

G83/1-1 – TYPE VERIFICATION TEST SHEET

SSEG DETAILS

SSEG Type Reference	SMI-D480-60-UK	Serial No.	0110000064
SSEG Technology (as per Annex): Type C, Photovoltaic (PV) Inverter			
Manufacturer	Address	Tel. No.	Fax. No.
Enecsys Limited	Harston Mill, Royston Road, Cambridge, CB22 7GG	01223 792101	01223 792103
Technical File Reference No.		904-REP-058	
Maximum Export Capability (SSEG Rating Less Parasitic Load)		450 W	

TEST HOUSE DETAILS

Name & Address of Test House	Enecsys Limited Harston Mill, Royston Road, Cambridge, CB22 7GG
Tel. No.	01223 792101
Fax. No.	01223 792103
E-mail Address	info@enecsys.com

TEST DETAILS

Dates of Test	17/11/2011 – 24/11/2011
Name of Tester	Simon Mortlock/Simon Doole
Signature of Tester	
Approved by (name)	Paul Garrity
Approved by (signature)	
Test Location (if different from above)	Enecsys Limited Harston Mill, Royston Road, Cambridge, CB22 7GG

POWER QUALITY

Harmonic Current Emissions (A)

Harmonic	2 nd	3 rd	5 th	7 th	9 th	11 th	13 th	15 th ≤ n ≤ 39 th
Limit	1.08	2.30	1.14	0.77	0.40	0.33	0.21	0.15 x (15/n)
Test Value	9.308mA	40.97mA	34.86mA	22.93mA	12.60mA	11.27mA	9.115mA	Pass

Voltage Fluctuations and Flicker

Starting/Stopping & Running

Limit	d_{max} <4%	dc <3.3%	P_{st} < 1.0	d(t) > 3.3%
Test Value	0.076	0.011	0.308	0

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%	215.0V	230.0V	255.0V
Test Value	4.79mA	11.25mA	13.87mA	0.9980	0.9978	0.9982

PROTECTION TESTS

Under / Over Frequency

Parameter	Under Frequency		Over Frequency	
	Frequency	Time	Frequency	Time
G83/1 Limit	47 Hz	0.5 sec	50.5 Hz	0.5 sec
Actual Setting	47.45Hz	80mS Max	50.45Hz	80mS Max
Trip Value	47.44	57mS	50.44	60mS

Under / Over Voltage

Parameter	Under Voltage		Over Voltage	
	Voltage	Time	Voltage	Time
G83/1 Limit	207V	1.5 sec	264V	1.5 sec
Actual Setting	212V	80mS Max	259V	80mS Max
Trip Value	209.32	58mS	254.32	60mS

Loss of Mains Test

Method Used	Resonant Circuit as per Annex C		
Output Power Level	10%	55%	100%
G83/1 Limit	0.5 sec	0.5 sec	0.5 sec
Trip Value	19.5mS	487.7mS	325.6mS

Reconnection Times

	Under/Over Voltage	Under/Over Frequency	Loss of Mains
Minimum Value	180 sec	180 sec	180 sec
Actual Setting	182	182	182
Recorded Value	182	182	182

FAULT LEVEL CONTRIBUTION

SSEG Short Circuit Parameters

This test is not required as per Clause C4.6 of G83/1 Annex C: As Photovoltaic SSEGs are inverter connected, they are deemed to automatically comply with Clause 5.8 and no further tests are required.

SELF MONITORING – SOLID STATE SWITCHING

Completed as part of Risk Assessment Dangerous Voltages at the Output of the Inverter When Disconnected – Report reference number 904-REP-013

TEST RESULT

The SMI-D480-60-UK inverter, Serial No. 011000064 did meet the test requirements set out in clauses C3.1, C3.2, C3.3, C3.4, C3.5, C4.1, C4.2, C4.3 and C4.4 of the type testing Annex C of G83/1.

Note: This certificate summarises the results of tests to G83/1, which are recorded in full in Report No. 904-REP-058.