



Declaration of Conformity

Resolution n° 7 – Addendum to Amendment n° 1 of the Philippine Grid Code

Manufacturer:	SMA Solar Technology AG
Address:	Sonnenallee 1, 34266 Niestetal, Germany
Inverter family:	STP 20000TL-30 / STP 25000TL-30

SMA hereby declares that the aforementioned inverters (with the correct setting for the Philippines) comply with the following requirements defined in the Section 2 of the Resolution n° 7, Series of 2013, which establishes the connection and operational requirements for variable renewable energy generating facilities, as an addendum to the Amendment n° 1 of the Philippine Grid Code:

1. The table below summarizes the minimum time requirements for the inverter to remain connected if the magnitude (Voltage or Frequency) surpasses the applicable threshold. A disconnection of the inverter occurs after the corresponding minimum time with an approximately 200 ms delay

Parameter	V _{max1}	V _{max2}	V _{min1}	V _{min2}	f _{max}	f _{min}
Threshold	120%×V _{nom}	110%×V _{nom}	90%×V _{nom}	30%×V _{nom}	62,4 Hz	57,6 Hz
Minimum time	0,20 s	1 s	3 s	0,60 s	0,20 s	5 s

With V_{nom} = 230 V and f_{nom} = 60 Hz

2. Within the mentioned frequency limits the inverters will continuously operate without disconnection.
3. An automatic reconnection to the public grid after a grid fault is performed after 120 sec. if voltage and frequency are in the defined range
4. The inverters comply with the international Standards (IEC) regarding the flicker severity and harmonic content of the current waveform. The THDi is always lower than 5%I_{nom}
5. The power factor can be set within 0,8 underexcited and 0,8 overexcited at the inverter terminals. For the definition of the power factor at the connection point within the required limits of 0,95 underexcited and 0,95 overexcited it is necessary to carry out an on-site analysis and define the proper configuration for the inverters during the commissioning.
6. A PV facility with SMA inverters, and if required the necessary communication accessories, is able to maintain either a constant power factor or a voltage set point at the connection point within the power factor limits of 0,95 underexcited and 0,95 overexcited
7. The performance during network disturbances is according the figure 4 of the Resolution n° 7. The inverters are able to remain connected during the defined voltage dip profile and inject reactive current during the complete duration of the fault. SMA has tested this performance in our facilities. If required a testing protocol can be submitted to the network operator. Similar voltage dips have been tested by independent testing laboratories for other similar standards, such as, the German BDEW Medium Voltage Directive or the Spanish P.O.12.3.
8. The inverters are able to operate following an active power regulation. Power constrains via set-points can be implemented with additional communication accessories. A characteristic curve can be defined, so that the inverters automatically reduce their output power depending on the grid frequency.

Niestetal, 20. January 2015

SMA Solar Technology AG

ppa Frank Greizer
 (Head of TDSI)