

# Certificate

**Applicant:** SolarEdge Technologies  
1 HaMada Street  
Herzeliya 4673335  
Israel

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

<b>Model:</b>	<b>SE25K</b>	<b>SE27.6K</b>
<b>Rating:</b>	<b>25,0kVA</b>	<b>27,6kVA</b>

## Intended use:

An automatic disconnection device with three-phase mains surveillance in accordance with Engineering Recommendation G59/2-1 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 G59/2-1  
Issue 2, Amendment 1- April 2011**

Recommendations for the connection of generating plant to the distribution systems of licensed distribution network operators

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.

**Report No:** 15PP010-06

**Certificate No:** 15-119-00

**Date of issue:** 2015-07-07



**Andreas Aufmuth**  
Certification Department



**Annex to certificate 15-119-00**

**Harmonics Emissions**

Minimal Short Circuit Ratio $R_{scc}$ :							33	
Value of Short Circuit Power $S_{sc}$ corresponding to $R_{scc}$ :							910,8kVA	
Equipment Phases: Three Phase								
Description	Harmonic Current % = $100I_n/I_1$						Harmonic Current Distortion Factors (%)	
Harmonic:	$I_3$	$I_5$	$I_7$	$I_9$	$I_{11}$	$I_{13}$	THD	PWHD
Limit: [%]	-	10,7	7,2	-	3,1	2,0	13,0	22,0
Actual Value Max: [%]	0,781	0,800	0,638	0,191	0,524	0,486	1,898	3,095

**Voltage Fluctuations**

Equipment meets BSEN 61000-3-3							Yes	
Voltage Disturbance								
	$P_{st}$				$P_{lt}$			
Limit	1,0				0,65			
Actual Value	0,016				0,017			

**DC Injection**

< 0,25% of  $I_n$  at any power

**Power Factor**

G59/2 Limit	0,95 lag – 0,95 lead		
Output Voltage:	212V	230V	248V
Test Value	0,99	0,99	0,99

**Voltage Monitoring, LV connection**

Protection	Setting		Test Results	
	Volts, %	Sec	Volts	Sec
Under Voltage Stage 1				
L-N	-13%	2,5s	208,6V	2,518
Under Voltage Stage 2				
L-N	-20%	0,5s	191,9V	0,508s
Over Voltage Stage 1				
L-N	+10%	1,0s	263,7V	1,013s
Over Voltage Stage 2				
L-N	+15%	0,5s	275,3V	0,518s

### Voltage Monitoring, HV connection

Protection	Setting		Test Results	
	Volts, %	Sec	Volts	Sec
Under Voltage Stage 1				
L-N	-13%	2,5s	-	-
Under Voltage Stage 2				
L-N	-20%	0,5s	-	-
Over Voltage Stage 1				
L-N	+10%	1,0s	-	-
Over Voltage Stage 2				
L1-N	+13%	0,5s	-	-
Note: Not implemented				

### Frequency Monitoring

Protection	Setting		Test Results	
	Hz	Sec	Hz	Sec
Over Frequency Stage 1	51,50Hz	90s	51,50	90,05s
Over Frequency Stage 2	52,00Hz	0,5s	52,00	0,544s
Under Frequency Stage 1	47,50Hz	20s	47,50	20,03s
Under Frequency Stage 2	47,00Hz	0,5s	47,00	0,506s

### Loss of Mains Test (Method used: frequency shift)

Output power level:	10%	55%	100%
<b>G59/2 Limit:</b>	<b>5s</b>		
Trip value (sec):	0,060s	0,288s	0,085s

### Reconnection Times

Reconnection Time	Under/Over voltage	Under/Over Frequency	Loss of mains
Minimum value	180s	180s	180s
Actual Setting	180s	180s	180s
Recorded value	215,5s	215,5s	215,5s

### Fault Level Contribution

As SSEGs (small-scale embedded generators) for PV are inverter-connected, they are deemed to automatically comply with regulations and no further tests are required. The max. short circuit current is the max. AC current.

### SOLID STATE SWITCHING

The converter provide mechanical relay for the switching.