

## G100 declaration of conformance

### Type test detail

**Manufacturer:** Shenzhen Growatt New Energy CO., LTD

2F and 3F, Building 4, Jiayu Company Industrial Park, Xibianling, Shangyu Village, Shiyan Street, Bao'an District, Shenzhen

**Product:** PV Grid inverter.

**Model:** MOD 3000TL3-X, MOD 4000TL3-X, MOD 5000TL3-X , MOD 6000TL3-X, MOD 7000TL3-X , MOD 8000TL3-X , MOD 9000TL3-X , MOD 10KTL3-X , MOD 11KTL3-X, MOD 12KTL3-X, MOD 13KTL3-X, MOD 15KTL3-X

### Use in accordance with regulations:

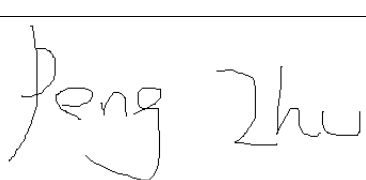
Technical Guidance for Customer Export Limiting Schemes G100 for photovoltaic systems with a three-phase parallel coupling via an inverter in the public mains supply.

### Applied rules and standards :

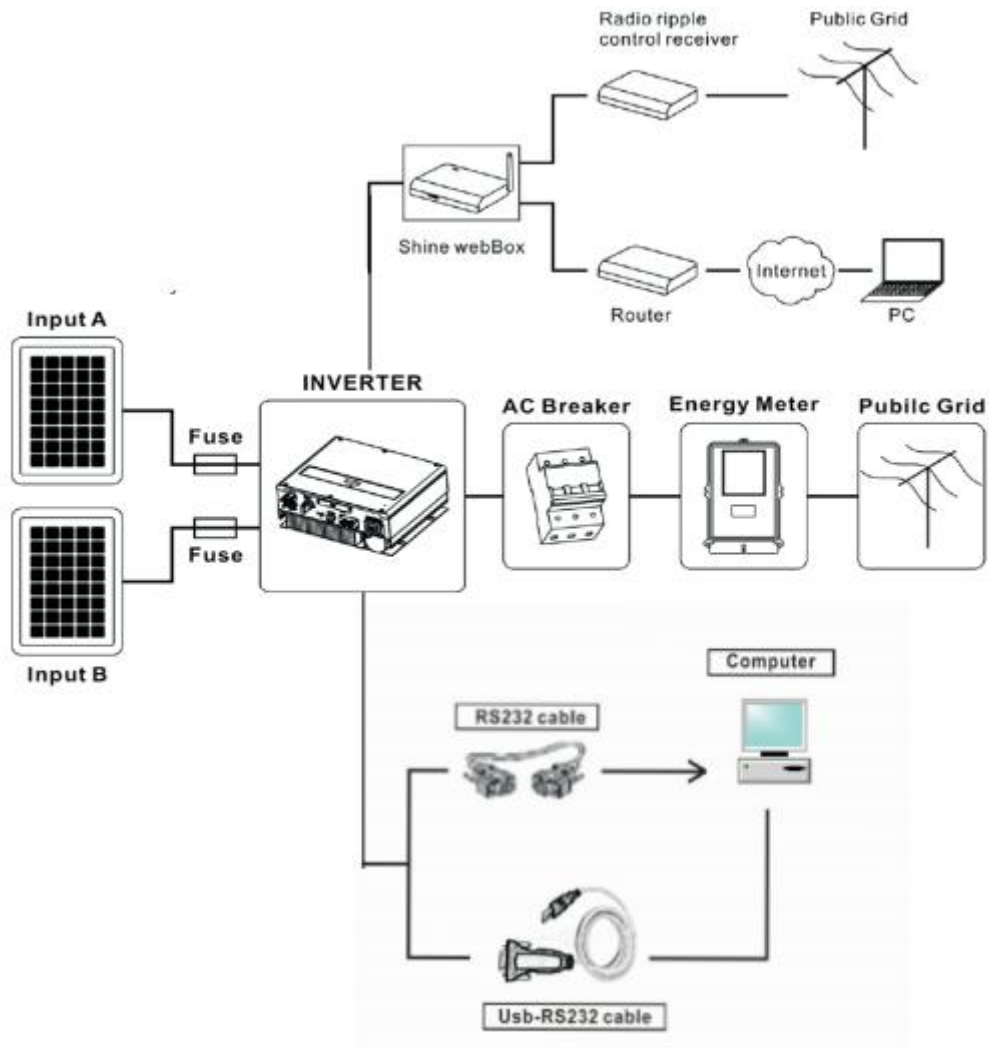
The result according to G100 engineering recommendation.

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            |
|---|-------------|---------------------------|
|  |             | Shenzhen. PRC<br>2021-1-7 |

## System Connecton 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      | 7408W        | 2S            | 2S        | 41S            | Pass      |
|    |                                 | Remove CT                       | 7430W        | 2S            | 2S        | 41S            | 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             | NA           | NA            | NA        | NA             | NA        |

|          |   |  |              |           |           |            |             |
|----------|---|--|--------------|-----------|-----------|------------|-------------|
|          |   | to<br>all DCUs   |              |           |           |            |             |
| <b>5</b> | Network hub /<br>switches                           | Remove<br>power supply   | <b>NA</b>    | <b>NA</b> | <b>NA</b> | <b>NA</b>  | <b>NA</b>   |
| <b>6</b> | <b>PMU → CU</b><br><br>communication<br>cable       | Unplug cable   | <b>7417W</b> | <b>2S</b> | <b>2S</b> | <b>41S</b> | <b>Pass</b> |
| <b>7</b> | <b>CU → GIU</b><br><br>communication<br>cable       | Unplug cable<br><br>(repeat<br>where<br>additional<br><b>GIU</b><br>units) | <b>NA</b>    | <b>NA</b> | <b>NA</b> | <b>NA</b>  | <b>NA</b>   |
| <b>8</b> | <b>GIU →</b><br>Generator<br>communication<br>cable | Unplug cable<br><br>(repeat<br>where<br>additional<br><b>GIU</b><br>units) | <b>NA</b>    | <b>NA</b> | <b>NA</b> | <b>NA</b>  | <b>NA</b>   |
| <b>9</b> | <b>CU → DCU</b><br><br>communication                | Unplug cable<br><br>(repeat  | <b>NA</b>    | <b>NA</b> | <b>NA</b> | <b>NA</b>  | <b>NA</b>   |

|           |   |  |           |           |           |           |           |
|-----------|---|--|-----------|-----------|-----------|-----------|-----------|
|           | cable   | where<br><br>additional<br><br><b>DCU</b><br><br>units)                                    |           |           |           |           |           |
| <b>10</b> | <b>DCU</b> → load<br><br>communication<br><br>cable | Unplug cable<br><br>(repeat<br><br>where<br><br>additional<br><br><b>DCU</b><br><br>units) | <b>NA</b> | <b>NA</b> | <b>NA</b> | <b>NA</b> | <b>NA</b> |
| <b>11</b> | Controlled<br><br>Load(s)                           | Turn off load<br><br>(e.g.<br><br>activate<br><br>thermostat)                              | <b>NA</b> | <b>NA</b> | <b>NA</b> | <b>NA</b> | <b>NA</b> |

### 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    |             | Input supply [% Inverter Rating] |                   |                   |                  |
|----------|-------------|----------------------------------|-------------------|-------------------|------------------|
|          |             | 25%                              | 50%               | 75%               | 100%             |
| Load     | Export/Time |                                  |                   |                   |                  |
| Load     | 0%          | -54W/0.52S/1.52S                 | -63W/0.94S/1.94S  | -66W/0.92S/3.48S  | -63W/0.66S/1.54S |
| [%       | 25%         | NA                               | -128W/0.26S/1.90S | -174W/0.64S/2.32S | -96W/0.94S/3.28S |
| Inverter | 50%         | NA                               | NA                | -158W/0.94S/2.26S | -38W/0.48S/2.74S |
| Rating]  | 75%         | NA                               | NA                | NA                | -16W/0.28S/2.32S |

| 25%export limit [% Inverter Rating] |             |                                  |                  |                   |                   |
|-------------------------------------|-------------|----------------------------------|------------------|-------------------|-------------------|
| Input                               |             | Input supply [% Inverter Rating] |                  |                   |                   |
|                                     |             | 25%                              | 50%              | 75%               | 100%              |
| Load                                | Export/Time |                                  |                  |                   |                   |
| Load                                | 0%          | NA                               | -3753W/0.1S/3.7S | -3750W/0.1S/3.62S | -3745W/0.1S/2.04S |
| [%                                  | 25%         | NA                               | NA               | -3798W/0.1S/3.82S | -3789W/0.1S/2.94S |
| Inverter                            | 50%         | NA                               | NA               | NA                | -2703W/0.1S/4.1S  |
| Rating]                             | 75%         | NA                               | NA               | NA                | NA                |

| 50%export limit [% Inverter Rating] |             |                                  |     |                   |                   |
|-------------------------------------|-------------|----------------------------------|-----|-------------------|-------------------|
| Input                               |             | Input supply [% Inverter Rating] |     |                   |                   |
|                                     |             | 25%                              | 50% | 75%               | 100%              |
| Load                                | Export/Time |                                  |     |                   |                   |
| Load                                | 0%          | NA                               | NA  | -7543W/0.1S/3.64S | -7540W/0.1S/3.20S |
| [%                                  | 25%         | NA                               | NA  | NA                | -7583W/0.1S/4.62S |

|          |     |    |    |    |    |
|----------|-----|----|----|----|----|
| Inverter | 50% | NA | NA | NA | NA |
| Rating]  | 75% | NA | NA | NA | NA |

| 75%export limit [% Inverter Rating] |     |                                  |     |     |                    |
|-------------------------------------|-----|----------------------------------|-----|-----|--------------------|
| Load Export/Time                    |     | Input supply [% Inverter Rating] |     |     |                    |
|                                     |     | 25%                              | 50% | 75% | 100%               |
| Load                                | 0%  | NA                               | NA  | NA  | -11296W/0.1S/3.92S |
| [%                                  | 25% | NA                               | NA  | NA  | NA                 |
| Inverter                            | 50% | NA                               | NA  | NA  | NA                 |
| Rating]                             | 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] |     |                                  |     |     |     |
|------------------------------------|-----|----------------------------------|-----|-----|-----|
| Load Export/Time                   |     | Input supply [% Inverter Rating] |     |     |     |
|                                    |     | 100%                             | 75% | 50% | 25% |
| Load                               | 75% | -32W/0.6S/3.42S                  | NA  | NA  | NA  |

|                           |     |                       |                      |                      |                       |
|---------------------------|-----|-----------------------|----------------------|----------------------|-----------------------|
| [%<br>Inverter<br>Rating] | 50% | -84W/0.44S/2.12S      | -71W/0.82S/1.30<br>S | NA                   | NA                    |
|                           | 25% | -112W/0.72S/2.84<br>S | -83W/0.6S/2.72S      | -98W/0.44S/2.64      | NA                    |
|                           | 0%  | -49W/0.9S/3.08S       | -72W/0.86S/3.30<br>S | -155W/0.68S/3.8<br>S | -110W/0.78S/3.42<br>S |

| 25%export limit [% Inverter Rating] |     |                                  |                    |                    |     |
|-------------------------------------|-----|----------------------------------|--------------------|--------------------|-----|
| Load<br>Export/Time                 |     | Input supply [% Inverter Rating] |                    |                    |     |
|                                     |     | 100%                             | 75%                | 50%                | 25% |
| Load                                | 75% | NA                               | NA                 | NA                 | NA  |
| [%<br>Inverter<br>Rating]           | 50% | -3772W/0.84S/2.56S               | NA                 | NA                 | NA  |
|                                     | 25% | -3706W/0.84S/2.78S               | -3781W/0.78S/3.04S | NA                 | NA  |
|                                     | 0%  | -3768W/0.78S/3.16S               | -3790W/0.86S/4.38S | -3782W/0.68S/1.98S | NA  |

| 50%export limit [% Inverter Rating] |     |                                  |     |     |     |
|-------------------------------------|-----|----------------------------------|-----|-----|-----|
| Load<br>Export/Time                 |     | Input supply [% Inverter Rating] |     |     |     |
|                                     |     | 100%                             | 75% | 50% | 25% |
| Load                                | 75% | NA                               | NA  | NA  | NA  |



|                           |     |                    |                   |    |    |
|---------------------------|-----|--------------------|-------------------|----|----|
| [%<br>Inverter<br>Rating] | 50% | NA                 | NA                | NA | NA |
|                           | 25% | -7574W/0.56S/2.52S | NA                | NA | NA |
|                           | 0%  | -7564W/0.8S/2.96S  | -7508W/0.76S/2.1S | NA | NA |

| 75%export limit [% Inverter Rating] |                      |                                  |     |     |     |
|-------------------------------------|----------------------|----------------------------------|-----|-----|-----|
| Load                                | Input<br>Export/Time | Input supply [% Inverter Rating] |     |     |     |
|                                     |                      | 100%                             | 75% | 50% | 25% |
| [%<br>Inverter<br>Rating]           | 75%                  | NA                               | NA  | NA  | NA  |
|                                     | 50%                  | NA                               | NA  | NA  | NA  |
|                                     | 25%                  | NA                               | NA  | NA  | NA  |
|                                     | 0%                   | -11256W/0.8S/1.86S               | NA  | NA  | NA  |

## Comments

The test result is based on Growatt MOD 15KTL3-X. All the series of inverters electrical character are the same. So the test result can cover all series.