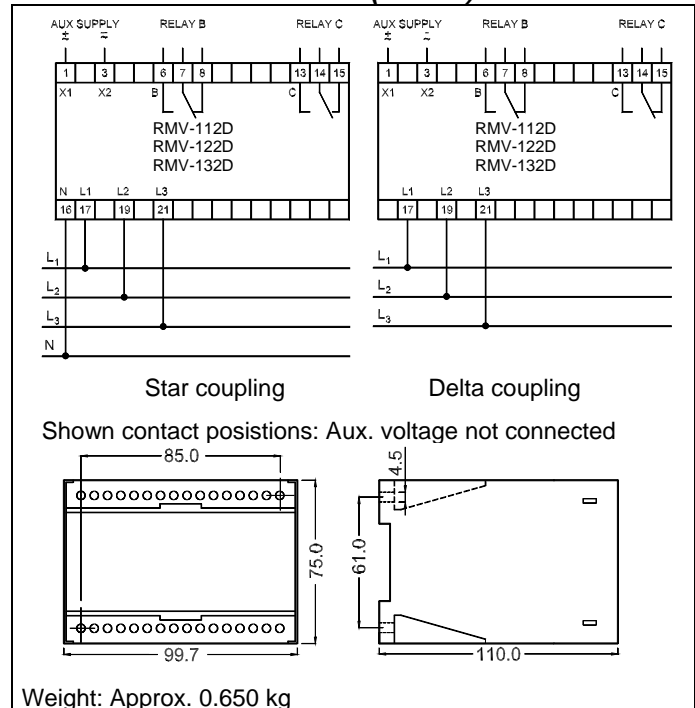
Meas. range (U_n):	(See supply voltage - AC ranges) UL/cUL listed: 57.7...450V AC
Frequency range:	40...45...65...70Hz
Max. input voltage:	1.2 x U_n , continuously, 2 x U_n for 10 s
Load:	2k Ω /V
Outputs:	RMV-112D 1 min. + 1 max. contact RMV-122D 2 maximum contacts RMV-132D 2 minimum contacts
Contact 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 relay
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
Response time:	<100 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 and outputs: 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. 4.0 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:	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
Undervoltage limit: (80...100%) of U_n	"U<"	Yellow LED is lit when the input voltage is lower than the preset limit, but the relay has not yet been activated
Overvoltage limit: (100...120%) of U_n	"U>"	Yellow LED is lit when the input voltage exceeds the preset limit, but the relay has not yet been activated
Time delay: (0...10 s) in seconds	"RELAY"	Relay is activated and red LED lit after the timer has expired
Hysteresis: (1...10%) of U_n		Relay contact is reset when fault voltage equals or is less than the preset hysteresis

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, preventing unwanted change of the setting.

Connections/dimensions (in mm)



Order specifications

Type – Coupling – Meas. volt. (U_n) – Relay B – Relay C – Supply voltage

Star coupling: Specify phase-neutral voltage

Delta coupling: Specify phase-phase voltage

Examples:

RMV-112D – delta – 400V AC – NDL + NDL – 24V DC

RMV-122D – star – 230V AC – NDL + NDL – 230V AC

RMV-132D – delta – 400V AC – NE + NE – 110V DC

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



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