



**BUREAU
VERITAS**

Declaration of conformity

to the requirements of the Standard CEI 0-21

CERTIFICATION ORGANIZATION: Bureau Veritas Consumer Products Services Germany GmbH
Accreditation DAkkS, D-ZE-12024-01-00, Rif. DIN EN ISO/IEC 17065

STANDARD / GUIDE: CEI 0-21: 2019-04
Technical reference rule for the connection of active and passive users to the LV electricity distribution networks of companies

TYPE OF SYSTEM DECLARED:

INTERFACE DEVICE	PROTECTION INTERFACE	STATIC ELECTRONIC INVERTER	ROTATING GENERATION MACHINE
X	X	X	

MANUFACTURER: Alpha ESS Co., Ltd.
JiuHua Road 888, High-Tech Industrial Development Zone
226300 Nantong City, Jiangsu Province
China

PRODUCT TYPE:	Inverter for photovoltaic and storage systems (comply with Annex B bis)
MODEL:	SMILE5-INV
NOMINAL POWER:	5kW

FIRMWARE VERSION: Beginning with V1.47

PHASE NUMBER: single-phase

NOTE:

The device is able to limit the I_{dc} to 0.5% of the nominal current.

The device is for systems up to 11,08kW

The inverters of Alpha ESS Co., Ltd. have a maximum apparent power limit. In the case where a system should be able to reach in every working condition a determined power factor, it is necessary to set the maximum active power in such a way, that you can reach at any time the cos-phi wanted.

LABORATORY THAT HAS DONE THE TESTING:

Bureau Veritas Consumer Products Services Germany GmbH
Accreditation DAkkS, D-PL-12024-03-03, Rif. DIN EN ISO/IEC 17025

After verifying the ISO 9001 of the Manufacturer with No. CN17/20219, issued by SGS and verifying the test reports according to CEI 0-21 with No. ABYD-19JU2855FCSH, issued by the laboratory Bureau Veritas Consumer Products Services Germany GmbH and verifying the EMC test report with No. 50108188001, issued laboratory TÜV Rheinland (Shanghai) Co., Ltd. accredited by CNAS (No. L3038), and verifying the EMC test report with No. ET12019-11-624, issued laboratory Shanghai Testing @ Inspection Institute for Electrical Equipment Co., Ltd. accredited by CNAS (No. L1145) the listed product is conform with the requirements according to CEI 0-21: 2019-04.

Certificate number: U20-0017

Certification Program: NSOP-0032-DEU-ZE-V01

Data of issue: 2020-01-22

Certification body

Holger Schäfer

Certification body Bureau Veritas Consumer Products Services Germany GmbH accreditation to DIN EN ISO/IEC 17065
A partial representation of the certificate requires the written approval of Bureau Veritas Consumer Products Services Germany GmbH

Table Interface Protection System (SPI)

Extract of the test report

No.

Inverter for storage systems (comply with Annex B bis)

Manufacturer:	Alpha ESS Co., Ltd. JiuHua Road 888, High-Tech Industrial Development Zone 226300 Nantong City, Jiangsu Province China
Model:	SMILE5-INV
Nominal Power:	5 kW
Firmware version:	Beginning with V1.47
Number of phases (single-phase/three-phase):	single-phase

The inverters listed above may be installed with the following batteries:

Manufacturer:	Alpha ESS Co., Ltd.
Accumulator Model / Battery Model:	SMILE5-BAT
Capacity of each battery module (kWh):	5,5
Number(s) of battery modules recommended by the manufacturer:	6

Note:

The batteries are not integrated into the inverter and must be installed according to the local regulations.

Table Interface Protection System (SPI)

Extract of the test report

No.

Interface Protection System (SPI)

Temperature Ambient		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [V]	Requested [V] ± 1%	Detected [ms]	Requested [ms]	Detected	Requested	Detected [ms]	Requested [ms]
Voltage Threshold	Min	195,5	195,5	1500	1500 ± 20	N/A	1,03 ≤ r ≤ 1,05	N/A	40 ≤ tr ≤ 100
	Max	265,5	264,5	201	200 ± 20	N/A	0,95 ≥ r ≥ 0,97	N/A	40 ≤ tr ≤ 100
Temperature -20 °C		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [V]	Requested [V] ± 1%	Detected [ms]	Requested [ms]	Detected	Requested	Detected [ms]	Requested [ms]
Voltage Threshold	Min	195,5	195,5	1500	1500 ± 20	N/A	1,03 ≤ r ≤ 1,05	N/A	40 ≤ tr ≤ 100
	Max	265,5	264,5	215	200 ± 20	N/A	0,95 ≥ r ≥ 0,97	N/A	40 ≤ tr ≤ 100
Temperature +60 °C		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [V]	Requested [V] ± 1%	Detected [ms]	Requested [ms]	Detected	Requested	Detected [ms]	Requested [ms]
Voltage Threshold	Min	195,5	195,5	1500	1500 ± 20	N/A	1,03 ≤ r ≤ 1,05	N/A	40 ≤ tr ≤ 100
	Max	265,5	264,5	197	200 ± 20	N/A	0,95 ≥ r ≥ 0,97	N/A	40 ≤ tr ≤ 100

Note:

≤ 1 % for the voltage thresholds
 ≤ 3 % ± 20 ms for the times of intervention
 variation of the error during the repetition of the tests
 ≤ 2 % for the tensions
 ≤ 1 % ± 20 ms for the times of intervention

Table Interface Protection System (SPI)

Extract of the test report No.

Frequency 49,8Hz ... 50,2Hz

Temperature Ambient		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]	Detected	Requested	Detected [ms]	Requested [ms]
Frequency Threshold	Min	49,80	49,8	101	100 ± 20 ms	N/A	1,001 ≤ r ≤ 1,003	N/A	40 ≤ tr ≤ 100
	Max	50,20	50,2	105	100 ± 20 ms	N/A	0,997 ≥ r ≥ 0,999	N/A	40 ≤ tr ≤ 100

Temperature -20 °C		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]	Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]
Frequency Threshold	Min	49,80	49,8	119	100 ± 20 ms	N/A	1,001 ≤ r ≤ 1,003	N/A	40 ≤ tr ≤ 100
	Max	50,20	50,2	120	100 ± 20 ms	N/A	0,997 ≥ r ≥ 0,999	N/A	40 ≤ tr ≤ 100

Temperature +60 °C		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]	Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]
Frequency Threshold	Min	49,80	49,8	105	100 ± 20 ms	N/A	1,001 ≤ r ≤ 1,003	N/A	40 ≤ tr ≤ 100
	Max	50,20	50,2	87	100 ± 20 ms	N/A	0,997 ≥ r ≥ 0,999	N/A	40 ≤ tr ≤ 100

Frequency 47,5Hz ... 51,5Hz

Temperature Ambient		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]	Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]
Frequency Threshold	Min	47,49	47,5	104	100 ± 20 ms	N/A	1,001 ≤ r ≤ 1,003	N/A	40 ≤ tr ≤ 100
	Max	51,50	51,5	104	100 ± 20 ms	N/A	0,997 ≥ r ≥ 0,999	N/A	40 ≤ tr ≤ 100

Temperature -20 °C		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]	Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]
Frequency Threshold	Min	47,49	47,5	100	100 ± 20 ms	N/A	1,001 ≤ r ≤ 1,003	N/A	40 ≤ tr ≤ 100
	Max	51,50	51,5	104	100 ± 20 ms	N/A	0,997 ≥ r ≥ 0,999	N/A	40 ≤ tr ≤ 100

Temperature +60 °C		Intervention thresholds		Time of intervention		Reset Ratio		Time of relapse	
		Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]	Detected [Hz]	Requested [Hz] ± 20 mHz	Detected [ms]	Requested [ms]
Frequency Threshold	Min	47,49	47,5	106	100 ± 20 ms	N/A	1,001 ≤ r ≤ 1,003	N/A	40 ≤ tr ≤ 100
	Max	51,50	51,5	100	100 ± 20 ms	N/A	0,997 ≥ r ≥ 0,999	N/A	40 ≤ tr ≤ 100

Nota:
 ± 20 mHz for the frequency thresholds
 ≤ 3 % ± 20 ms for the times of intervention
 variation of the error during the repetition of the tests
 - ≤ 1 % ± 20 ms for the times of intervention