

Voltage- and Frequency-Relay UFR1001E

Grid- and Plant Protection according to VDE-AR-N 4105, bdew, ÖVE-standard, G59/3 and G83/2, DIN V VDE 0126-1-1

UFR1001E



Art.-No.: S222296

The grid protection device UFR1001E monitors voltage and frequency in plants for own generation of electricity. It fulfills the requirements of VDE-AR-N 4105 bdew-directive, G59/3, G83/2 and ÖVE/ÖNORM E 8001-4-712:2009 for generators connected to the public grid.

The UFR1001E is a dual-channel device and thus one-fault-proof. Input-circuit, A/D-converter, processor and output-relay are doubly present. The processors control each other. The function of the output-relays and of the connected switches can be monitored with feed-back contacts. At

an alarm the device switches off and the reason is displayed with LEDs and signaled with transistor-outputs. The limits are pre-set according to VDE-AR-N 4105. They can be changed if required and be protected with a code and/or a seal.

An alarm-counter stores the last 100 alarms with reason and elapsed time.


In addition the time the UFR1001E has interrupted the plant is recorded. All values can be read-out with the integrated display and give the operator valuable information about the availability of the plant.

With a test-button the function of the connected switches can be tested and their switching-time can be measured. The simulation displays the complete switching-time of device plus connected switches.

The standby input allows a remote shutoff e.g. with a RCR. It can also be used to switch to an energy saving mode by a timer or a twilight switch.


- Monitoring of under- and overvoltage 15-520 V
- Measuring phase-neutral or phase-phase
- Monitoring of under- and overfrequency 45-65 Hz
- Monitoring of quality of voltage (10-minutes-average)
- Monitoring of vector shift 2...65 °
- Monitoring of rate of change of frequency (ROCOF, df/dt) 0,100...5,000 Hz/s
- One-fault-proof with monitoring of connected switches (defeatable), 2 automatic restarts at error
- Passive detection of insular grid acc. to ch. 6.5.3 and app. D2
- Support of synchronisation of generators
- Selftest
- Switching delay adjustable 0,05 ... 130 s
- Switching-back-delay adjustable 0 ... 999 s
- Switching-back-delay at alarms <3 s: 5 s
- Preset values acc. to VDE-AR-N 4105 and bdew-directive
- Preset values acc. to G59/3 and G83/2 for Great Britain
- Preset values acc. to ÖVE standard for Austria
- Preset values acc. to VSE/EEA-CH 2014 for Switzerland
- Alarm-counter for 100 alarms with value, reason and elapsed time
- Recording of added time of alarms
- Input for standby with counter and recording of time
- Test-button and simulation with measuring of switching-times
- LEDs for alarms. Allocation of values and states of relays
- Sealing. All values can be read-out when sealed
- Easy installation and programming with 13 pre-set programs
- Outputs for reporting of alarms to superior control
- Supply-voltage AC/DC 24-270 V
- Housing for DIN-rail-mount, 105 mm wide, mounting height 66 mm
- Medium voltage: 2 x 2 alarms for voltage and frequency (U>>, U>, U<, U<<, F>>, F>, F<, F<<)


Certificates:


 Konformitätsnachweis NA-Schutz VDE-AR-N 4105 "Eigenerzeugungsanlagen am Niederspannungsnetz"
Konformitätsnachweis NA-Schutz bdew-Richtlinie "Eigenerzeugungsanlagen am Mittelspannungsnetz"

 Certificate of compliance
DIN V VDE 0126-1-1

 Certificate
ÖVE/ÖNORM E 8001-4-712:2009-12, Anhang A

 Certificate of compliance G59/3:2013
Certificate of compliance G83/2:2012

 Certificate de conformité
DIN V VDE 0126-1-1, VFR2013/VFR 2014

 Certificate of compliance
NRS 097-2-1:2010 ed 2.0 South Africa

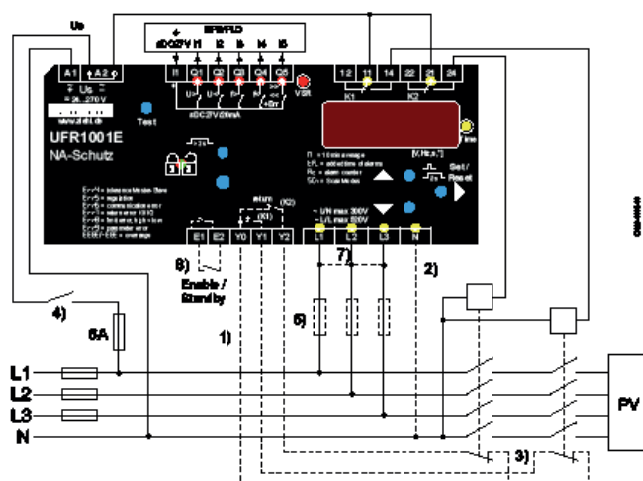
 approved Synergrid C10/C11

 approved Energen RED STD00233

 accepted by Tepco

for Italy:

 CEI 0-21 relay SPI1021



Technical Data UFR1001E

Power supply	Rated supply voltage U_s	AC/DC 24-270 V, 0/45...65 Hz, <5VA DC: 20,4...297 V, AC: 20,4...297 V
Relay output		2 change-over contacts see operating manual
Voltage	Measurement phase-phase Setting range phase-phase Measuring voltage phase-neutral Setting range phase-neutral Measurement method Hysteresis Measurement accuracy Accuracy of display Measurement functions Switching-delay (dAL) Switching-back-delay (doF)	AC 15...530 V (< 5 V display: 0) AC 15...520 V AC 10...310 V (< 5 V display: 0) AC 15...300 V true RMS adjustable 1,0...99,9 V with neutral: $\pm 0,6\%$ of measured value without neutral: $\pm 0,8\%$ of measured value >100V: -1 digit (resolution 1 V) <100V: -1 digit (resolution 0,1 V) 3-phase with / without neutral adjustable 0,05 (± 15 ms)...130,0 s adjustable 0 (approx. 200 ms)...1000 s
Frequency	Measurement range Setting range Hysteresis Measurement accuracy Switching delay (dAL) Switching-back-delay (doF)	40...70 Hz 45,00...65,00 Hz 0,05...10,00 Hz $\pm 0,04$ Hz ± 1 digit adjustable 0,05 (± 15 ms)...130,0 s adjustable 0 (>200 ms)...999 s
Vector-Shift	Measurement range Setting range Switching-delay (dAL) Switching-back-delay (doF) Delay at U_s on	0...90,0° 2,0...65,0° < 50 ms adjustable 3...240 s adjustable 2...20 s
ROCOF (df/dt)	Setting range	0,100...5,000 Hz/s, 4...50 cycles
Digital outputs insulated	Voltage I1 Current Q1...Q5	DC 4,5...27 V max. 20 mA / output
Input Feed-back-contacts	Voltage Y0...Y1/2 Switching time connected switches	DC 15...35 V adjustable 0,5...99,0 s
Test Conditions	Rated impulse voltage Overvoltage category Pollution degree Rated Insulation voltage U_i Operating time Operating temperature Storage temperature Climatic conditions (IEC/EN 60721-3-3) EMC - immunity EMC - emission	EN 60255 4000 V III 2 300 V 100 % -20 °C...+55 °C -25 °C...+70 °C 3K5 (except condensation and formation of ice) EN 61 000-6-2 EN 61 000-6-3
Housing	Design Dimensions (h x w x d) Protection housing Protection terminals Attachment Weight	V6 90 x 105 x 69 mm, mounting height 66 mm IP30 IP20 DIN-rail 35 mm according to EN 60 715 or screws M4 ca. 250 g