



0262345

RP 9800.12

RP 9800.12/100

- Voltage and frequency monitoring for generator sets >30 kVA on public grid, according to VDEW directive
- RP 9800: 3-phase voltage measurement to neutral
- RP 9800/100: 3-phase voltage measurement between phases
- Disconnection on rise and drop of voltage
- Disconnection on rise and drop of frequency
- Disconnection when 10 minute mean value differs to nominal voltage (overvoltage)
- Frequency and voltage are indicated by separate output relays
- Permits connection or re-connection after adjustable time delay t_w
- Protection against manipulation by sealable transparent cover over setting switches
- Precise adjustment and indication of setting values according to the directive
- High measuring accuracy
- Width 70 mm

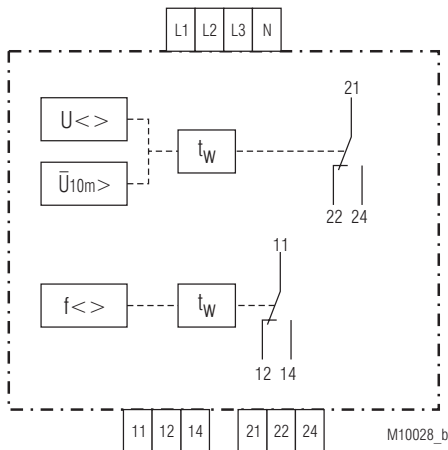
Approvals and marking



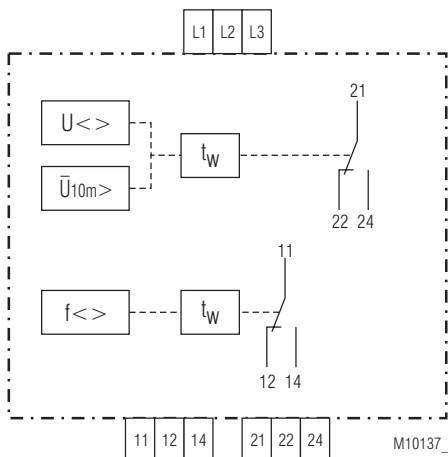
Application

Monitoring of voltage and frequency for generator set >30 kVA connected to the public grid according to VDEW directive
As alternative to disconnector switches in plants with <30 kVA, when a manual isolator switch is used.

Circuit diagrams



RP 9800.12



RP 9800.12/100

Function

The RP9800 monitors the voltage of the 3 phases against neutral indicating over and undervoltage. The RP9800/100 monitors the voltage between the 3 phases (L1-L2, L1-L3, L2-L3; reference is L3). The phase with the highest voltage (overvoltage) and the phase with the lowest voltage (undervoltage) will cause the relay to switch. The unit is calibrated to the mean RMS value.

The frequency is measured single phase in phase L1.
(RP9800: Reference N e. g. RP9800/100: Reference L3).

The voltage and frequency monitoring operate 2 separate output relays. When exceeding the setting values the output relays switch into de-energized state.

If the measured values are within or return to the adjusted ranges the activation or reset takes place after an adjustable time delay t_w .

Note

When using the variant RP9800.12 N-terminal for 3-phase 4 wire connection, the neutral has to be connected.

Indication

- green LED ON On, when auxiliary supply connected.
- red LED f<> On, when frequency out of range.
- red LED U<> On, when voltage out of range,
Flashes, when 10 min mean value is higher than setting.
- yellow LED f<> On, when relay f<> is energized, flashes during time delay t_w -relay f<>.
- yellow LED U<> On, when relay Rel. U<> s energized, flashes during time delay t_w - Rel. U<>.

Adjustment facilities

Adjustment with 8-or 10 step rotary switches:

Poti $f >$ (Hz):	- overfrequency
Poti $f <$ (Hz):	- underfrequency
Poti $U >$ (%):	- overvoltage
Poti $U <$ (%):	- undervoltage
Poti \bar{U} 10 min:	- overvoltage, 10 min mean value
Poti t_w (s):	- time delay for activation or reset

Standard factory settings according to VDE 0126

(not for time delay for activation):

Response value for:	- overfrequency $f > = 50,2$ Hz
Response value for:	- underfrequency $f < = 47,5$ Hz
Response value for:	- overvoltage $U > = 115$ %
Response value for:	- undervoltage $U < = 80$ %
Response value for:	- overvoltage, 10 min mean value $\bar{U}10m > = 110$ %
Time delay for:	- activation $t_w = 40$ s

Technical Data

Overfrequency:	50,2 ... 52 Hz setting via 8 step rotary switch 50,2; 50,3; 50,4; 50,6; 50,8; 51,0; 51,5; 52 Hz
Underfrequency:	47 ... 49,8 Hz setting via 8 step rotary switch 47; 47,5; 47,8; 48,2; 48,6; 49,0; 49,4; 49,8 Hz
Overvoltage	
RP 9800:	197 ... 218 V (L - N) (182 V) 248 ... 276 V (L - N) (230 V) setting via 8 step rotary switch 108%, 110%, 112%, 114%, 115%, 116%, 118%, 120% of U_N
PR9800/100:	340 ... 378 V (L1-L2-L3) (315 V) 432 ... 480 V (L1-L2-L3) (400 V) setting via 8 step rotary switch 108%, 110%, 112%, 114%, 115%, 116%, 118%, 120% of U_N
Undervoltage	
RP 9800:	131 ... 164 V (L - N) (182 V) 166 ... 207 V (L - N) (230 V) setting via 8 step rotary switch 72%, 74%, 76%, 78%, 80%, 82%, 86%, 90% of U_N
RP 9800/100:	227 ... 284 V (L1-L2-L3) (315 V) 288 ... 360 V (L1-L2-L3) (400 V) setting via 8 step rotary switch 72%, 74%, 76%, 78%, 80%, 82%, 86%, 90% of U_N
Overvoltage, 10 minute mean value:	
RP 9800:	189 ... 211 V (L - N) (182 V) 239 ... 267 V (L - N) (230 V) setting via 8 step rotary switch 104%, 106%, 108%, 110%, 112%, 114% 115% 116% von U_N
RP 9800/100:	328 ... 365 V (L1-L2-L3) (315 V) 416 ... 464 V (L1-L2-L3) (400 V) setting via 8 step rotary switch 104%, 106%, 108%, 110%, 112%, 114% 115% 116% von U_N
Time delay for activation or reset:	setting via 10 step rotary switch 5, 10, 20, 30, 40, 50, 60, 70, 80, 90 s
Repeat accuracy:	Voltage measuring $\leq \pm 1$ % Frequency measuring $\leq \pm 0,02$ %
Hysteresis:	Voltage measuring $\leq 2,5$ % Frequency measuring 0,05 Hz
Response time (disconnection):	< 100 ms (typ. 75 ms)

Technical Data

Output

Thermal current I_{th}:	5 A
Switching capacity	
according to AC 15	
NO contacts:	3 A / AC 230 V IEC/EN 60 947-5-1
NC contacts:	1 A / AC 230 V IEC/EN 60 947-5-1
Electrical life	
to AC 15 at 1 A, AC 230 V	
NO contacts:	3×10^5 switching cycles IEC/EN 60 947-5-1
Max. fuse rating:	4 A gL IEC/EN 60 947-5-1
Mechanical life:	$> 50 \times 10^6$ switching cycles

General Data

De-energized on trip:	are switched off when failure indicated or voltage is switched off 2 relays with C/O contact each 1. Rel. for $f >$, 2. Rel. for $U <$
Voltage range:	
RP 9800:	3 x AC 85 V ... 280 V (U_H of all 3-phases to neutral)
RP 9800/100:	2 x AC 85 V ... 480 V (U_H of L1-L3 + L2-L3)
Terminals:	box terminal with cross recess screw
Cross section:	solid / stranded 0,5 - 4 mm ²
Flexible with multicore cable ends:	0,5 - 2,5 mm ²
Multiple wire connection:	0,5 - 1,5 mm ² (2 wires of same diameter)
Temperature range:	-20 ... 60 °C
Clearance and creepage distance	
rated impuls voltage / pollution degree:	6 kV / 2 IEC 60 664-1
EMC	
Electrostatic discharge (ESD):	8 kV (air) IEC/EN 61 000-4-2
HF irradiation:	10 V/m IEC/EN 61 000-4-3
Fast transients:	4 kV IEC/EN 61 000-4-4
Surge voltage between wires for power supply:	2 kV IEC/EN 61 000-4-5
between wire and ground:	4 kV IEC/EN 61 000-4-5
Interference suppression:	Limit value class B EN 55 011
Degree of protection	
Housing:	IP 40 IEC/EN 60 529
Terminals:	IP 20 IEC/EN 60 529
Housing:	Thermoplastic with VO behaviour according to UL subject 94
Vibration resistance:	Amplitude 0,35 mm frequency 10...55 Hz, IEC/EN 60 068-2-6
Climate resistance:	20 / 060 / 04 IEC/EN 60 068-1
Weight:	175 g

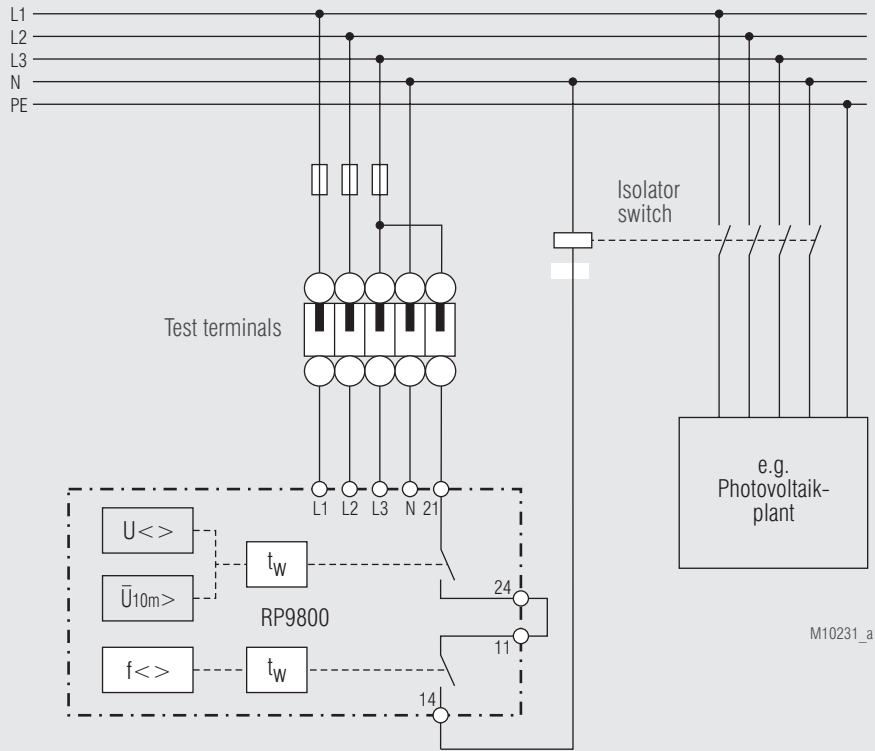
Dimensiones

Width x height x depth:	70 x 90 x 71 mm
--------------------------------	-----------------

Standard types

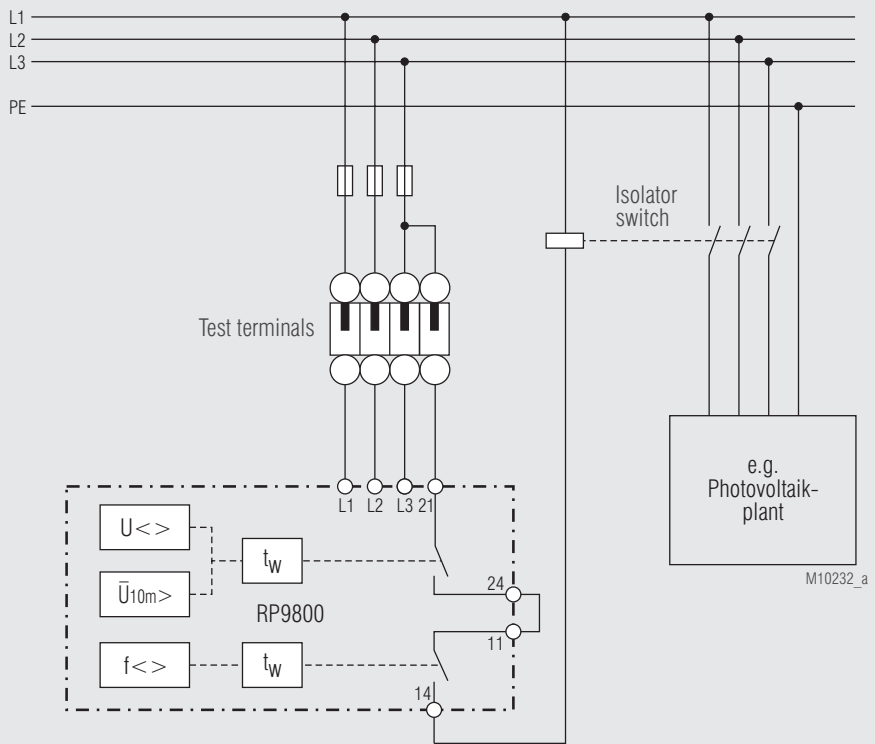
RP 9800.12 3/N AC 400/230V	
Article number:	0062263
RP 9800.12 3/N AC 315/182 V	
Article number:	0063103
RP 9800.12/100 3 AC 400V	
Article number:	0062690
RP 9800.12/100 3 AC 315 V	
Article number:	0063267
RP 9800.12/200 3/N AC 690/400 V	
Hilfsspannung U_H :	AC/DC 24 ... 80 V
Article number:	0063268

Application examples



M10231_a

RP 9800.12



M10232_a

RP 9800.12/100

