



SMA New Energy Technology (Jiangsu) Co., Ltd
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Manufacture's Declaration

Confirmation of Compliance with the Requirements of VFR 2014/UTE C 15-712-1

SMA New Energy Technology (Jiangsu) Co., Ltd hereby confirms that the inverter type listed below table meet the requirement of the French code of practice UTE C 15-712-1.

| | |
|-------------------------|-------------------|
| Brand | zeversolar |
| Type reference | Zeverlution 3000S |
| Nominal AC Power | 3000W |
| Maximum AC Power | 3000W |

The inverter meets the requirements of VFR 2014/UTE C 15-712-1, along with the specifications in the data sheet and the CE declaration, by the following points:

- The certificate of the compliance with VDE 0126-1-1/A1:2012 has been issued by an accredited institute. The certificate can be downloaded from the website <http://www.zeversolar.com/>.
- The inverter meets the requirements of the French code of practice UTE C 15-712-1.
- The automatic disconnection devices integrated within the inverters with single-phase mains surveillance meet the requirements of DIN VDE 0126-1-1 / A1: 2012 with the deviation of VFR 2014 (mentioned in "Protections des installations de production raccordées au réseau public de distribution, ERDF-NOI-RES_13E, Version 5, 30/06/2013").
- The grid protection parameters can't be changed by user, an installer or by any person other than SMA (password protected).

Suzhou, 31.07.2017

SMA New Energy Technology (Jiangsu) Co., Ltd.

Sandy Gong, Safety Manager



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Test Results

Power quality

| Harmonic current emissions as per EN 61000-3-2 | | | |
|--|--------------------|-----------|---------------|
| Harmonic | Test Value in Amps | % of fund | Limit in Amps |
| 2 | 0.006 | 0.048 | 1.080 |
| 3 | 0.112 | 0.86 | 2.300 |
| 4 | 0.003 | 0.019 | 0.430 |
| 5 | 0.054 | 0.413 | 1.140 |
| 6 | 0.009 | 0.07 | 0.300 |
| 7 | 0.004 | 0.03 | 0.770 |
| 8 | 0.003 | 0.026 | 0.230 |
| 9 | 0.018 | 0.141 | 0.400 |
| 10 | 0.003 | 0.023 | 0.184 |
| 11 | 0.019 | 0.147 | 0.330 |
| 12 | 0.004 | 0.03 | 0.153 |
| 13 | 0.012 | 0.091 | 0.210 |
| 14 | 0.005 | 0.042 | 0.131 |
| 15 | 0.015 | 0.113 | 0.150 |
| 16 | 0.005 | 0.04 | 0.115 |
| 17 | 0.014 | 0.105 | 0.132 |
| 18 | 0.006 | 0.046 | 0.102 |
| 19 | 0.014 | 0.104 | 0.118 |
| 20 | 0.007 | 0.054 | 0.092 |
| 21 | 0.014 | 0.104 | 0.107 |
| 22 | 0.007 | 0.051 | 0.084 |
| 23 | 0.011 | 0.085 | 0.098 |
| 24 | 0.008 | 0.062 | 0.077 |
| 25 | 0.01 | 0.078 | 0.090 |
| 26 | 0.006 | 0.044 | 0.071 |
| 27 | 0.009 | 0.07 | 0.083 |
| 28 | 0.006 | 0.046 | 0.066 |
| 29 | 0.009 | 0.071 | 0.078 |
| 30 | 0.005 | 0.038 | 0.061 |
| 31 | 0.007 | 0.056 | 0.073 |
| 32 | 0.005 | 0.041 | 0.058 |
| 33 | 0.004 | 0.034 | 0.068 |

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| | | | |
|-----|-------|-------|-------|
| 34 | 0.006 | 0.048 | 0.054 |
| 35 | 0.007 | 0.052 | 0.064 |
| 36 | 0.006 | 0.045 | 0.051 |
| 37 | 0.007 | 0.054 | 0.061 |
| 38 | 0.006 | 0.044 | 0.048 |
| 39 | 0.007 | 0.057 | 0.058 |
| 40 | 0.006 | 0.044 | 0.046 |
| THD | - | 1.06% | - |

| Voltage fluctuations and flicker as per EN 61000-3-3 | | | | | | | | |
|--|---|-------|---------------|---------------|-------|---------------|------------|-------------|
| | Starting | | | Stopping | | | Running | |
| | dmax | dc | d(t) | dmax | dc | d(t) | Pst | Plt 2 hours |
| Measured Values | 2.00% | 0.00% | 2.00% | 1.97% | 0.00% | 1.97% | 0.453 | 0.540 |
| Limits set under EN 61000-3-3 | 4% | 3.3% | 3.3% 500ms | 4% | 3.3% | 3.3% 500ms | 1.0 | 0.65 |
| Test start date | 09/06/2015 | | | Test end date | | | 09/06/2015 | |
| Test location | Audix Technology (Wujiang) Co., Ltd. EMC Dept | | | | | | | |

| Power factor * | | | |
|--------------------------|-------|-------|-------|
| Test Voltage level | 210 V | 230 V | 253 V |
| Measured value at 100%Pn | 0.995 | 0.996 | 0.996 |
| Limit | >0.95 | >0.95 | >0.95 |

* Measured at three voltage levels and at full output. The voltage maintained within $\pm 1.5\%$ of the stated level during the test.

Under/Over frequency protection

| Function | Limit | | Actual setting | | Trip test | |
|-------------|---------------|---------|----------------|---------|---------------|---------|
| | Frequency[Hz] | Time[s] | Frequency[Hz] | Time[s] | Frequency[Hz] | Time[s] |
| U/F Stage 1 | 47.5 | 0.2 | 47.5 | 0.16 | 47.50 | 0.156 |
| O/F Stage 1 | 50.6 | 0.2 | 50.6 | 0.16 | 50.59 | 0.155 |

Under/Over voltage protection

| Function | Limit | | Actual setting | | Trip test | |
|---------------|-------------|----------|----------------|----------|-------------|----------|
| | Voltage [V] | Time [s] | Voltage [V] | Time [s] | Voltage [V] | Time [s] |
| U/V Stage 1 | 184.0 | 0.2 | 184.0 | 0.12 | 185.6 | 0.146 |
| O/V Stage 1 * | 253.0 | 600 | 253.0 | 600 | 257.6 | 563 |
| O/V Stage 2 | 264.5 | 0.2 | 264.5 | 0.12 | 265.4 | 0.139 |

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*Over voltage – stage 1: 10 min mean value corresponding to EN 50160. The voltage is set to 100%Un and held for 600s. After that, the voltage is set to 112%Un. It must be switched off within 600s.

Loss of mains test

| Method used | The optimized Slip-Mode Frequency Shift (SMS) method | | |
|---------------------------------|--|--------|---------|
| | 25% Pn | 50% Pn | 100% Pn |
| Output power level | | | |
| Limit according to VDE 0126-1-1 | 5s | 5s | 5s |
| Trip time (L:+5%) | 0.294s | 0.328s | 0.279s |
| Trip time (L:+4%) | 0.295s | 0.287s | 0.292s |
| Trip time (L:+3%) | 0.298s | 0.289s | 0.277s |
| Trip time (L:+2%) | 0.291s | 0.382s | 0.300s |
| Trip time (L:+1%) | 0.304s | 0.395s | 0.336s |
| Trip time (L:+0%) | 0.370s | 0.411s | 0.505s |
| Trip time (L:-1%) | 0.396s | 0.368s | 0.377s |
| Trip time (L:-2%) | 0.387s | 0.344s | 0.350s |
| Trip time (L:-3%) | 0.360s | 0.369s | 0.332s |
| Trip time (L:-4%) | 0.365s | 0.334s | 0.345s |
| Trip time (L:-5%) | 0.354s | 0.269s | 0.336s |

Reconnection time measurement

| Reconnection time | Under/over Voltage | Under / over Frequency | Loss of Mains |
|-------------------|--------------------|------------------------|---------------|
| Limit | 60s | 60s | 60s |
| Actual setting | 60s | 60s | 60s |
| Recorded value | 68s | 69s | 68s |

DC current monitoring

A direct current feed to the low voltage grid due to a defective generator operation must lead to a disconnection within 0.2 s. (according to VDE 0126-1-1)

| Function | Limit | | Trip test | |
|---------------------|----------------|-----------|----------------|-----------|
| | DC current [A] | Time [ms] | DC current [A] | Time [ms] |
| Positive DC current | 1.0 | 200 | 0.98 | 152 |
| Negative DC current | 1.0 | 200 | 0.99 | 159 |

Residual current monitoring

| Test for correct triggering in event of steadily rising residual current | | | | |
|--|--------------------|-----------|-------------------|-----------|
| PV connection | Limit | | Trip test | |
| | Fault current [mA] | Time [ms] | Test Current [mA] | Time [ms] |
| | | | | |

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| | | | | |
|-----|-----|-----|----|-----|
| PV+ | 300 | 300 | 79 | 131 |
| PV- | 300 | 300 | 82 | 123 |

| Test for correct triggering in event of sudden rising residual current | | | | |
|---|--------------------|-----------|-------------------|-----------|
| PV connection | Limit | | Trip test | |
| | Fault current [mA] | Time [ms] | Test Current [mA] | Time [ms] |
| PV+ | 30 | 300 | 30.0 | 136 |
| PV+ | 60 | 150 | 59.5 | 115 |
| PV+ | 150 | 40 | 147.9 | 38 |
| PV- | 30 | 300 | 28.9 | 169 |
| PV- | 60 | 150 | 59.5 | 128 |
| PV- | 150 | 40 | 148.2 | 35 |

Array insulation resistance detection

The value of the total resistance, including the intentional resistance for array functional grounding, the expected insulation resistance of the array to ground, and the resistance of any other networks connected to ground (for example measurement networks) must not be lower than $R = (V_{MAX PV}/30 \text{ mA})$ ohms. (according to EN 62109-2)

| PV connector | Test resistance value | Activation(Yes/No) | Display |
|--------------|-----------------------|--------------------|-----------------|
| PV+ | 200kΩ | Yes | Isolation Fault |
| PV- | 200kΩ | Yes | Isolation Fault |

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