

2017


8.96 Kwp Solar Power Generation at
New Arts, Commerce & Science College, Wardha

बिजनेस अल्गोरिथ्म

2016/10/01


IQAC Co-ordinator
New Arts, Commerce & Science
College, WARDHA




PRINCIPAL
New Arts, Commerce & Science
College, WARDHA

Business Algorithms P. Ltd
39, Shanakar Nagar, Nagpur 440010

7/25/2017

WARRANTY CERTIFICATE

Project Name	New Arts, Commerce & Science College, Wardha
Date of Commissioning	18/9/17
ITEM DETAILS	
PV MODULES	
Make	Waaree Energies Ltd
Model	WS320 - 28 No
Product Warrantee	Manufacturer's Product warrantee for 10 yrs from the date of commissioning, Limited Performance Warrantee : 90% of the rated power output up to 10 Yrs & 80% of the rated power output up to 25 years from the date of commissioning
INVERTER	
Make	Growatt
Model	10 kwp / 3 ph : Qty : 1 No Sr Nos: A1Z371104A Service Helpline No :
Product Warrantee	5 yrs
BOS (Balance of System)	
Warranty Terms	One year from the date of commissioning

Owners Name	New Arts, Commerce & Science College,
Address	Bachelor Road, Nalwadi, Wardha 442001
P.O. No	Nil Dt 22/7/17

Service Helpline No : 99234 08825 / 99234 08811

Service e mail : pp.service@balgo.com ; solar.products@balgo.com

Escalation : feedback@balgo.com



Authorized Signatory

Date : 18/9/17 Place : Nagpur




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INSTALLATION / TEST CERTIFICATE & COMMISSIONING / INSPECTION CERTIFICATE

Customer Name	New Arts, Commerce & Science College,
ORDER NO	NAC&S/PO/Wardha/2017-18
ORDER DATE	22/7/17
ADDRESS	Bactchelor Road, Nalwadi, Wardha 442001
Contact Person	Mr. P.R. Kadwe Principal

Project details :



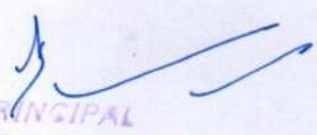
Location	Bactchelor Road, Nalwadi, Wardha 442001
DISCOM	Maharashtra State Electricity Distribution Co Ltd thro SNDL
Consumer No	3900 4010 3654
Site Lat / Log / Alt	20° 45', 18.30 N / 78° 36', 35.99 E / 282 M
Mounting Type	Roof mount
System Capacity	8.96 Kwp, DC / 7.2 kw AC , Grid Tied System

Major System Components:

Generic Name	Make / Type / Rating / Identification Mark (Sr No)	Qty
PV Modules	Waaree Model WS320	28
Inverter	Growatt Make : Model :10 kw / 3 ph Sr Nos A1Z371104A Service Helpline No :	1
AC-Combiner Panel	With 1 no MCCB (16 Amp / 1 Pole)	1
Backup anti islanding deice	Contactora 3 pole Make : L & T : Model ML1.5 440 V coil	1
Supply Specifications		
Three Phase	Nominal Voltage Nominal Frequency	230/415 V 50 Hz

Installation / Commissioning Checklist

A) Reference Documents

Documents	Check	Remarks
Module Layout	✓	
Electrical Drawings/ SLD	✓	
Additional Remarks (If any)		
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B) Site Installation Checklist

Pre Installation Picture		Attached
Site Shading	✓	Best possible for shadow free from 8 AM till 4 PM
Place for Inverter	✓	Terrace : Mutually Agreed
Place for Battery bank / allied switch gears		N.A.
Levelling of ground		N.A. - Terrace Mount
Ensure sufficient Ventilation for Inverter with space for operation & maintenance	✓	
Check to confirm sturdiness of structure	✓	
Additional Remarks (If any)		

C) Cable / Wire Management

DC cable PV module to Inverter	✓	4 sq mm copper : UV shielded 1000 V Grade
Inverter to LT Panel	✓	4 core : 16 sq mm Aluminium - 45 m
Additional Remarks (If any)		

D) PV / Array / ALL DC electrical Components

Array Configuration		28
PV per Strings	✓	Nil
No of strings in parallel		1
No of strings per inverters		
Table Tilt	✓	18 deg
Table orientation	✓	12 Azimuth to south
Array No Marked	✓	1
Color code	✓	Red for +ve & Black for - ve
DC cable protection	✓	UPVC conduit used to avoid direct exposure to sun
Electrical connections	✓	Checked for mechanical & electrical stability
Cables / conduit fitted tight & secure	✓	
Additional Remarks (If any)		

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E) AC Combiner Panel

Single Inverter : Not Applicable

Pre Installation check done	✓	Visual
Interconnections / wirings of all components / instruments are secure & tight	✓	
Additional Remarks (If any)		

F) Lighting Arrestor -

No of Lighting Arrestors	✓	One
Height	✓	Building Ht + 3 M
No Earth	✓	One
Type	✓	Franklin Rod Type
Additional Remarks (If any)		

G) Earth & Grounding

PV Module / Structure Ground	✓	Pit No 1 / Resistance = 3.5 Ohm
Electrical Ground	✓	
Lighting Arrestor	✓	Pit No 2 / Resistance = 3.5 Ohm
Ensure proper ground to all metallic parts	✓	2 ground terminals each provided

H) Pre Commissioning Check

All DC & AC circuits switched off -/ fuses removed	✓	
Meger check done	✓	
Confirm proper grounding to Inverter	✓	
Confirm proper grounding to Structure	✓	
Confirm proper grounding to AC Combiner Panel	✓	

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I) Insulation Test Results

DC array Positive to Earth	✓	> 200 M Ohms
DC array Negative to Earth	✓	> 200 M Ohms
DC array Positive to Negative	✓	> 200 M Ohms
AC Cable		
Phase to Phase	✓	> 200 M Ohms
Phase to Neutral	✓	> 200 M Ohms
Phase to Earth	✓	> 200 M Ohms
Neutral to Earth	✓	> 200 M Ohms
Additional Remarks (If any)		

J) LT side connections

Done at the "Point of Grid Interconnection" mutually agreed with customer	✓	
Done & Verified in presence of customer	✓	
Additional Remarks (If any)		

K) PV Module Specifications

Model	WS 320	Qty	28	✓
Voc (V)	45 V	P mp (w)	320	
I sc (A)	9.3 A			
V mp (V)	36.4 V	Dimensions (mm)	1960 X 990 X 42	
I mp (A)	8.22 A	Weight (kg)	29	

L) String Details

Invert No	String No	Qty	V oc (V)	V on load (V)	String Current (A)	MPP No	Check
1	1	14	552	432	01.0	1	✓
1	2	14	553	430	01.0	2	✓

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M) Site Conditions while handing over

Date / Time	20/9/17 : 5:35 PM
Solar Irradiation	150 watt / meter sq
DC power observed	880 watt
Av. Array Voltage	432 V / 0.1 A
Av Array Current	
AC power observed	600 KW
AC Voltage	229 V / 1
AC Current per phase	Amp per Ph .

N) Summary of Inverter

Sr No	Unit Sr No
Inv 1	A1Z371104A

O) Disclaimers Explained

It is explained to customer that

"On Grid System" will not function and will stop generation of power as soon as Grid Power Fails	✓
Power generation from Solar Modules will keep degrading year on year as per the manufacturer's performance chart	✓
Solar Power Generation depends on the solar radiation at the given point of time - which varies from time to time.	✓
Solar production will drop to almost 50% for 4 months in monsoon period	✓
Solar Modules needs to cleaned regularly (typically twice a week) or elase power production will drop	✓
Power production drops down drastically for the given string in case of sharp or diffused shadow even on single module of part of it	✓
Low Voltage of fluctuations in voltage can trip the inverter till the voltage is restored to the range and hence can affect power production	✓

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P) System Commissioning Remarks

9 Kwp solar power system commissioned	✓
Inverter Manual Handed over to customer	✓
Do s & Do n't for PV Module Maintenance cleaning explained / instructions handed over to customer	✓
Danger / Safety Signage put as per I E codes	✓
Operations explained to authorised person	✓
Inverter Display explained	✓
Web Connect Installed : Password Given	
Daily / weekly / monthly / yearly production tracking demonstrated	✓
Service no / mail ID given to customer	✓
"How to report fault" – explained to customer	✓
Site / modules cleaned	✓
" No queries left unanswered" for customer	✓
System working to satisfaction	✓

Site In charge :

[Signature]
Date : 18/9/17
20

[Signature]
REETA DESHPANDE
LIC No.: 15879
Dt.: 21/12/1983

Checked By ;

[Signature]
[Signature]

BUSINESS ALGORITHMS PVT. LTD.
Nagpur
Electrical Contractor Lic. No. 33034

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