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**

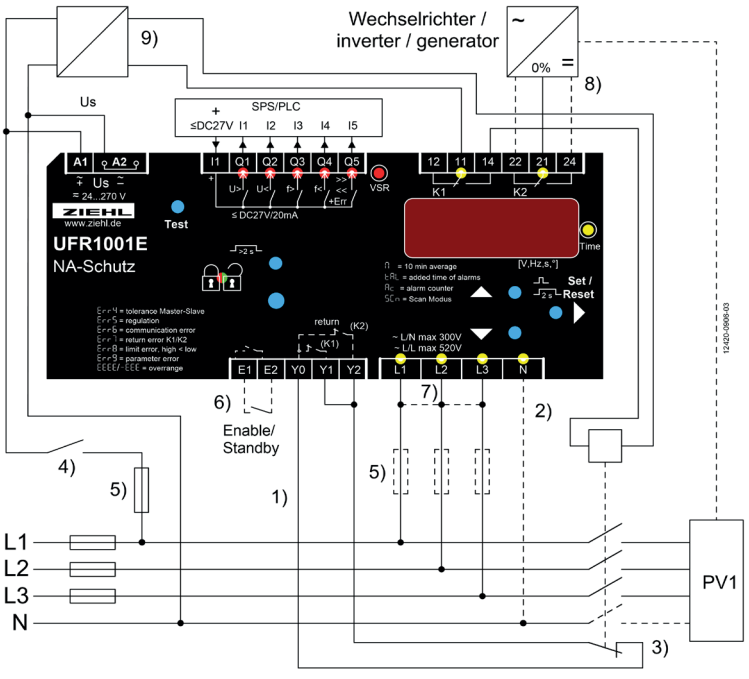
The grid- and plant protection device UFR1001E monitors voltage and frequency in plants for own generation of electricity. It complies with the requirements of VDE-AR-N 4105:2018-11, VDE-AR-N 4110:2018-11, G98, G99, ÖVE/ÖNORM E 8001-4-712:2009 and other standards for generators connected to the public 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 when using the integrated switch of pv and battery inverter acc. to DIN EN 62109 (VDE 0126-4))
- 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 for component VDE-AR-N4110
- Cerfitficate 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 Us	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	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...180 V
	Measurement accuracy	with neutral: ±0,6% of measured value without neutral: ±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 (± 15ms)...300,0 s
	Switching-back-delay (doF)	adjustable 0 (approx. 200 ms)...6.000 s
Frequency	Measurement range	40...70 Hz
	Setting range	45,00...65,00 Hz
	Hysteresis	0,05...10,00 Hz
	Measurement accuracy	± 0,04 Hz ± 1 digit
	Switching delay (dAL)	adjustable 0,05 (± 15ms)...300,0 s
	Switching-back-delay (doF)	adjustable 0 (>200 ms)...6.000 s
Vector-Shift	Measurement range	0...90,0°
	Setting range	2,0...65,0°
	Switching-delay (dAL)	< 50 ms
	Switching-back-delay (doF)	adjustable 3...240 s
	Delay at Us 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
	Pollution degree	2
	Rated Insulation voltage Ui	300 V
	Operating time	100 %
	Operating temperature	-20 °C...+55 °C
	Storage temperature	-25 °C...+70 °C
	Climatic conditions (IEC/EN 60721-3-3)	3K5 (except condesation and formation of ice)
	EMC - immunity	EN 61 000-6-2
	EMC - emission	EN 61 000-6-3
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