

# Voltage and Frequency Relay UFR1001E

Grid- and Plant Protection VDE-AR-N 4105 and 4110, ÖVE-standard, G98 + G99, DIN V VDE 0126-1-1, VFR2013/2014, NRS 0972-1:2017 Ed 2, Synergrid C10/C11

**NEW: VDE-AR-N 4105:2018-11, VDE-AR-N 4110:2018-11**

## UFR1001E



**Part number: S222296**

The grid- and plant protection device UFR1001E monitors voltage and frequency in plants for own generation of electricity. It complies with the requirements of VDE-AR-N 4105:2018-11, VDE-AR-N 4110:2018-11, G98, G99, ÖVE/ÖNORM E 8001-4-712:2009 and other standards for generators connected to the public grid.

The UFR1001E is a dual-channel device and thus one-fault-proof.

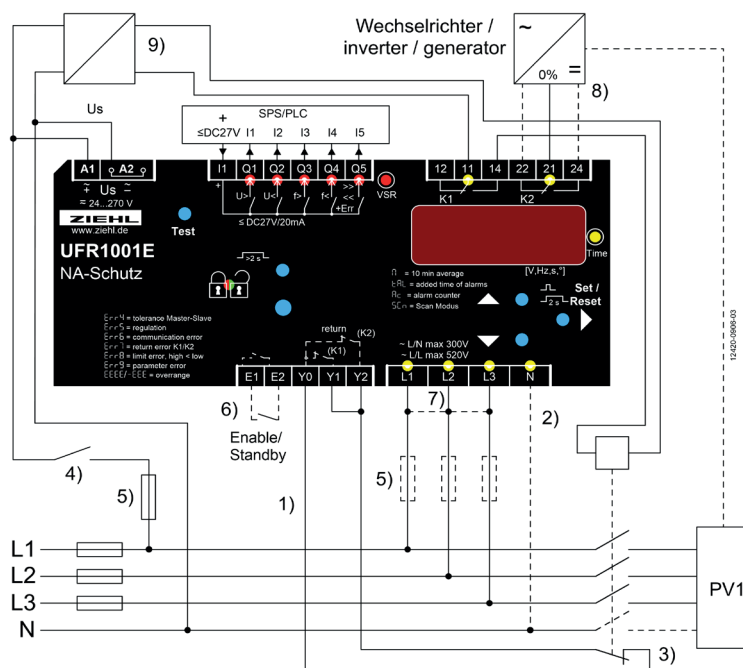
The function of the output-relays and of the connected switches can be monitored with feed-back contacts. When a connected switch does not switch off, the UFR does not switch on again. When a switch does not switch on it makes 2 restarts and thus improves availability of monitored plant.

The limits are pre-set according to VDE-AR-N 4105:2018-11, VDE-AR-N 4105:2018-11 and other standards. They can be changed if required and be protected with a code and/or a seal.

With a 2-step test both channels can be tested individually and the triggering time of connected switches is measured.

The standby input allows a remote shutoff e.g. with a RCR.

- Under and overvoltage monitoring 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 anti-islanding protection acc. to ch. 6.5.3 and app. D2
- Switching delay adjustable 0.05 ... 300 s
- Switching back delay adjustable 0 ... 6.000 s
- Preset values acc. to
  - VDE-AR-N 4105:2018-11 (Pr2), VDE-AR-N 4105-2011-08 (Pr1)
  - VDE-AR-N 4110:2018-11 (PR11-14) and BDEW (Pr 3-6)
- G98 (G83/2) and G99 (G59/3) for Great Britain
- ÖVE standard for Austria
- VSE/EEA-CH 2014 for Switzerland
- Alarm counter for 100 alarms (trip value, cause and rel. time stamp)
- Record of added times of alarms
- Input for standby with counter and recording of time
- Test button and simulation with measuring of switching-times
- Sealing. All values can be read-out when sealed
- Easy installation and programming with pre-set programs
- Housing for DIN-rail-mount, 105 mm wide, mounting height 66 mm



## Certificates:

Certificate of conformity Grid and Plant protection acc. to VDE-AR-N 4105 2011-08 and 2018-11 "Plants for generation of own energy in low voltage grid"

Certificate of conformity Grid and Plant protection acc. to BDEW requirement "Plants for generation of own energy in medium voltage grid"

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, G83/2:2012, G99/1-1+2+3:2018 and G98/1-1+2:2018

Certificate of compliance EN 50438:2013

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 Energex RED STD00233

accepted by Tepco

RD1699:2011 / RD413:2014

## 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...180 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 ( $\pm 15$ ms)...300,0 s adjustable 0 (approx. 200 ms)...6.000 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 $\pm 1$ digit adjustable 0,05 ( $\pm 15$ ms)...300,0 s adjustable 0 (>200 ms)...6.000 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