

## Certificate G83/1

The results of the G83/1 tests are summarized in this certificate.

Power-One Italy S.p.a. declares that the units shipped to the UK are characterized by the following features:

- The internal specification and parameters are set to be compliant with G83/1 engineering requirements.
- All units have identical internal parameter setting.
- These parameters cannot be changes by a user, an installer or by any person other than the manufacturer.
- All units are tested before shipping according to G83/1 engineering specification.

### SSEG DETAILS

SSEG Type Reference:	PHOTO-VOLTAIC GRID TIED INVERTER
SSEG Model Reference:	PVI-2000-UK, PVI-2000-OUTD-UK
SSEG Technology (as per Annex):	ANNEX C. PHOTOVOLTAIC (PV)
Manufacturer:	Power-one Italy S.p.A.
Telephone number:	+39-055-91951
Fax number:	+39-055-9195248
Address	Via S. Giorgio, 642 52028 Terranuova Bracciolini Arezzo - Italy
Maximum export capability (SSEG rating less parasitic load)	2000 W
Nominal Output AC Power	2000 W

### TEST HOUSE DETAILS

Name:	Power-one Italy S.p.A. - R.& D. Department
Address:	Via S. Giorgio 642, 52028 Terranuova Bracciolini, Arezzo - Italy
Telephone number:	+39-055-91951
Fax number:	+39-055-9195248
E-mail address	service@power-one.com

### TEST RESULTS SUMMARY

Power Quality:

- Harmonic Current Emission as per BS EN 61000-3-2, Class A
- Voltage Fluctuation and Flickers as per BS 61000-3-3
- DC Injection
- Power Factor

Under/Over Frequency Tests

Under/Over Voltage Tests

Reconnection Times

Loss of Mains Test

Power-One, Inc.  
Camarillo, CA, 27 April 2010



Robert White  
(Director Safety & Environmental Compliance)

## G83/1 TEST RESULTS DETAILS – TYPE VERIFICATION TEST SHEET

### POWER QUALITY

Harmonic Current Emission as per BS EN 61000-3-2 (Class A)								
Harmonic	2 <sup>nd</sup>	3 <sup>rd</sup>	5 <sup>th</sup>	7 <sup>th</sup>	9 <sup>th</sup>	11 <sup>th</sup>	13 <sup>th</sup>	15 <sup>th</sup> ..39 <sup>th</sup>
Limit [A]	1.08	2.3	1.14	0.77	0.4	0.33	0.21	0.15 x (15/n)
Test Value [A]	0.03	0.3	0.15	0.09	0.06	0.04	0.016	0.014

Voltage Fluctuation and Flicker as per BS EN 61000-3-3				
	Starting	Stopping	Running	
Limit	4%	4%	P <sub>st</sub> =1.0	P <sub>it</sub> =0.65
Test Value	2.542	2.542	0.573	0.420

	DC injection			Power Factor		
G83/1 Limit	20mA, tested at three power levels			0.95 lag – 0.95 lead at three voltage levels		
Test Level	10%	55%	100%	215 Vac	230Vac	255Vac
Test Value	-6	-1	-6	>0.998	>0.998	>0.998

### UNDER/OVER FREQUENCY TESTS

Parameter	Under Frequency		Over Frequency	
	Frequency	Time	Frequency	Time
G83/1 Limit	47 Hz	0.5 (5.0) sec	50.5 Hz	0.5 (5.0) sec
Actual setting	47.05 Hz	0.320 sec	50.45 Hz	0.320 sec
Trip value	>47.03 Hz	<0.4 sec	<50.48 Hz	<0.4 sec

### UNDER/OVER VOLTAGE TESTS

Parameter	Under Voltage		Over Voltage	
	Voltage	Time	Voltage	Time
G83/1 Limit	207 V	1.5 (5.0) sec	264 V	1.5 (5.0) sec
Actual setting	211.6 V	160 mS	259.2 V	160 mS
Trip value	>212.6	<200 mS	<259.4 V	<200 mS

### RECONNECTION TIMES

	Under/Over voltage	Under/Over Frequency	Loss of Main
Minimum Value	180 sec	180 sec	180 sec
Actual setting	180 sec	180 sec	180 sec
Recorded value	>233 sec	>233 sec	>233

### LOSS OF MAIN TESTS

Method used	Rate Of Change Of Frequency and Active Power Variation		
	10%P <sub>rated</sub>	55%P <sub>rated</sub>	100%P <sub>rated</sub>
G83/1 Limit	0.5 (5.0) sec	0.5 (5.0) sec	0.5 (5.0) sec
Trip setting	1 sec	1 sec	1 sec
Trip value	<1sec	<1sec	<1sec

### SSEG Short Circuit Current Contribution Test

According to Clause C.4.6, as Photovoltaic SSEGs are inverter connected, they are deemed to automatically comply with regulations and no further tests are required.

### SELF MONITORING – SOLID STATE SWITCHING

Not applicable because electro-mechanical relays are used

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