

Voltage- and Frequency-Relay SPI1021

Grid- and Plant Protection according to CEI 0-21 (Italy) and DEWA-standard (Dubai), with integrated Vector-Shift-Relay

SPI1021



Part numbers:

SPI1021 **S222300**

ER6 **T224386**



Declaration of conformity with requirements of CEI 0-21 Italy.

Dichiarazione di conformità alle prescrizioni alla Norma CEI 0-21 Italia..

Declaration of conformity with requirements of DEWA 2016 Dubai (DRRG).

The SPI1021 monitors voltage and frequency in plants for own generation of electricity. It fulfills the requirements of CEI 0-21 (Italy) and DEWA-standard (Dubai) Interface Protection (IP) according to DEWA Distributed Renewable Resources Generation programme (DRRG19, September 01, 2016).

6 selectable programs allow measuring 3 phases to neutral (4-wire mode), 3 phases phase-phase (3-wire mode) and single phase to neutral (2-wire).

The SPI1021 can monitor all decentralized power, photovoltaic, wind or thermal plants, that feed in the low voltage and medium voltage grid. In applications with possible asymmetry >6 kVA, power balance has to be monitored extra.

With the integrated certified self test, the device can be used in plants < 6kVA.

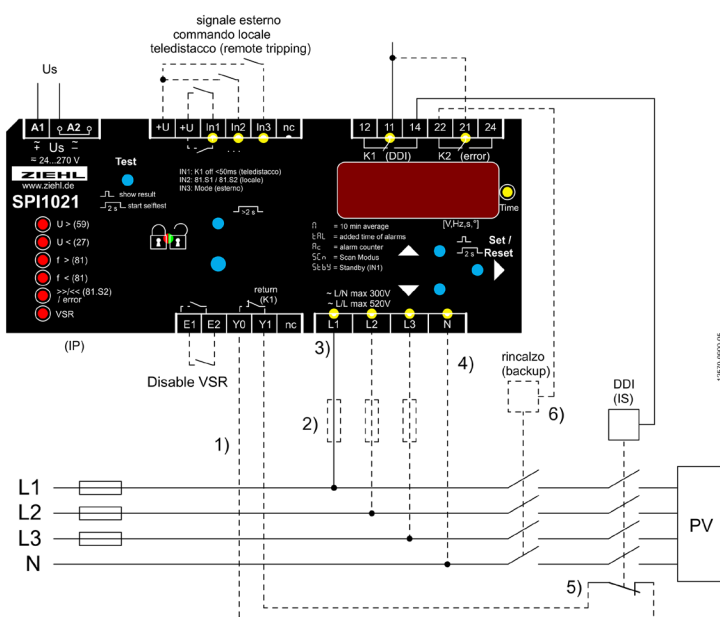
In programs 1-3 (= default), the limits are preset according to CEI 0-21. In programs 4-6 they are preset according to DEWA-standard. They can be changed if required and be protected with a code and/or a seal.

A counter for alarms and standbys stores the last 100 events with reason and elapsed time. In addition the time the SPI1021 has interrupted the plant is recorded. All values can be displayed at the device and give the operator valuable information about the availability of the plant.

When the device has been installed, a self-test starts automatically. The self-test can be repeated when required. All values of the test are stored and can be read out at the display.

- Monitoring of under- and overvoltage 15-520 V
- Measuring of 3 phase with or without neutral or single phase
- Monitoring of over- and underfrequency 45-65 Hz
- Monitoring of quality of voltage (10-minutes-average)
- RocoF "Rate of Change of Frequency" connectable
- Monitoring of vector-shift (connectable)
- Input IN2 for selection of frequency window
- Input IN3 for selection of mode transitory or definitive
- Input Y0/Y1 for monitoring function of connected switch (automatic detection of nc/no)
- Relay K2 picks up (on time <500 ms) only at failure at switch connected to K1
- 2 restarts at switch-on error of connected switch
- Selftest with storing of values
- Switching delays adjustable 0,05...130 s
- Switching-back-delays adjustable 0...999 s
- Different switching time according to type of alarm and selected mode
- Switch-on delay 300 s (adjustable)
- All parameters preset according to CEI 0-21
- Alarm counter for 100 alarms with value. Reason and elapsed time
- Recording of added time of alarms
- Input for standby (off time <50ms) with counter and recording of time
- Simulation for testing
- Sealing, all parameters can be read out while sealed
- Easy installation and programming with 6 preset programs
- Supply-voltage AC/DC 24-270 V
- Housing for DIN-rail-mount, 105 mm wide, mounting height 70 mm

Accessory: [Installation frame ER6 for panel mount](#)



Technical Data SPI1021

Power supply	Rated supply voltage U_s	AC/DC 24-270 V, 0/40...70 Hz, <5VA DC: 20,4...297 V, AC: 20,4...297 V	
Relay output		2 change-over contacts	
Measuring voltage	Voltage phase-phase	AC 15...530 V (< 5 V display 0)	
	Setting range phase-phase	AC 15...520 V	
	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, single phase	
Measuring frequency	Switching-delay (dAL)	adjustable 0,05 (± 15 ms)...130,0 s	
	Switching-back-delay (doF)	adjustable 0 (= 40ms)...999 s	
	Measurement range	40...70 Hz	
	Setting range	45,00...65,00 Hz	
	Hysteresis	0,05...10,00 Hz	
	Measurement accuracy	$\pm 0,01$ Hz ± 1 digit	
	Switching delay (dAL)	adjustable 0,05 (± 15 ms)...130,0 s	
	Switching-back-delay (doF)	adjustable 0 (= 40ms)...999 s	
	Vector-Shift	Measurement range	0...45,0°
		Measurement 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	
Digital inputs (INx)	Switching voltage + U	DC 15...37 V	
	Current INx	> 3 mA	
Input Feedback contact	Switching voltage Y0...Y1	DC 15...35 V	
	Current Y1	> 3 mA	
	Switching time connected switches	adjustable 0,5...99,0 s	
Housing	Design / Installation Frame	V6 / Front mounting kit type ER6, 6 TE	
	Dimensions (h x w x d)	90 x 105 x 69 mm, mounting height 70 mm	
	Wiring connection single strand	1 x 4 mm ²	
	Finely stranded with wire end ferule	1 x 2,5 mm ²	
	Protection housing	IP30	
	Protection terminals	IP20	
	Attachment	DIN-rail 35 mm according to EN 60 715 or screws M4	
Weight	ca. 250 g		