

# G100 Declaration of Conformance

## Type test Details

### Inverter

<b>Type</b>	LXP 3K Hybrid, LXP 3.6K Hybrid, LXP 4K Hybrid, LXP 4.6K Hybrid, LXP 5K Hybrid
<b>Manufacturer</b>	Shenzhen Lux Power Technology Co., Ltd
<b>Address</b>	Room 403, Building 63, Zhongwuxin Industrial Park, Zhongwu 1 <sup>st</sup> Road, Xixiang, Baoan District, Shenzhen, Guangdong Province, China

### Meter & CT

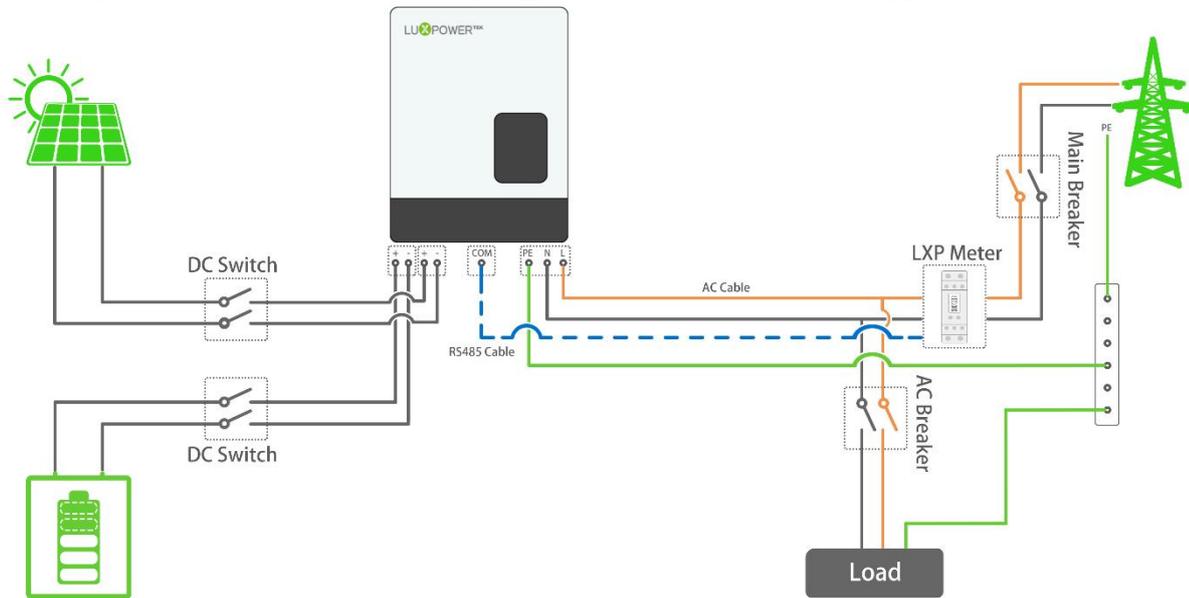
<b>Meter Type</b>	SDM120-Modbus
<b>Manufacturer</b>	Jiaxing Eastron Electronic Instruments Co.,Ltd
<b>Address</b>	No.1369 Chengnan Road, Jiaxing, Zhejiang, 314001, China

<b>CT Type</b>	CTSA016-100A/100mA
<b>Manufacturer</b>	Yuanxing electronics Co.,LTD
<b>Address</b>	Pioneering Park, Science & Technology Industry Zone, Zhangdian, Zibo, Shandong, PRC 255095

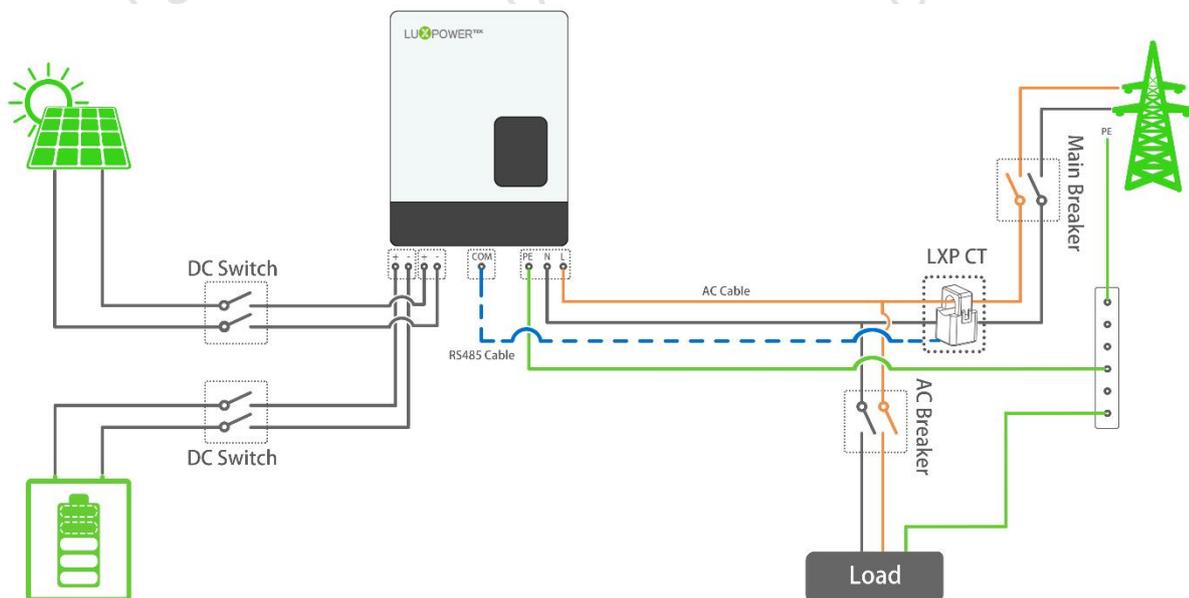
<b>Test Address</b>	Room 403, Building 63, Zhongwuxin Industrial Park, Zhongwu 1 <sup>st</sup> Road, Xixiang, Baoan District, Shenzhen, Guangdong Province, China		
<b>Telephone</b>	+86 0755 8520 9056		
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<b>Date</b>	2018/7/27		
<b>Signature</b>	<i>James Wang</i>	<b>On Behalf of</b>	<i>James Wang</i>

## System Connection Diagram

### 1. System Connection with Meter



### 2. System Connection with CT



## Power Limiting Setting: adjustable, decided by DNO

	<b>Non Export</b>
<b>Reverse Power Limit Test Set Point</b>	2% / 25% / 50% / 75% of inverter rating.
<b>Declared Accuracy</b>	2% (set value = Agreed value – 2%)
<b>Definite Time Delay (Fall Time)</b>	5s (detect an excursion and reduce the export to the Agreed Export Capacity)
<b>Response Time</b>	1s (sense an excursion and signal to the generation to reduce output)

## Type Testing Data

### 1. Setting Protection Test

<b>Requirement</b>	<b>Result</b>	<b>Note</b>
The settings is in the monitor platform, 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.

<b>No.</b>	<b>Component</b>	<b>Test</b>	<b>Active Power</b>	<b>Response Time</b>	<b>Fall Time</b>	<b>Reconnect Time</b>	<b>Pass/Fail</b>
1	Power Monitoring Unit (PMU)	Remove power supply to meter	1810W	687mS	0s	10min30s	PASS
2	Power Monitoring Unit (PMU)	Remove CT	1793W	700mS	0s	10min33s	PASS
3	Control Unit (CU)	Remove power supply to any CU	NA	NA	NA	NA	NA
4	Generator Interface Units (GIU)	Remove power supply to all GIUs	NA	NA	NA	NA	NA
5	Demand Control Unit (DCU)	Remove power supply to all DCUs	NA	NA	NA	NA	NA
6	Network Hub / Switches	Remove POWER SUPPLY	NA	NA	NA	NA	NA
7	PMU to CU communication	Unplug cable	1970w	663mS	0s	10min48s	PASS

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	Cable						
8	CU to GIU Communication Cable	Unplug cable (repeat where additional GUI units)	NA	NA	NA	NA	NA
9	GIU to Generator Communication Cable	Unplug cable (repeat where additional GIU units)	NA	NA	NA	NA	NA
10	CU to DCU Communication Cable	Unplug cable (repeat where additional DCU units)	NA	NA	NA	NA	NA
11	DCU to 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 Agreed Limit.

		Input Supply (% Inverter Rating)			
		25%	50%	75%	100%
Load (% Inverter Rating)	0%	PASS / 4.32s	PASS / 4.01s	PASS / 2.47s	PASS / 2.19s
	25%	PASS / 4.19s	PASS / 3.77s	PASS / 2.75s	PASS / 4.41s
	50%	NA	PASS / 3.57s	PASS / 2.77s	PASS / 2.13s
	75%	NA	NA	PASS / 3.66s	PASS / 1.94s
	100%	NA	NA	NA	PASS / 3.56s

25% export Agreed Limit.

		Input Supply (% Inverter Rating)			
		25%	50%	75%	100%
Load (% Inverter Rating)	0%	PASS / 3.42s	PASS / 3.88s	PASS / 4.3s	PASS / 2.89s
	25%	NA	PASS / 3.93s	PASS / 3.96s	PASS / 2.58s
	50%	NA	NA	PASS / 1.79s	PASS / 4.36s
	75%	NA	NA	NA	PASS / 3.72s
	100%	NA	NA	NA	NA

50% export Agreed Limit.

		Input Supply (% Inverter Rating)			
		25%	50%	75%	100%
Load	0%	NA	PASS / 4.07s	PASS / 1.7s	PASS / 2.87s

<b>(% Inverter Rating)</b>	<b>25%</b>	NA	NA	PASS / 2.65s	PASS / 3.69s
	<b>50%</b>	NA	NA	NA	PASS / 2.63s
	<b>75%</b>	NA	NA	NA	NA
	<b>100%</b>	NA	NA	NA	NA

75% export Agreed Limit.

		<b>Input Supply (% Inverter Rating)</b>			
		<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>100%</b>
<b>Load (% Inverter Rating)</b>	<b>0%</b>	NA	NA	PASS / 3.06s	PASS / 2.04s
	<b>25%</b>	NA	NA	NA	PASS / 2.43s
	<b>50%</b>	NA	NA	NA	NA
	<b>75%</b>	NA	NA	NA	NA
	<b>100%</b>	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 time frame 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 Agreed Limit.

		<b>Initial Load (% Inverter Rating)</b>			
		<b>100%</b>	<b>75%</b>	<b>50%</b>	<b>25%</b>
<b>Final Load (% Inverter Rating)</b>	<b>75%</b>	PASS / 4.07s	NA	NA	NA
	<b>50%</b>	PASS / 4.68s	PASS / 2.88s	NA	NA
	<b>25%</b>	PASS / 4.05s	PASS / 2.62s	PASS / 3.67s	NA
	<b>0%</b>	PASS / 4.3s	PASS / 3.3s	PASS / 4.76s	PASS / 3.75s

25% export Agreed Limit.

		<b>Initial Load (% Inverter Rating)</b>			
		<b>100%</b>	<b>75%</b>	<b>50%</b>	<b>25%</b>
<b>Final Load (% Inverter Rating)</b>	<b>75%</b>	PASS / 3.48s	NA	NA	NA
	<b>50%</b>	PASS / 4.34s	PASS / 4.24s	NA	NA
	<b>25%</b>	PASS / 3.08s	PASS / 3.22s	PASS / 30.2s	NA
	<b>0%</b>	PASS / 3.23s	PASS / 3.68s	PASS / 2.25s	PASS / 3.53s

50% export Agreed Limit.

		<b>Initial Load (% Inverter Rating)</b>			
		<b>100%</b>	<b>75%</b>	<b>50%</b>	<b>25%</b>
<b>Final Load</b>	<b>75%</b>	NA	NA	NA	NA

<b>(% Inverter Rating)</b>	<b>50%</b>	PASS / 3.94s	PASS / 4.1s	NA	NA
	<b>25%</b>	PASS / 4.5s	PASS / 3.22s	PASS / 2.23s	NA
	<b>0%</b>	PASS / 3.6s	PASS / 2.59s	PASS / 4.11s	PASS / 3.67s

75% export Agreed Limit.

		<b>Initial Load (% Inverter Rating)</b>			
		<b>100%</b>	<b>75%</b>	<b>50%</b>	<b>25%</b>
<b>Final Load (% Inverter Rating)</b>	<b>75%</b>	NA	NA	NA	NA
	<b>50%</b>	NA	NA	NA	NA
	<b>25%</b>	PASS / 2.94s	PASS / 2.35s	PASS / 4.45s	NA
	<b>0%</b>	PASS / 3.4s	PASS / 3.62s	PASS / 4.15s	PASS / 3.52s

### 5. Adding Input Supply Test

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

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

2% export Agreed Limit.

		<b>Final Input Supply (% Inverter Rating)</b>			
		<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>100%</b>
<b>Initial Input Supply (% Inverter Rating)</b>	<b>0%</b>	PASS / 3.49s	PASS / 2.55s	PASS / 3.4s	PASS / 3.26s
	<b>25%</b>	NA	PASS / 0s	PASS / 0s	PASS / 0s
	<b>50%</b>	NA	NA	PASS / 0s	PASS / 0s
	<b>75%</b>	NA	NA	NA	PASS / 0s

25% export Agreed Limit.

		<b>Final Input Supply (% Inverter Rating)</b>			
		<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>100%</b>
<b>Initial Input Supply (% Inverter Rating)</b>	<b>0%</b>	PASS / 0s	PASS / 4.89s	PASS / 4.21s	PASS / 2.53s
	<b>25%</b>	NA	PASS / 0s	PASS / 0s	PASS / 0s
	<b>50%</b>	NA	NA	PASS / 0s	PASS / 0s
	<b>75%</b>	NA	NA	NA	PASS / 0s

50% export Agreed Limit.

		<b>Final Input Supply (% Inverter Rating)</b>			
		<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>100%</b>
<b>Initial Input Supply (% Inverter Rating)</b>	<b>0%</b>	NA	PASS / 3.18	PASS / 4.88s	PASS / 4.8s
	<b>25%</b>	NA	NA	PASS / 2.51s	PASS / 4.29s
	<b>50%</b>	NA	NA	NA	PASS / 0s
	<b>75%</b>	NA	NA	NA	NA

75% export Agreed Limit.

		<b>Final Input Supply (% Inverter Rating)</b>			
		<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>100%</b>
<b>Initial Input Supply (% Inverter Rating)</b>	<b>0%</b>	NA	NA	PASS / 0s	PASS / 2.54s
	<b>25%</b>	NA	NA	NA	PASS / 2.88s
	<b>50%</b>	NA	NA	NA	NA
	<b>75%</b>	NA	NA	NA	NA

**Comments**

Test data is tested in LXP 5K Hybrid cooperated with Meter and CT. LXP 3K Hybrid, LXP 3.6K Hybrid, LXP 4K Hybrid and LXP 4.6K Hybrid is similar to LXP 5K Hybrid in circuit and construction except for output rating of current and power. The test can refer to LXP 5K Hybrid.