

# 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



The 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.

- 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...20 °
- **NEW** 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
- **NEW** Preset values acc. to G59/3 and G83/2 for Great Britain
- Preset values acc. to ÖVE standard for Austria
- 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 12 pre-set programs
- Outputs for reporting of alarms to superior control

## NEW January 2014 and Firmware 0-05

### 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

### for Italy:

 **CEI 0-21** only relais SPI1021

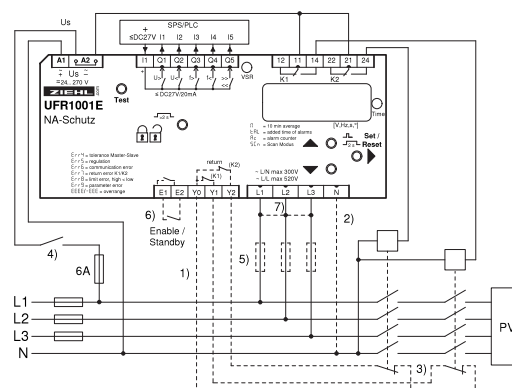
With a test-button the function of the connected switches can be tested and their switching-time can be measured. The simulation displays the complete switching-time of device plus connected switches. The standby input allows a remote shutoff e.g. with a RCR. It can also be used to switch to an energy saving mode by a timer or a twilight switch.

- 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<<)

Order-Number: **S222296**



## 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 type 2, see "general technical informations"
Voltage	Measurement voltage phase-phase	AC 15...530 V (< 5 V display: 0)
	Setting range phase-phase	AC 15...520 V
	Measuring voltage phase-neutral	AC 10...310 V (< 5 V display: 0)
	Setting range phase-neutral	AC 15...300 V
	Measurement method	true RMS
	Hysteresis	adjustable 1,0...99,9 V
	Measurement accuracy (with neutral)	$\pm 0,6\%$ of measured value
	Measurement accuracy (without neutral)	$\pm 0,8\%$ of measured value
	Accuracy of display	>100V: -1 digit (resolution 1 V) <100V: -1 digit (resolution 0,1 V)
	Measurement functions	3-phase with / without neutral
Switching-delay (dAL)	adjustable 0,05 ( $\pm 15$ ms)...130,0 s	
Switching-back-delay (doF)	adjustable 0 (approx. 200 ms)...1000 s	
Frequency	Measurement range	40...70 Hz
	Setting range	45,00...65,00 Hz
	Hysteresis	0,05...10,00 Hz
	Measurement accuracy	$\pm 0,04$ Hz $\pm 1$ digit
	Switching delay (dAL)	adjustable 0,05 ( $\pm 15$ ms)...130,0 s
	Switching-back-delay (doF)	adjustable 0 (>200 ms)...999 s
Vector-Shift	Measurement range	0...45,0°
	Setting range	2,0...20,0°
	Switching-delay (dAL)	< 50 ms
	Switching-back-delay (doF)	adjustable 3...240 s
	Delay at $U_s$ on	adjustable 2...20 s
ROCOF (df/dt)	Setting range	0,100...5,000 Hz/s, 4...50 cycles
Digital outputs insulated	Voltage I1	DC 4,5...27 V
	Current Q1...Q5	max. 20 mA / output
Input Feed-back-contacts	Voltage Y0...Y1/2	DC 15...35 V
	Switching time connected switches	adjustable 0,5...99,0 s
Test Conditions		EN 60255
	Rated impulse voltage	4000 V
	Overvoltage category	III
	Rated Insulation voltage	2
	Contamination level	300 V
	Isolation material group	II
	ON-period	100 %
	Rated ambient temp. range	-20 °C...+55 °C EN 60 068-2-2 dry heat
Interference resistance	EN 61 000-6-2	
Interference transmission	EN 61 000-6-4	
Housing	Design	V6
	Dimensions (h x w x d)	90 x 105 x 69 mm, mounting height 66 mm
	Protection housing	IP30
	Protection terminals	IP20
	Attachment	DIN-rail 35 mm according to EN 60 715 or screws M4
	Weight	ca. 250 g