G100 declaration of conformance

Type test detail

Manufacturer: Shenzhen Growatt New Energy Technology CO.,LTD

No.28 Guangming Road, Shiyan Street, Bao'an District, Shenzhen, P.R.China

Product: Hybrid inverter.

Model: Growatt Max 50KTL3 LV, Growatt Max 60KTL3 LV, Growatt Max 70KTL3 LV, Growatt Max 75KTL3 LV, Growatt Max 80KTL3 LV, Growatt Max 60KTL3 MV, Growatt Max 70KTL3 MV, Growatt Max 80KTL3 MV, Growatt Max 90KTL3 MV, Growatt Max 100KTL3 MV

Use in accordance with regulations:

Technical Guidance for Customer Export Limiting Schemes G100 for photovoltaic systems with a three-phase parallel coupling via an inverter in the public mains supply.

Applied rules and standards :

The result according to G100 engineering recommendation.

The safety concept of an aforementioned representative product complies at the time of issue of this certificate of valid safety specifications for the specified use in accordance with G100 recommendations.

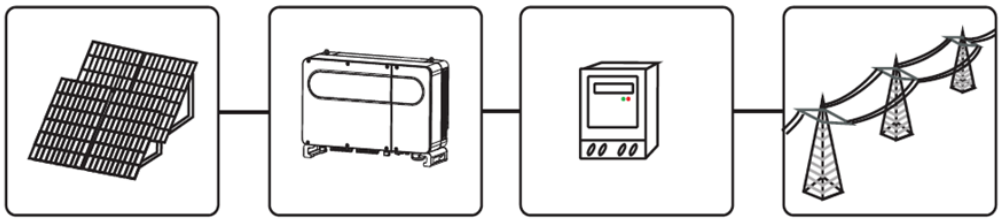
Compliant with BSEN 61000-3-2

Signature	Approved by	Place and Date

Feng Zhu		Shenzhen. PRC 2019-12-23

System Connecton Diagram

On-grid connection system diagram:



1. Setting Protection Test

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

2. CT Fail Safe Test

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

Criteria: 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 fault reconnect time.

No	Component	test	Active Power	Response Time	Fall Time	Reconnect time	Pass/ Fail
1	Power Monitoring Unit(PMU)	Remove power supply to PMU	50008W	2S	2S	45S	Pass
		Remove CT	50030W	2S	2S	45S	Pass
2	Control Unit (CU)	Remove power supply to any CU	NA	NA	NA	NA	NA
3	Generator Interface units (GIU)	Remove power supply to all GIUs	NA	NA	NA	NA	NA
4	Demand Control Unit (DCU)	Remove power supply to all DCUs	NA	NA	NA	NA	NA
5	Network hub / switches	Remove power supply	NA	NA	NA	NA	NA
6	PMU → CU	Unplug cable	50017W	2S	2S	45S	Pass

	communication cable						
7	CU → GIU communication cable	Unplug cable (repeat where additional GIU units)	NA	NA	NA	NA	NA
8	GIU → Generator communication cable	Unplug cable (repeat where additional GIU units)	NA	NA	NA	NA	NA
9	CU → DCU communication cable	Unplug cable (repeat where additional DCU units)	NA	NA	NA	NA	NA
10	DCU → load	Unplug cable	NA	NA	NA	NA	NA

	communication cable	(repeat where additional DCU units)					
11	Controlled Load(s)	Turn off load (e.g. activate thermostat)	NA	NA	NA	NA	NA

3. Power Limit Test

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

Criteria: fall time is less than 5s, the inverter's export active power is less than limit power.

0%export limit [% Inverter Rating]					
Input / Load / Export/Time		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter	0%	-36W/0.45S/1.58S	-42W/0.68S/1.96S	-66W/0.71S/3.18S	-63W/0.66S/1.54S
	25%	NA	-102W/0.38S/1.92S	-113W/0.64S/2.32S	-56W/0.64S/3.28S
	50%	NA	NA	-121W/0.64S/2.26S	-47W/0.48S/2.54S

Rating]	75%	NA	NA	NA	-16W/0.28S/2.32S

25%export limit [% Inverter Rating]					
Input / Load / Export/Time		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	NA	-25053W/0.45S/3.7S	-25050W/0.56S/3.62S	-25045W/0.63S/2.54S
	25%	NA	NA	-25098W/0.58S/3.82S	-25089W/0.65S/2.64S
	50%	NA	NA	NA	-25003W/0.47S/3.72S
	75%	NA	NA	NA	NA

50%export limit [% Inverter Rating]					
Input / Load / Export/Time		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	NA	NA	-50043W/0.57S/3.66S	-50040W/0.68S/3.24S
	25%	NA	NA	NA	-50083W/0.64S/3.82S
	50%	NA	NA	NA	NA
	75%	NA	NA	NA	NA

75%export limit [% Inverter Rating]	
Input	Input supply [% Inverter Rating]

Load Export/Time		25%	50%	75%	100%
Load [% Inverter Rating]	0%	NA	NA	NA	-75096W/0.82S/3.98S
	25%	NA	NA	NA	NA
	50%	NA	NA	NA	NA
	75%	NA	NA	NA	NA

4. decreasing Load test

Method: Set export limit, the load be decreased from 100% of the inverter rating.

Criteria: response time is less than 1s, fall time is less than 5s, the inverter's export active power is less than Agreed limit.

0%export limit [% Inverter Rating]					
Input / Load Export/Time		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Load [% Inverter Rating]	75%	-32W/0.6S/3.42S	NA	NA	NA
	50%	-84W/0.44S/2.14S	-71W/0.74S/1.3S	NA	NA
	25%	-102W/0.72S/2.84S	-83W/0.78S/2.72S	-98W/0.64S/2.64	NA
	0%	-49W/0.9S/3.08S	-72W/0.67S/3.32S	-155W/0.52S/3.8S	-110W/0.56S/3.42S

25%export limit [% Inverter Rating]					
Input / Load / Export/Time		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Load [% Inverter Rating]	75%	NA	NA	NA	NA
	50%	-25072W/0.58S/2.56S	NA	NA	NA
	25%	-25006W/0.64S/2.78S	-25081W/0.68S/3.04S	NA	NA
	0%	-25068W/0.52S/3.16S	-25090W/0.76S/3.76S	-25082W/0.68S/1.98S	NA

50%export limit [% Inverter Rating]					
Input / Load / Export/Time		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Load [% Inverter Rating]	75%	NA	NA	NA	NA
	50%	NA	NA	NA	NA
	25%	-50074W/0.81S/2.52S	NA	NA	NA
	0%	-50064W/0.62S/2.96S	-50008W/0.58S/2.1S	NA	NA

75%export limit [% Inverter Rating]

Load / Input Export/Time		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Load [% Inverter Rating]	75%	NA	NA	NA	NA
	50%	NA	NA	NA	NA
	25%	NA	NA	NA	NA
	0%	-75056W/0.67S/1.86S	NA	NA	NA

Comments

The test result is based on Growatt Max 100KTL3 MV. All the series of inverters electrical character are the same. So the test result can cover all series.