Cert. Nbr : DESPS201311072

Certificate G83/1

The results of the G83/1 test are summarized in this certificate. DELTA ES declares that all devices (with G83/1 setting) that shipped to the UK comply with the requirements defined in engineering recommendation G83/1 (2003). These settings cannot be changed by an installer without the use of specific software. Test details are available with test report ID: 11TH0316-G83/1_0 (Bureau Veritas).

Hereby tests results for: SOLIVIA 2.0 EU G4 TR (EOE45010459)
SOLIVIA 2.5 EU G4 TR (EOE45010288)
SOLIVIA 3.0 EU G4 TR (EOE46010287)
SOLIVIA 3.3 EU G4 TR (EOE46010252)
SOLIVIA 3.6 EU G4 TR (EOE46010316)

1.) Power Quality

	Harmonic current emissions (A)							
Harmonic order (n)	2	3	5	7	9	11	13	15...39
Limit 1	1.08	2.30	1.14	0.77	0.40	0.33	0.21	2.25 / n
Test value	0.0439	0.0968	0.0691	0.0308	0.1670	0.0861	0.0761	0.0406

1 Maximum permissible harmonics current as per EN 61000-3-2.

	Voltage fluctuation and Flicker	
Parameter (Un=230 V, Output power: 100 %)	P_{st}	P_{lt}
Limit 2	1.0	0.65
Test value	0.18	0.18

2 Maximum permissible voltage fluctuation (expressed as a percentage of nominal voltage at 100% power) and flicker as per BS EN 61000-3-3.

	DC Injection			Power factor		
G 83/1 limit	20 mA			0.95c – 0.95i at three voltages levels		
Test Level	10 %	55 %	100 %	212 V	230 V	248 V
Test value	-15.1 mA	7.77 mA	13.0 mA	0.995i	0.996i	0.996i

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2.) Under- / Overvoltage Tests (230 V grid)

	Undervoltage		Overvoltage	
Parameter	Voltage	Time	Voltage	Time
G 83/1 limit	207 V	1.5 s	264 V	1.5 s
Actual settings	207 V	1.49 s	264 V	1.49 s
Trip value	206.7 V	1487 ms	263.7 V	1489 ms

3.) Under- / Overfrequency Tests

	Underfrequency		Overfrequency	
Parameter	Frequency	Time	Frequency	Time
G 83/1 limit	47 Hz	0.5 s	50.5 Hz	0.5 s
Actual settings	47.00 Hz	0.48 s	50.50 Hz	0.48 s
Trip Value	46.99 Hz	494 ms	50.51 Hz	465 ms

4.) Loss of Mains Tests

Method used	**Frequency: 50+/-0.2Hz UN=230+/-3Vac RLC consumes inverter real power within +/- 5% Quality > 2 @ 55% load**		
Output Power Level	10%	55%	100%
G 83/1 limit	5 s		
Actual setting	500 ms	500 ms	500 ms
Trip value	331 ms	570 ms	129 ms

5.) Reconnection Times

Method used	Under-/Overvoltage	Under-/Overfrequency	Loss of Mains
Minimum value	180 s		
Actual setting	180 s	180 s	180 s
Recorded value	181 s	181 s	181 s

6.) Fault Level Contribution

– Short Circuit Current Contribution

As Photovoltaic SSEGs are inverter connected. They are deemed to automatically comply with regulations and no further tests are required.

– Over Current Protection

The products have to be installed on a 10 A (IEC) branch circuit in series for SLK-1500, a 15 A (IEC) branch circuit for SLK-2000 and a 20 A (IEC) branch circuit for SLK-3000 to provide over-current protection. See installation manual.

7.) Self Monitoring – Solid State Disconnection

Not applicable. Units do not provide solid state switching relays. In case the semiconductor bridge is switched off, then the voltage on the output drops to zero. In this case the relays on the output will also open.

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