

CHECK-LIST (For Order form No.07)

(SOLAR PV POWER CONVERTERS)

Sr. No.	Solar PV Power Converters submitted for testing [IEC61683, IEC62509, EN50530, IEC62116, IEC 61727, IEC60068-2(1, 2, 14 and 30) and MNRE Guidelines, User Specifications at NISE, the following checklist is required to be satisfied	Page From	Page To
A. Regarding system			
1.	System submitted for (standard)		
2.	The Solar PV Power Converters shall carry the following clear indelible markings: Name, logo or symbol of Manufacturer, Type or model number, serial number, polarity of terminals or leads.		
3.	Order form duly filled along with the format as annexure-I		
4.	Circuit diagram matching to the circuit provided in Solar PV Power Converters (Two copies one Duly signed and stamped one without sign and seal on plain paper) as annexure-II		
5.	Any other prior relevant certification from any lab if any on the product as annexure-III		
6.	Bill of materials component wise as annexure-IV.		
7.	Manual containing instructions for installation, Operation and maintenance of the Solar PV Power Converters (Printed in English & Local language) as Annexure-V		
8.	Environmental testing certificate as per IEC 60068-2-6/21/27/30/75/78 and IP testing certificate as per standard as annexure-VI (if certified) * if submitted to NISE for Environmental testing this Annexure is not required		
9.	Copy of the registration of the Company as per Registration Act, 1956, joint venture/foreign Collaboration etc. as Annexure-VII		
10.	Warranty Card as Annexure- VIII		
11.	In house test report of the Solar PV Power Converter, giving details of testing conducted by the manufacturer as Annexure-IX		
B. Regarding Company			
1.	Profile of Company and A4 Size coloured Photographs of Fabrication, manufacturing and testing facilities in the company premises as Annexure-X.		
2.	List of Equipment's /instruments as Annexure -XI.		
3.	Attested copy of SSI registration/ Company Memorandum/ Acknowledgement from District Industrial Centre Form No. 61 mark as Annexure-XII.		
4.	All the documents submitted by the company should be certified by the competent authority not below the rank of GM/equivalent.		
C. Test fees & Other			
1.	Demand Draft for Rs. (Test Fee + Services tax as applicable) for each Solar PV Power Converters Sample in favour of " National Institute of Solar Energy (NISE) ", Gurgaon.		
2.	Undertaking (as per MNRE guidelines) Annexure-XIII.		
3.	Forwarding letter for sample submitting request which contains the information of Authorization of Person/Employee of Company (with Photo-ID card number) who is submitting the sample in the premises of NISE. He should carry the Employee Photo-ID card for identification		
4.	If you are an old customer, please indicate with details when did you get your Power Converters sample tested at NISE as annexure-XIV		

Important Note: The customer will introduce the sample to NISE staff and highlight the main features of the sample including safety measures to be taken into account during testing.



National Institute of Solar Energy

(An Autonomous Institution of MNRE, GOI)

19th mile stone, Gurgaon-Faridabad Road Gwal Pahari, Gurgaon (Haryana)

Ph. 0124-2579251 (CSC), Fax: 0124-2579207

ORDER FORM NO. -07

(Solar PV Power Converters: Charge Controllers/Inverters/PCU/Pump Controller)

(Up to 50 kVA only)

Sir,

We accept your general terms and conditions of testing as given in this order Form No.07.

1. Company Details:

Name of Company/Individuals (in Caps)	
Address of Company/Individuals (in Caps)	
Contact No.	Mobile No. Landline:
Email ID:	
Name of Contact Officer with Mobile No.	
PAN:	TIN:

2. Details of Test Fee (Excluding Service Tax) :

OFF Grid SPV Inverter/Converter IEC 61683	ON Grid SPV Inverter/Converter IEC 61683	
Inverter Range	Inverter Range	Cost (INR)
upto 1 KVA inverters	upto 3 KVA inverters	25,000
more than 1KVA to 5KVA	more than 3KVA to 5KVA	35,000
more than 5KVA to 10KVA	more than 5KVA to 10KVA	40,000
more than 10KVA to 20KVA	more than 10KVA to 20KVA	50,000
more than 20KVA to 50KVA	more than 20KVA to 50KVA	60,000

OFF Grid SPV Inverter/Converter IEC 62509	
Inverter Range	Cost (INR)
upto 3 KVA inverters	20,000
more than 3KVA to 5KVA	22,000
more than 5KVA to 10KVA	25,000
more than 10KVA to 20KVA	35,000
more than 20KVA to 50KVA	45,000

OFF Grid SPV Inverter/Converter MPPT Test	
Inverter Range	Cost (INR)
upto 3 KVA inverters	35,000
more than 3KVA to 5KVA	40,000
more than 5KVA to 10KVA	50,000
more than 10KVA to 20KVA	60,000
more than 20KVA to 50KVA	75,000

IEC 61683+IEC 62509+EN 50530				
OFF Grid system	Cost (INR)			Total Cost (INR)
Inverter Range	IEC 61683	IEC 62509	EN 50530	
upto 1 KVA inverters	25,000	20,000	35,000	80,000
more than 1KVA to 3KVA	35,000	20,000	35,000	90,000
more than 3KVA to 5KVA	35,000	22,000	40,000	97,000
more than 5KVA to 10KVA	40,000	25,000	50,000	115,000
more than 10KVA to 20KVA	50,000	35,000	60,000	145,000
more than 20KVA to 50KVA	60,000	45,000	75,000	180,000

ON Grid SPV Inverter/Converter EN 50530	
Inverter Range	Cost (INR)
upto 3 KVA inverters	35,000
more than 3KVA to 5KVA	40,000
more than 5KVA to 10KVA	50,000
more than 10KVA to 20KVA	60,000
more than 20KVA to 50KVA	75,000

IEC 62116: Test procedure of islanding prevention measures for utility-interconnected Photovoltaic inverters		
IEC 61727: Photovoltaic (PV) systems - Characteristics of the utility interface		
Inverter Range	Standards name	Cost (INR)
Up to 10 KVA	IEC 62116 and IEC 61727	78,000/-
More than 10 KVA to 20KVA	IEC 62116 and IEC 61727	1, 06500/-
More than 20KVA to 50KVA	IEC 62116 and IEC 61727	1,19000/-

IEC 60068-2(1, 2, 14, 30)	
Standards name	Total cost (INR)
IEC 60068-2(1)-Test A :cold	29,000/-
IEC 60068-2(2)-Test B :Dry test	29,000/-
IEC 60068-2(14)-Test N :Change of temperature	29,000/-
IEC 60068-2(14)-Test N :Damp heat cyclic(12+12 h cycle)	38,000/-
Combined cost for all four standard.	1,00000/-

*Charges for Pump Controller will be same as on Grid system

Performance evaluation testing of Solar PV Power Converters as per the IEC 61683, IEC 62509, EN 50530, IEC 62116, IEC 61727, IEC 60068-2(1, 2, 14 and 30) and MNRE Guidelines, User Specifications.

Solar PV Power Converters				
Details	Qty.	Fee per sample	Service Tax as per applicable	Total (₹.)
Name of the Test				
Name & Address of the issuing Bank				
Bank Draft No. & Date/Electronic Details				
Bank Name				
Amount				

Signature with Seal

Important Note:

1. To be signed by competent authority or by officer not below the rank of G.M/ Equivalent
2. Kindly fill separate order form for each Solar PV Power Converters.
3. Total 2 systems will be required one for performance testing and one for environmental testing.

General Terms & Conditions

1. One report on test (s) conducted by NISE will be issued to the customer. The report shall contain all the parameters measured at NISE along with the parameters required as per IEC 61683, IEC 62509, EN 50530, IEC 62116, IEC 61727, IEC 60068-2(1, 2, 14 and 30) and MNRE Guidelines or user specifications on the sample that has been tested.
2. The report contains the following disclaimer:
 - i. This is a report on measurements carried out on the product/samples no.____ at the National Institute of Solar Energy as per IEC 61683, IEC 62509, EN 50530, IEC 62116, IEC 61727, IEC 60068-2(1, 2, 14 and 30) and MNRE Guidelines or User Specifications.
 - ii. The sample has been selected and submitted by customer.
 - iii. The data contents in this report do not constitute a qualification certificate under any set of specifications/ standards.
 - iv. The measurements made and results reported in this test report are valid at the time of and under stipulated conditions of measurement.
3. The test report if reproduced for any purpose, commercial or otherwise, should be reproducing in full. Reproduction of a part of the report or an abstract thereof is not permitted.
4. For identification purpose, all material supplied to the Centre for testing purpose shall be marked clearly and indelibly as per the standard.
5. The tentative period for testing of the Solar PV Power Converters is two month from the date of submission however this period may be varied depending on condition of measuring equipment's and priority.
6. National Institute of Solar Energy shall not be responsible for any loss or damage caused to the sample during testing.
7. This test report is not a legal document and is not valid for any kind of legal Formalities.

Declaration/Undertaking:

I have read the above mentioned general terms and conditions carefully and I agree for the same.

Signature with Seal

Date

Place

Important Note: To be signed by competent authority or by officer not below the rank of G.M/ Equivalent

FORMAT (for Annexure-1)

Details of Solar PV Power Converters to be submitted at NISE for evaluation (To be duly filled by the customer)

Solar PV Power Converters		
1.	Make	
2.	Type (off grid/grid-interactive/Hybrid/Stand-alone/ other specify)	
3.	Model No.	
4.	Serial No.	
5.	Nominal Capacity (kVA/ kW)	

S.No.	Other Parameters of Inverter for ON Grid SPV Inverter/Converter	Claims of Manufacturer
1.	Inverter Open circuit voltage range	
	Rated input voltage	
	90% of Inverter's maximum input voltage	
2.	Grid Voltage range	
3.	Output frequency range	
4.	Maximum DC input power	
5.	Maximum DC input current	
6.	MPPT voltage range	

S.No.	Other Parameters of Inverter for OFF Grid SPV Inverter/Converter	Claims of manufacturer
1.	Visual Inspection	Design using MOSFET/IGBT/others
		Transformer type /transformer-less
2.	Input solar Voltage and Current range	
3.	No load shutdown active mode (Yes/No)	
4.	Output Voltage waveform	
5.	Trip time duration on 110% / 120% / 130% / 150% / 200% Load	
6.	Output frequency	
7.	Grid Input range voltage	
8.	Modes of Operation: PV + Battery PV + Battery+ grid	
9.	Digital Display	
10.	Battery Reverse polarity protection	
11.	PV Reverse polarity protection	
12.	Short circuit protection	
13.	Overload protection	
14.	Data logging and Remote monitoring	

Solar Charge controller's design qualification		
S.No.	Parameters	Claims of Manufacturer
1.	Type of Charge Controller (MPPT/PWM/MPPT with PWM or any algorithm)	
2.	Charging algorithm	
3.	Bulk Voltage	
4.	Float Voltage	
5.	Maximum voltage drop across the charge controller(if applicable)	
6.	Maximum charging current from PV modules	
7.	Maximum Voc of PV module	
8.	Maximum Grid charging current	
9.	Charge Controller output suitable for nominal battery bank	
10.	Low battery pre-warning	
11.	Battery lower cut-off @ Battery voltage	
12.	Battery upper cut-off @ Battery voltage	
13.	Output behavior in the case of no battery connection	
14.	Temperature Compensation	
15.	Parallel Charging (PV+ Grid / or any other)	

Claims made by customer on the performance of the Solar PV Power Converters (if any):

Signature of authorized person

Name (in capital Letter):

Designation:

Seal of the Company:

Dated:

For office use only

Verified by:

Remarks if any: