



Declaration of conformity

SolaX Power Network Technology (Zhejiang) Co. , Ltd.

hereby confirms that the following inverters fulfill EN 50549-1:2019 Declaration of conformity with PPDS 2020, part of grid protection settings, further relating to RfG regulation 2016/631 (EU).

Here with SolaX Power Network Technology (Zhejiang) CO.,LTD. declares, that the following products are compliant to the below described properties required by RFG 2016/631(EU) described in EN50549-1, and fulfill the requirements of Czech grid regulations authorities according PPDS 2020 př.č. 4:

- X3-20K-TL
- X3-25K-TL
- X3-30K-TL
- X3-50K-TL
- X3-60K-TL

A) Grid protection settings according PPDS 2020 pr.c.4, section 8.2 (A2, B1, B2 Inverter >16A)

| Parameter | Recommend disconnect time | Recommend trip value | Settings range |
|---|---------------------------|------------------------|----------------|
| overvoltage 3. level | 0.1s | 230V + 25% (287.5 VAC) | 1.00 – 1.30 Un |
| overvoltage 2. level | 5s | 230V + 20% (276 VAC) | 1.00 – 1.30 Un |
| overvoltage 1. Level ⁽¹⁾ | 50s (<=60s) | 230V + 15% (264.5 VAC) | 1.00 – 1.30 Un |
| undervoltage < | 2.7s (0 – 2.7s) | 230V - 30% (161.0 VAC) | 0.10 – 1.00 Un |
| undervoltage << | 1.7s (>= 0.15s) | 230V - 55% (126.5 VAC) | 0.10 – 1.00 Un |
| overfrequency | <= 100ms | 52 Hz | 50 – 52 Hz |
| underfrequency | <= 100ms | 47.5 Hz | 47.5 – 50 Hz |
| Direction reactive power and undervoltage (Q● & U<) | t1 = 0.5s | 230V - 15% (195.5 VAC) | 0.70 – 1.00 Un |

(1) 10min value corresponding to EN50160. The calculation of the 10-min value shall comply with the 10min aggregation of EN61000-4-30, class S. The function shall be based on the calculation of the square root of the arithmetic mean of the squared input values over 10min. In deviation from EN61000-4-30 a moving window shall be used. The calculation of a new 10min value at least every 3s is sufficient.

B) FREQUENCY STABILITY acc. PPDS 2020 pr.c.4, section 9.1.1 (referring to cat. A1, A2, B1, B2)

The inverters are not allowed to disconnect from grid within changes of frequency specified with a RoCoF immunity of at least +/- 2Hz/s

The minimum time period for operating in underfrequency and overfrequency situations:

| Frequency range | Minimum operating time |
|-----------------|------------------------|
| 47 – 47.5 Hz | 20 s |
| 47.5 – 48.5 Hz | 30 min |
| 48.5 – 49 Hz | 90 min |
| 49 – 51 Hz | unlimited |
| 51 – 51.5 Hz | 30 min |

C) VOLTAGE STABILITY according PPDS 2020 pr.c.4, 9.1.2. (referring to cat. A1, A2)

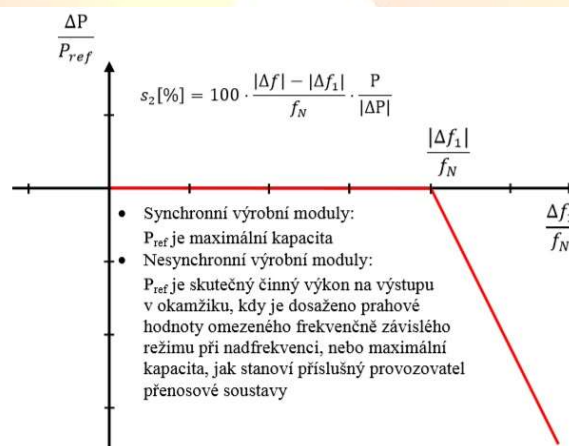
The continuous operating voltage range is defined for the inverters within the range of 85% Un to 110% Un at the point of connection.

D) POWER RESPONSE TO OVERFREQUENCY acc. PPDS 2020 pr.c.4, section 9.3.1 . (refer to all cat.)

Inverters are capable of activating active power response to overfrequency at a frequency threshold f_1 at least between and including 50,05 Hz and 52 Hz with a droop in a range of at least $s=4\%$ to $s=10\%$.

ATTENTION - NEW: Power resume only allowed after overfrequency falls back below threshold level of $f \leq 50.05$ Hz. Do not detect changes smaller 10mHz.

Default values for threshold f in CZ are 50,2 HZ and $s=5\%$

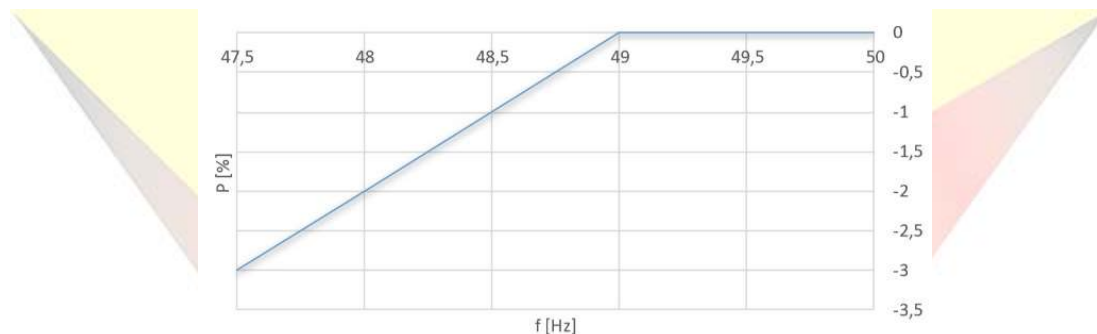


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E) POWER RESPONSE TO UNDERFREQUENCY acc. PPDS 2020 pr.c.4, section 9.3.2. (ref. to all cat.)

The inverters maximum allowed decrease in power is characterized by a reduction rate of 2 % of the maximum power P_{max} per 1 Hz for frequencies below 49 Hz



F.1) DIGITAL INPUT TO STOP POWER according PPDS 2020 pr.c.4, section 5.1a (refer to A1, A2, B1)

The inverters shall be equipped with an EPO port to allow transfer trip and stop immediately (max after 5s) the power feeding to the grid.

F.2) LOGIC INPUT TO LIMIT POWER according PPDS 2020 pr.c.4, section 5.1b (refer to A2, B1)

The inverters shall be equipped with an option to receive data commands to decrease power within their nominal range, controlling at a max. steps of 10% of their nominal power.

F.3) P Control + Remote information exchange acc. PPDS 2020 pr.c.4, section 5.1b (refer to B1, B2)

The inverters shall be able with an option to receive and send data to control their power and communicate status information.

G) AUTOMATIC RECONNECTION AFTER TRIPPING acc. PPDS 2020 pr.c.4, section 9.5 (ref to all cat.)

The inverter, disconnected from grid by the protections, will automatically re-connect,

1. if the voltage and frequency is observed for 300s (5min) in the range of:

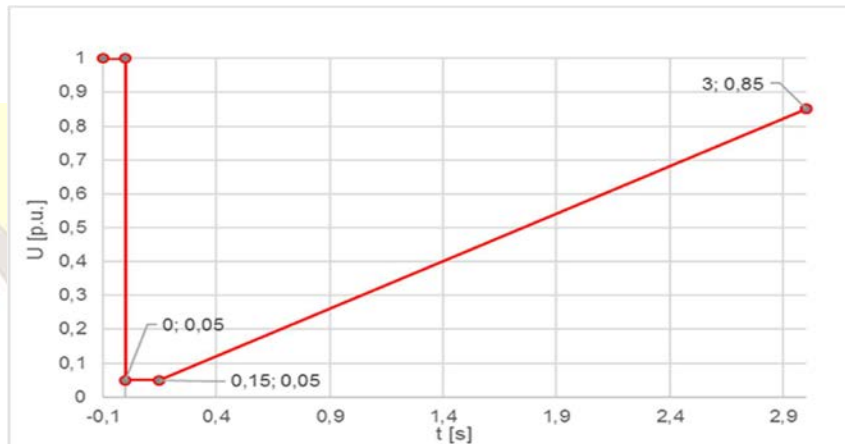
Voltage: 85-110 % of its nominal value

Frequency: 47,5-50,05 Hz

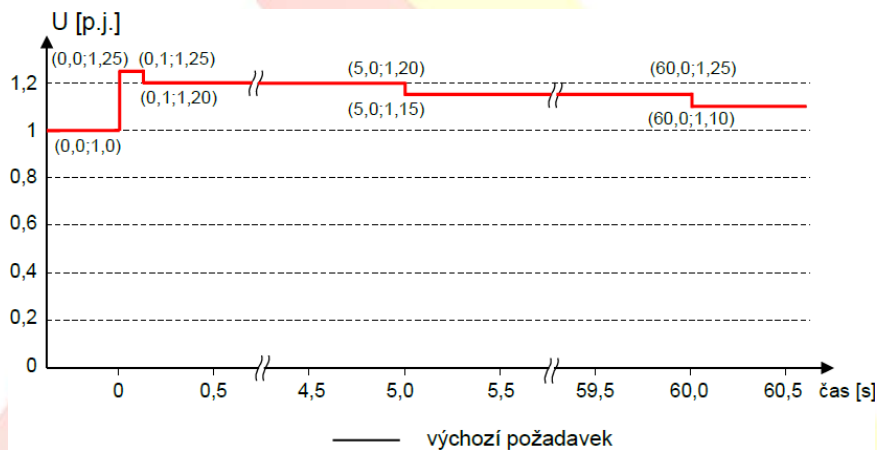
2. with a ramp up curve of 10% P_n per minute

In an out of range event, the observation time of 300s will restart from the beginning.

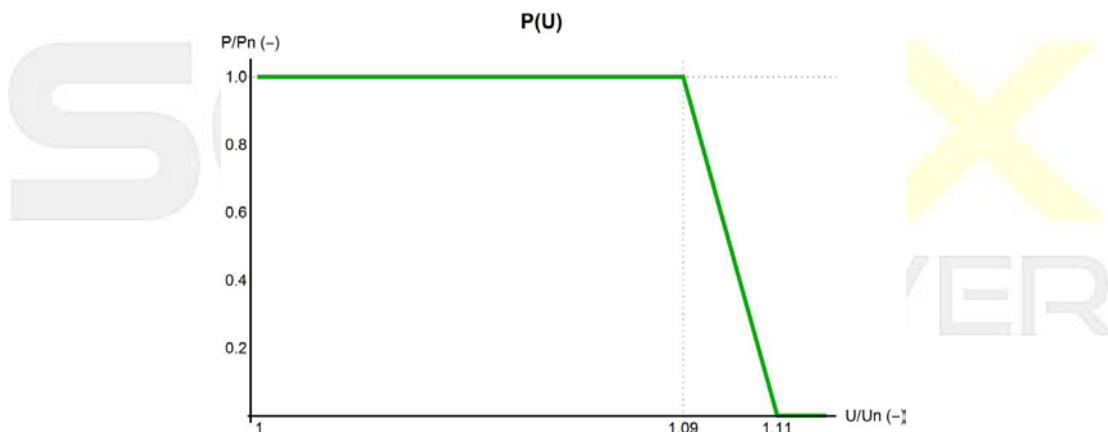
H) LVRT Low Voltage Ride Through (FRT) acc. PPDS 2020 pr.c.4, section 9.2.2.1 (ref. to all cat.)



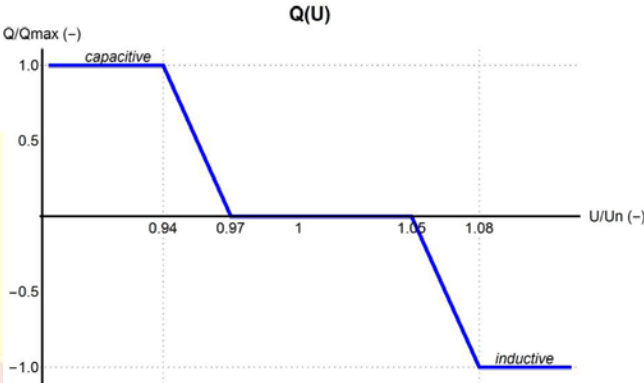
G) OVRT Over Voltage Ride Through (FRT) acc. PPDS 2020 pr.c.4, section 9.2.2.2 (ref. to all cat.)



H) Voltage related active power reduction acc. PPDS 2020 pr.c.4, section 9.3.3 (A1, A2, B1 POC LV)



I) Voltage support by reactive power acc. PPDS 2020 pr.c.4, section 9.4.2 (A1, A2)



SolaX Power Network Technology (Zhejiang) Co. , Ltd.

NAME & SURNAME:

POSITION: R&D Director

SIGNATURE: Guo Huawei

Date: Feb. 18,2021

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