

Certificate

UK-G83/1

The results of the UK-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 UK-G83/1 engineering requirements.
- All units have identical internal parameter setting.
- These parameters cannot be changed without the usage of password protected tool.
- All units are tested before shipping according to UK-G83/1 engineering specification.

SSEG DETAILS (Small-Scale Embedded Generator)

SSEG Type Reference:	PHOTO-VOLTAIC and EOLIC GRID TIED INVERTER
SSEG Model Reference:	PVI-3.8-I-OUTD PVI-3.8-I-OUTD-S SSWI-3.8-I-OUTD
Manufacturer:	Power-one Italy S.p.A.
Telephone number:	+39-055-919551
Fax number:	+38-055-9195248
Address	Via S. Giorgio, 642 52028 Terranuova Bracciolini Arezzo - Italy
Maximum export capability (SSEG rating less parasitic load)	4200W (PVI-3.8-I-OUTD and derived models)
Nominal Output AC Power	3800W (PVI-3.8-I-OUTD and derived models)

TEST HOUSE DETAILS

Name:	Power-one Italy S.p.A. - R. & D. Department
Address:	Via S. Giorgio 642, 52028 Terranuova Bracciolini
Telephone number:	+39-055-919551
Fax number:	+38-055-9195248
E-mail address	service@power-one.com

TEST RESULTS SUMMARY

Power Quality:

- Harmonic Current Emission as per BS EN-61000-3-2
- Voltage Fluctuation and Flickers as per BS EN-61000-3-3
- DC Injection as per UK G83/1
- Power Factor as per UK G83/1

Protection:

- Under/Over Frequency Tests
- Under/Over Voltage Tests
- Reconnection Times
- Loss of Mains Test

Power-One Italy S.p.a.

Terranuova Bracciolini,

15 novembre 2012

Robert White

(Director Safety & Environmental Compliance)



UK-G83/1 TEST RESULTS DETAILS – TYPE VERIFICATION TEST SHEET

POWER QUALITY

(PVI-3.8-I-OUTD and derived models)								
Harmonic Current Emission as per BS EN-61000-3-2								
Harmonic	3rd [A]	5rd [A]	7rd [A]	9rd [A]	11rd [A]	13rd [A]	THD [A%]	PWHD [A%]
Limit	2.3	1.14	0.77	0.4	0.33	0.21	N/A	N/A
Test value	0.2554	0.15	0.0376	0.0766	0.0454	0.0494	2.124	N/A

(PVI-3.8-I-OUTD and derived models)					
Voltage Fluctuation and Flickers as per BS EN-61000-3-3					
Voltage Disturbance	Pst	Plt	D(t) > 3%	dc (%)	dmax (%)
Limit	1	0.65	0.5	3.3	4
Test Value	0.17	0.14	0.1	2	2.13

(PVI-3.8-I-OUTD and derived models)							
UK G83/1 Limit 20 mA	DC injection [mA]			Power Factor			
	20mA, tested at three power levels			0.95 lag - 0.95 lead at three voltage levels			
Test Level	10%	55%	100%	207 Vac	230 Vac	264 Vac	
Test Value	7.2	7	0.8	0.9997	0.9997	0.9996	

PROTECTION

(PVI-3.8-I-OUTD and derived models)

UNDER FREQUENCY TEST						
Fnom=50Hz	UK-G83/1 Limit		Settings		Results	
Under Frequency <	Frequency [Hz]	Time [s]	Frequency [Hz]	Time [s]	Frequency [Hz]	Time [s]
		47.00	0.5	47.05	0.4	47.04

OVER FREQUENCY TEST						
Fnom=50Hz	UK-G83/1 Limit		Settings		Results	
Over Frequency >	Frequency [Hz]	Time [s]	Frequency [Hz]	Time [s]	Frequency [Hz]	Time [s]
		50.50	0.5	50.45	0.4	50.46

UNDER VOLTAGE TEST						
Vφ-n nom =230V	UK-G83/1 Limit		Settings		Results	
Under Voltage <	Voltage [V]	Time [s]	Voltage [V]	Time [s]	Voltage [V]	Time [s]
	L1-N	207.0	1.5	209.3	1.3	209.4

OVER VOLTAGE TEST						
Vφ-n nom =230V	UK-G83/1 Limit		Settings		Results	
Over Voltage >	Voltage [V]	Time [s]	Voltage [V]	Time [s]	Voltage [V]	Time [s]
	L1-N	264.0	1.5	261.7	1.3	263.1

RECONNECTION TIMES			
	Under/Over voltage	Under/Over Frequency	Loss of Main
Minimum Value Limit [s]	180	180	180
Actual setting [s]	180	180	180
Recorded value [s]	194	193	194

LOSS OF MAIN TESTS			
Method used	Rate Of Change Of Frequency and Active Power Variation		
	10%Prated	55%Prated	100%Prated
UK-G83/1 Limit [s]	5.0	5.0	5.0
Trip setting [s]	5.0	5.0	5.0
Trip value [s]	4	4	4

SSEG Short Circuit Current Contribution Test

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

ACCURACY

Voltage reading accuracy = +/- 1%
 Frequency reading accuracy = +/- 0.05Hz