

Certificate of Compliance

Applicant: Schneider Electric Solar Inverters USA, Inc.
250 South Vasco Road
Livermore, California 94551
USA

Product: Photovoltaic Inverter with integrated automatic disconnection device between a generator and the public low-voltage grid

Model:	Conext TL 8000E	Conext TL 10000E
Rating:	8,0kVA	10,0kVA

Intended use:

An automatic disconnection device with three-phase mains surveillance in accordance with Engineering Recommendation G83/2 for photovoltaic systems with a three-phase parallel coupling via an inverter to the public mains supply. The automatic disconnection device is an integral part of the aforementioned inverter.

Applied standards and guidelines:

**Engineering Recommendation G83/2
Issue 2 – August 2012**

Recommendations for the connection of small-scale embedded generators in parallel with public low-voltage distribution networks.

The safety concept of an aforementioned representative product corresponds at the time of issue of this certificate to the valid safety specifications for the specified use in accordance with regulations.

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Andreas Aufmuth
Certification Department



Power Quality. Harmonics.			
Equipment Phases: Three Phase			
Conext TL10000E			
Harmonic:	At 45-55% of rated output	At 100% of rated output	Harmonic Limit (A)
	Measured Value (A)		
2nd	0,085	0,069	1,08
3rd	0,043	0,048	2,30
4th	0,019	0,019	0,43
5th	0,208	0,230	1,14
6th	0,038	0,034	0,30
7th	0,131	0,123	0,77
8th	0,019	0,018	0,23
9th	0,018	0,016	0,40
10th	0,010	0,005	0,18
11th	0,096	0,085	0,33
12th	0,024	0,008	0,15
13th	0,077	0,075	0,21
14th	0,018	0,010	0,13
15th	0,014	0,010	0,15
16th	0,019	0,014	0,12
17th	0,082	0,114	0,13
18th	0,040	0,021	0,10
19th	0,061	0,112	0,12
20th	0,021	0,016	0,09
21st	0,014	0,011	0,11
22nd	0,005	0,006	0,08
23rd	0,018	0,035	0,10
24th	0,010	0,005	0,08
25th	0,011	0,019	0,09
26th	0,005	0,006	0,07
27th	0,003	0,006	0,08
28th	0,003	0,003	0,07
29th	0,008	0,013	0,08
30th	0,006	0,006	0,06
31st	0,005	0,010	0,07
32nd	0,003	0,003	0,06
33rd	0,002	0,003	0,07
34th	0,002	0,002	0,05
35th	0,005	0,008	0,06
36th	0,003	0,002	0,05
37th	0,005	0,005	0,06
38th	0,002	0,002	0,05
39th	0,002	0,002	0,06
40th	0,000	0,002	0,05

Conext TL8000E			
Harmonic:	At 45-55% of rated output	At 100% of rated output	Harmonic Limit (A)
	Measured Value (A)		
2nd	0,097	0,101	1,08
3rd	0,043	0,046	2,30
4th	0,055	0,054	0,43
5th	0,178	0,225	1,14
6th	0,045	0,046	0,30
7th	0,098	0,120	0,77
8th	0,038	0,037	0,23
9th	0,024	0,040	0,40
10th	0,033	0,021	0,18
11th	0,063	0,082	0,33
12th	0,037	0,023	0,15
13th	0,053	0,092	0,21
14th	0,024	0,012	0,13
15th	0,023	0,038	0,15
16th	0,048	0,033	0,12
17th	0,055	0,089	0,13
18th	0,060	0,030	0,10
19th	0,046	0,088	0,12
20th	0,032	0,023	0,09
21st	0,016	0,016	0,11
22nd	0,017	0,023	0,08
23rd	0,014	0,063	0,10
24th	0,011	0,013	0,08
25th	0,017	0,032	0,09
26th	0,010	0,005	0,07
27th	0,014	0,010	0,08
28th	0,010	0,011	0,07
29th	0,015	0,024	0,08
30th	0,013	0,010	0,06
31st	0,022	0,017	0,07
32nd	0,010	0,007	0,06
33rd	0,011	0,008	0,07
34th	0,010	0,007	0,05
35th	0,022	0,018	0,06
36th	0,011	0,004	0,05
37th	0,022	0,017	0,06
38th	0,008	0,002	0,05
39th	0,011	0,008	0,06
40th	0,009	0,004	0,05

Power Quality. Voltage Fluctuations and Flicker.								
	Starting			Stopping			Running	
	dmax	dc	d(t)	Dmax	dc	d(t)	Pst	Plt 2 hours
Measured Values	1,951%	1,078%	1,951%	1,359%	1,024%	1,359%	0,2823	0,2821
Normalised to standard impedance	1,951%	1,078%	1,951%	1,359%	1,024%	1,359%	0,2823	0,2821
Limits	4%	3,3%	3,3% 500ms	4%	3,3%	3,3% 500ms	1,0	0,65

Power Quality. DC Injection.			
Test power level	10%		55%
As % of rated AC current	<0,25%		
Limit	0,25%		

Power Quality. Power Factor.			
Output Voltage	216,2V		230V
Measured Value	0,999		0,999
Limit	>0,95		

Protection. Frquency Tests.						
Function	Setting		Trip test		No trip test	
	Frequency	Time delay	Frequency	Time delay	Frequency time	Confirm no trip
U/F stage 1	47,5Hz	20s	47,53Hz	20,30s	47,7Hz 25s	No trip
U/F stage 2	47,0Hz	0,5s	47,01Hz	770ms	47,2Hz 19,98s	No trip
					46,8Hz 0,48s	No trip
O/F stage 1	51,5Hz	90s	51,49Hz	90,364s	51,3Hz 95s	No trip
O/F stage 2	52,0Hz	0,5s	52,00Hz	734ms	51,8Hz 89,98s	No trip
					52,2Hz 0,48s	No trip

Protection. Voltage Tests.						
Function	Setting		Trip test		No trip test	
	Voltage	Time delay	Voltage	Time delay	Voltage time	Confirm no trip
U/V stage 1	200,1V	2,5s	199,7V	2655ms	204,1V 3,5s	No trip
U/V stage 2	184,0V	0,5s	183,6V	664ms	188V 2,48s	No trip
					180V 0,48s	No trip
O/V stage 1	262,2V	1,0s	261,8V	1440ms	258,2V 2,0s	No trip
O/V stage 2	273,7V	0,5s	273,4V	642ms	269,7V 0,98s	No trip
					277,7V 0,48s	No trip

Protection. Loss of Mains Test according BS EN 62116 for Inverters.

Test Power and imbalance	10% -5% Q	55% -5% Q	100% -5% Q	10% +5% Q	55% +5% Q	100% +5% Q
Trip time (s)	0,49	0,47	0,40	0,49	0,45	0,41

Protection. Reconnection Timer.

Reconnection Time	Under/Over voltage	Under/over frequency	Loss of mains
Minimum value	20 seconds		
Actual settings (sec)	20s	20s	20s
Recorded value (sec)	41s	41s	41s
	At 266,2V	At 196,1V	At 47,4Hz
Confirmation that the unit does not re-connect.	No connection to grid	No connection to grid	No connection to grid

Fault Level Contribution.

Instantaneous maximum peak value	69,9A
Maximum value	15,6A
20ms after the fault	4,3A
100ms after the fault	0,7A
250ms after the fault	0,7A
500ms after the fault	0,7A