
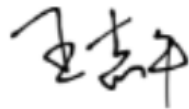


G100 Declaration of conformance			
Inverter type		SMILE 5	
Manufacturer name		Alpha ESS Ltd., Co.	
Address		Jiu Hua Road 888, Nantong, 226300	
Meter type		SM60A, ACR10R	
Manufacturer name		Jiangsu Acrel Electric MFG. Co.,Ltd.	
Address		No.5 Dongmeng Road, Jiangyin City, Jiangsu Province, China	
Test address		Jiu Hua Road 888, Nantong, 226300	
Tel	86 512 6828 0679	Date	2019-12-20
E-mail	Jester.li@alpha-ess.com		
Signed		On behalf of	

Power limiting setting: adjustable, decided by DNO.

	Non Export
Reverse Power Limit test set point	2% / 25% / 50% / 75% of inverter rating
Declared accuracy	2% (set value= Agreed value-2%)
Definite time delay (fall time)	5 s (detect an excursion and reduce the export to the Agreed Export Capacity)
	1 s (sense an excursion and signal to the generation to reduce output)

Type testing data

1. Setting protection test:

Requirement	Result	Note
The settings is password protected, and cannot be changed by anyone Other than getting written agreement of the DNO;	Pass	

2. Fail-safe test:

Method: Set 50% export limit, implement the test before start or in running.

Criteria: response time is less than 1s, fall time is less than 5s, the inverter's output active power is less than set limit. After fail safe test, disconnect AC, the reconnect time delay is more than 10min.

No.	Component	Test	Active power	Response Time	Fall Time	Reconnect time	Pass/Fail
1	Power Monitoring Unit(PMU)	Remove power supply to Meter	1930W	<1s	3S	10min48s	pass
2	Power Monitoring Unit(PMU)	Remove CT	1940W	<1s	4.2S	10min48s	pass
3	Control Unit (CU)	NA	NA	NA	NA	NA	NA
4	Generator Interface units (GIU)	NA	NA	NA	NA	NA	NA
5	Demand Control Unit (DCU)	NA	NA	NA	NA	NA	NA
6	Network hub /switches	NA	NA	NA	NA	NA	NA
7	PMU → CU communication cable	Unplug cable	1970W	0.3s	1.1s	10min48s	Pass
8	CU → GIU communication cable	NA	NA	NA	NA	NA	NA
9	GIU → Generator Communication cable	NA	NA	NA	NA	NA	NA
10	CU → DCU communication cable	NA	NA	NA	NA	NA	NA
11	DCU → load Communication cable	Unplug cable (repeat where additional DCU units)	NA	NA	NA	NA	NA

3. Power Limit check

Method: Set export limit, implement the test before start, than start the inverter.

Criteria: response time is less than 1s, fall time is less than 5s, export power $\pm 2\%$ P_n.

2%export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	pass/3.8S	pass/4.9S	Pass/2.5s	pass/2.9S
	25%	pass/3s	Pass/3.5s	Pass/2.7s	Pass/1.9s
	50%	NA	Pass/3.8s	pass/4.8S	Pass/1.6s
	75%	NA	NA	Pass/2.5s	pass/2.6s
	100%	NA	NA	NA	pass/3.6s

25%export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	pass/3.1S	pass/3.4S	Pass/3.7s	pass/2.4S
	25%	NA	Pass/3.7s	Pass/4.2s	Pass/1.9s
	50%	NA	NA	pass/0.4s	Pass/2.4s
	75%	NA	NA	NA	pass/2.1s
	100%	NA	NA	NA	NA

50%export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	NA	pass/0.5S	Pass/1.5s	pass/2.6S
	25%	NA	NA	Pass/2.7s	Pass/1.9s
	50%	NA	NA	NA	Pass/0.4s
	75%	NA	NA	NA	NA
	100%	NA	NA	NA	NA

75%export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	NA	NA	Pass/3.5s	pass/4.2S
	25%	NA	NA	NA	Pass/1.9s
	50%	NA	NA	NA	NA
	75%	NA	NA	NA	NA
	100%	NA	NA	NA	NA

4. Decreasing Load test

Input supply: 100% of the inverter rating

The load shall be decreased from the initial load to the final load as shown in followed Table.

The export control function shall manage the input supply such that the export power is below the export limit setting within the relevant timeframe for all step decreases in load shown in Table.

Criteria: response time is less than 1s, fall time is less than 5s, export power $\pm 2\%$ Pn .

2%export Agreedlimit

		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Final Load [% Inverter Rating]	75%	pass/3.2S	NA	NA	NA
	50%	pass/3s	Pass/2.2s	NA	NA
	25%	pass/3.9s	Pass/3.8s	pass/2S	NA
	0%	pass/2.9s	pass/1.9s	Pass/2.5s	pass/2.6s

25%export Agreedlimit

		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Final Load [% Inverter Rating]	75%	pass/4.8S	NA	NA	NA
	50%	pass/2.8s	Pass/2.5s	NA	NA
	25%	pass/4.6s	Pass/2.4s	pass/2.8S	NA
	0%	pass/2.1s	pass/2.4s	Pass/3.5s	pass/2.6s

50% export Agreedlimit

		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Final Load [% Inverter Rating]	75%	NA	NA	NA	NA
	50%	pass/3s	Pass/2s	NA	NA
	25%	pass/3s	Pass/3.8s	pass/4.2S	NA
	0%	pass/2.3s	pass/3s	Pass/4.5s	pass/2.9s

75%export Agreedlimit

		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Final Load [% Inverter Rating]	75%	NA	NA	NA	NA
	50%	NA	NA	NA	NA
	25%	Pass/1.8s	Pass/0.8s	pass/1.8S	NA
	0%	Pass/2.8s	Pass/2.8s	Pass/2.9s	pass/3.6s

5. Adding input supply test

At given load, the input shall be added from the initial input supply to the final as shown in followed Table. The export power will below the export limit setting within the relevant timeframe for all step.

Criteria: response time is less than 1s, fall time is less than 5s, export power $\pm 2\%$ Pn .

2% export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load/Initial input supply [% Inverter Rating]	0%	pass/3.2S	pass/4.3S	Pass/4.5s	pass/4.9S
	25%	NA	Pass/2s	Pass/1	Pass/0.9s
	50%	NA	Pass/3.8s	pass/1.2S	Pass/2.6s
	75%	NA	NA	NA	pass/1.6s

25% export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load/Initial input supply [% Inverter Rating]	0%	pass/0.8S	pass/4.1S	Pass/2.5s	pass/2.3S
	25%	NA	Pass/1.1s	Pass/1.7s	Pass/2.9s
	50%	NA	NA	pass/1.3S	Pass/4.6s
	75%	NA	NA	NA	pass/2.6s

50% export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load/Initial input supply [% Inverter Rating]	0%	NA	pass/1.9S	Pass/4.5s	pass/2.9S
	25%	NA	NA	Pass/0.7s	Pass/4s
	50%	NA	NA	NA	Pass/1.3s
	75%	NA	NA	NA	NA

75% export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load/Initial input supply [% Inverter Rating]	0%	NA	NA	Pass/2.5s	pass/3.9S
	25%	NA	NA	NA	Pass/1.9s
	50%	NA	NA	NA	NA
	75%	NA	NA	NA	NA

Comments

Test data is tested in SMILE5 cooperated with Meter SM60A.
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