NEOSOL

"Solar makes your life better"

Neosol Technologies Pvt. Ltd.

NEO SOL

About Us

Neosol Technologies Pvt. Ltd. is the leading organization in the field of renewable energy attached with some leading companies in the power sector of India and abroad and is proud to be among the list of 100% rewable companies with its focus on**"Designing, Engineering, Manufacturing, Supplying, Installing, Testing and commissioning any kind of Solar Photovoltaic plants, equipments and systems that cater to both Domestic and Industrial needs."**

Strong vision coupled with professional and ethical business practices have helped it achieve good position in the markets it serves in India.

As part of its growth strategy NTPL ventured in to high technology area and has set up a State of the Art Solar PV Modules manufacturing plant in the state of Haryana with technology and production plant sourced from outside India. Its manufacturing plant is an ISO 9001:2008 and ISO 14001:2004 certified facility and Products full range of regular PV modules ranging from 3W-380Wp

Product Features of PV Modules

- Extra Long life
- Extra Energy/Power
- Extremely Compact Size
- Made of A Grade Solar Cells with up to 23% cells efficiency
- One of the most compact efficient 156.75x156.75 to 158.75x158.75mm, 60/72 cells module
- Module stability and reliability due to high-quality raw materials

- Positive Power Tolerance
- Snow and wind load tested
- ARC glass with UV-T & UV-C encapsulent ensure higher module efficiency
- Reliable schottky bybass diode minimizes power drop by shed
- All weather-reslstance junctions box and crosslink cable
- PID resistance cells & encapsulants yield efficient performance under hot humid weather
- **TUV:IEC61215,IEC61730 certified from 3W-380 W**

ICAS IEC IEC 61215 IEC 61730 CE CERTIFIED ISO 9001:2008 COMPANY Govt. of India MNRE APPROVED MAKE IN INDIA

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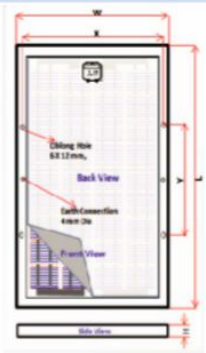
Solar Module Specification

Electrical Characteristics	NS-40 WP	NS-50 WP	NS-60 WP	NS-75 WP	NS-100 WP	NS-125 WP	NS-160 WP	NS-170 WP	NS-175 WP
Peak Power (WP)	40	50	60	75	100	125	160	170	175
Open Circuit Voltage (VOC) (V)	22.32						22.68	23.25	23.62
Short Circuit Current (ISC) (A)	2.41	3.06	3.54	4.59	6.22	7.45	8.98	9.36	9.7
Voltage at maximum Power (Vmp) (V)	18	18	18	18	18	18	18.3	18.85	18.95
Current at maximum Power (Imp) (A)	2.24	2.82	3.35	4.21	5.75	6.95	8.75	9.05	9.25
Maximum system voltage (V)	600 (VDC)								
Physical Parameters									
Solar Cell Type	Multi							Mono	Mono
Solar Cell Per Module (Units)	36								
Arrangement of Cells (L*B) (nos)	9 Cell x 4 Strings								
Weight (kg)	3.7	4.32	4.9	6.58	8.3	9.7	11.1	11.1	11.1
Hole to Hole Dimension (mm) (CTC)	X=645 Y=235	X=645 Y=285	X=645 Y=330	X=645 Y=415	X=528 Y=540	X=628 Y=647	X=628 Y=740	X=628 Y=740	X=628 Y=740
Module Size L x W x H x (mm)	665x427x35	665x538x35	665x597x35	778x665x35	1010x665x35	1255x665x35	1485x665x35		
Module Efficiency	≥14.32	≥14.2	≥15.3	≥14.7	≥15.01	≥15.1	≥16.28	≥17.38	≥17.85
Measurement Tolerance on Power +/-3 %. All electrical parameters specified at: STC: 25.C cell temperature; 1000W/m2 Irradiance									

Other Characteristics	All dimension in mm tolerances ±2MM
Type of Cell	Multi / Mono Crystalline Silicon
Front Face	Tempered Glass (Low Iron), 3.2mm, ARC Coated
Cell Encapsulate	Ethylene Vinyl Acetate (PID)
Frame	≥ 17µ Anodize thickness aluminum frame with twin wall profile
Junction Box	IP 65/67,3 Terminal, 2 Diodes
Temp. Coefficients of Pmax (%/ °C)	-0.45
Temp. Coefficients of Voc (% / °C)	-0.35
Temp. Coefficients of ISC (%/°C)	0.05



ICAS 英格尔集团 | IEC IEC 61215 IEC 61730 | CE | CERTIFIED ISO 9001:2008 COMPANY | Govt. of India MNRE APPROVED | MAKE IN INDIA

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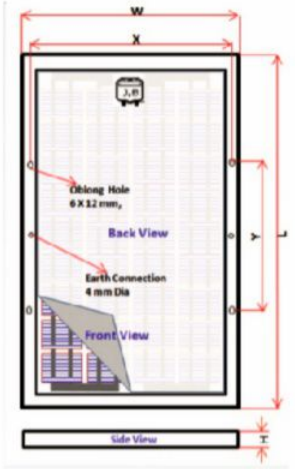
Solar Module Specification

Electrical Characteristics	NS-210 WP	NS-210 WP	NS-210 WP	NS-260 WP	NS-260 WP	NS-260 WP	NS-270 WP	NS-280 WP	NS-295 WP
Peak Power (WP)	210	210	210	260	260	260	270	280	295
Open Circuit Voltage (VOC) (V)	22.68	37.24	45.55	22.38	37.8	45.64	38.46	38.54	38.88
Short Circuit Current (Isc) (A)	12.55	7.46	6.98	15.1	8.92	7.45	9.1	9.85	9.32
Voltage at maximum Power (Vmp) (A)	18.01	29.62	34.89	18.3	31.15	36.25	31.52	31.65	32.77
Current at maximum power (Imp) (A)	11.69	7.12	6.02	14.25	8.35	7.18	8.54	8.75	9.02
Hole to Hole Dimension (mm) (CTC)	X=945 Y=740	X=945 Y=740	X=945 Y=740	x = 945 y= 822					
Module Size L × W × H × (mm)	1325x982x35			1644x982x35 MM					
Module Efficiency	≥16.24	≥16.24	≥16.24	≥16.21	≥16.21	≥16.21	≥16.78	≥17.42	≥18.42
Solar Cell Per Module (Units)	72	60	72	72	60	72	60	60	60
Solar Cell type	Multi							Mono/PERC	
Maximum System Voltage (V)	1500 (VDC)								
Arrangement of Cells (L*B) (nos)	12*6	10*6	12*6	12*6	10*6	12*6	10*6	10*6	10*6
Weight (kg)	16.8			17.6					
Junction Box (IP 67)	4 terminal with 3 bypass diodes (20A)								
Tolerance of Electical Parameters:	± 3%, Pm positive tolerance					**Guarantee and Certification:** Product Warranty : 25 years			
Temperature Coefficients						Performance Guaranted Power Output of 90% for 10Years & 80% for 25 Years			
Coefficient of Current α (% °C)	0.05 ± 0.02					Approval & Certificates: MNRE, IEC & ISO, TUV: IEC 61215 ed,IEC 61730			
Coefficient of Voltage β (% °C)	-0.35 ± 0.01					Packing Information: Quantity/Pallet:2 in 1			
Coefficient of Power λ (% °C)	-0.44 ± 0.02								
Maximum System Voltage (V)	1500 (VDC)								
Temperature range	-40° C to + 85° C								
Efficiency Reduction at 200W/m², 25 °C	<5%								
Standard Test Condition (STC)	Irradiance 1000W/m2, Temperature 25 °C, AM 1.5								
Mechanical specification:									
Cable & Connectors	4mm², TUV Certified,1000 mm(optional)								
Application Class	CLASS A (Safety class)								
Front Cover	HighTransmission, Low Iron, Tempered Glass, ARC Coated								
Cell Encapsulate	Ethylene Vinyl Acetate (PID)								
Back Cover	Composite film								
Frame	≥ 17μ Anodize thickness aluminum frame with twin wall profile								



IEC 61215
IEC 61730

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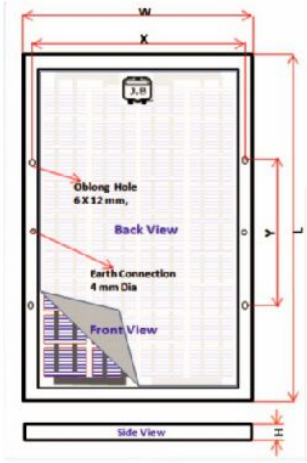
Solar Module Specification

Electrical Characteristics	NS-310 WP	NS-320 WP	NS-325 WP	NS-330 WP	NS-335 WP	NS-340 WP	NS-350 WP	NS-360 WP	NS-360 WP	NS-370 WP	NS-380 WP
Peak Power (WP)	310	320	325	330	335	340	350	360	360	370	380
Open Circuit Voltage (VOC) (V)	44.21	44.67	45.14	46.24	46.4	47.52	47.83	47.92	47.92	47.66	48.09
Short Circuit Current (Isc) (A)	9.13	9.19	9.22	9.25	9.19	9.34	9.42	9.46	9.46	9.66	9.9
Voltage at maximum Power (Vmp) (A)	35.88	36.74	37.22	37.7	38.58	38.46	38.97	39.56	39.56	40.46	40.89
Current at maximum power (Imp) (A)	8.64	8.71	8.73	8.75	8.7	8.84	8.98	9.1	9.1	9.16	9.3
Hole to Hole Dimension (mm) (CTC)	X=980 / Y=950										
Module Size L x W x H x (mm)	1960 x 990 x 35										
Module Efficiency	≥16.21	≥16.72	≥17.01	≥17.24	≥17.8	≥18.3	≥18.8				
Solar Cell Per Module (Units)	72										
Solar Cell Type	Multi/Mono/PERC										
Maximum System Voltage (V)	1500 VDC										
Arrangement of Cells (L*B) (nos)	12 Cells x 6 Strings										
Weight (kg)	21.8										
Junction Box (IP67)	4 terminal with 3 bypass diodes (20A)										

Tolerance of Electical Parameters	± 3%, Pm positive tolerance
Temperature Coefficients	
Coefficient of Current a (%/ °C)	0.05 ± 0.02
Coefficient of Voltage β (%/ °C)	-0.35 ± 0.01
Coefficient of Power λ (%/ °C)	-0.44 ± 0.02
Maximum system voltage (V)	1500 VDC
Temperature range	-40° C to + 85° C
Efficiency Reduction at 200W/m² , 25 °C	<5%
Standard Test Condition (STC)	Irradiance 1000Wm², Temperature 25 °C, AM 1.5
Mechanical specification:	
Cable & Connectors	4mm², TUV Certified,1000 mm(optional)
Application Class	Class A
Front Cover	HighTransmission, Low Iron, Tempered Glass
Cell Encapsulate	Ethylene Vinyl Acetate (PID)
Back Cover	Composite film
Frame	≥17μ Anodize thickness aluminum frame with twin wall profile

Guarantee and Certification: product Warranty : 25 years
Performance Guaranted Power Output of 90%
for 10Years & 80% for 25 Years
Approval & Certificates: MNRE, IEC & ISO
TUV: IEC 61215 ed,IEC 61730
Packing Information: Quantity/Pallet:2 in 1



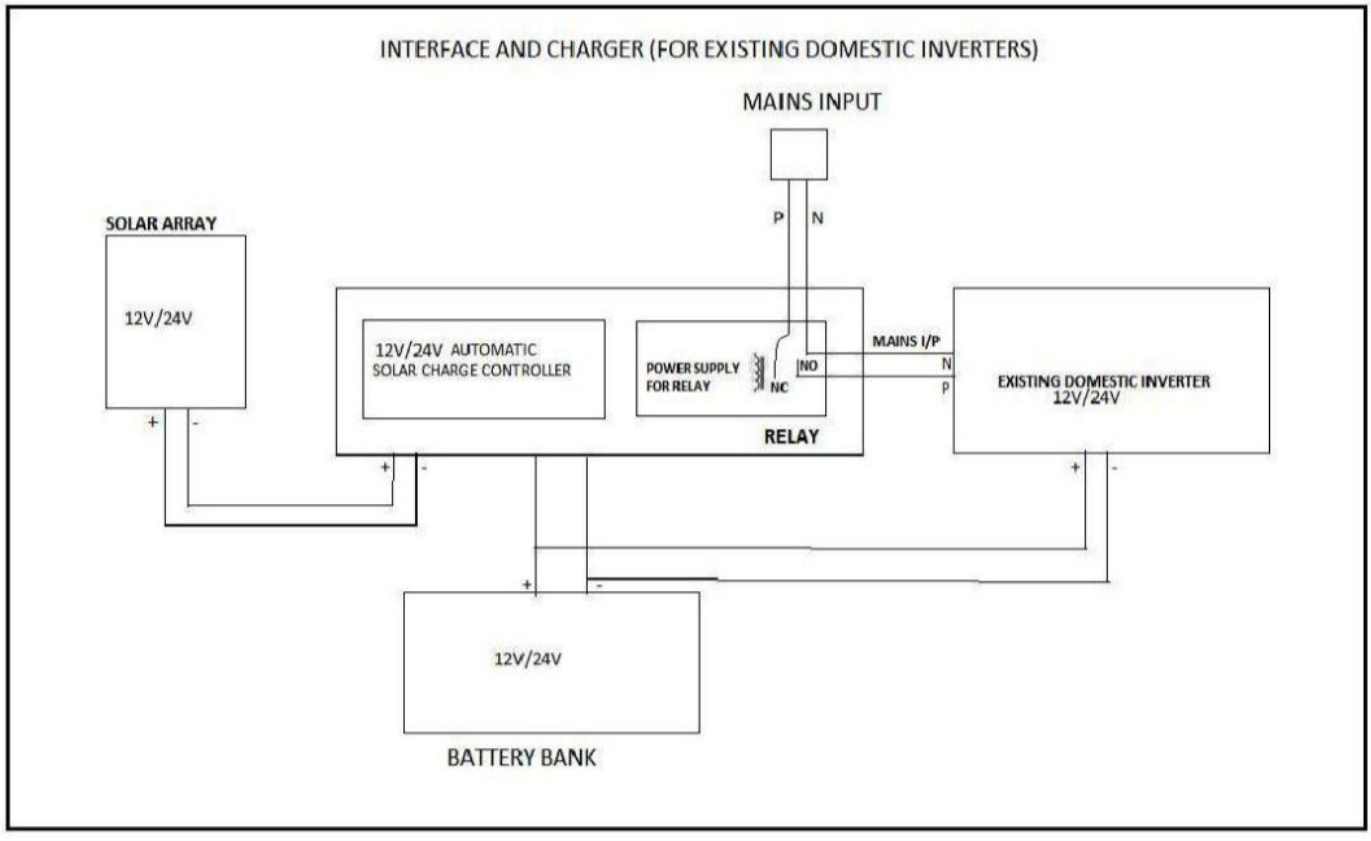
IEC 61215
IEC 61730

TECHNICAL SPECIFICATION OF INTERFACE SOLAR CHARGE CONTROLLER

Description	Technical Specification Interface Charge Controller
Solar PV Module	(160 Watt) The open circuit voltage of the PV modules under STC should be at least 21.0 Volts for 12 Volt panel
Solar PV Module	(320 Watt) The open circuit voltage of the PV modules under STC should be at least 42 Volt for nominal 24 Volt panel.
SMU (Charge Controller)	The systems of 320 Watt shall be for the existing inverters on 12V solar array and having single battery of 12VDC. The system of 640 Watt will be for the existing inverters on 24V solar array and having double batteries to form 24VDC battery bank. Type- The controller should be PWM type. Current Rating 320W- It should be rated at least 20Amp. for 12V system with 320 watt solar panels. Current Rating 640W- It should be rated at least 40 Amp. for 24V system with 640 watt solar panels. **Operation-** **1. In Morning condition-** · When Solar of low intensity is available and Grid is on and the battery is fully charged- Under such condition, the system should work on solar only, when solar current output reaches to 2.0 – 2.5 Amp in case of 320 watt / 640Watt solar inverter charger. · The grid should be automatically on/off from existing inverter to support the load from battery and solar panels. When battery voltage falls below preset level and solar is available sufficiently then priority should be from solar side. **2. In Day time condition-** The system should be designed to give priority to solar power and use grid power only when solar power is insufficient to charge the batteries and battery charge is insufficient to meet the load requirement. When batteries are fully charged during day time, the interface unit shall automatically cut off AC grid power from the system and load should run through the inverter(using stored battery charge). **3. In evening condition-** When solar power drops to 2.5-2.0 Amp in case of 320/640Watt solar inverter chargers, the systems should be shift to Grid and becomes normal domestic inverters during night time Indicator- The controller should have LCD display to indicate showing of solar charging and AC charging and mains on. Protection- Fuses should be provided to protect against short circuit conditions. To prevent reverse flow of current- Blocking diodes should be provided as part of the electronics, to prevent reverse flow of current through the PV module(s)

LINE DIAGRAM OF SYSTEM
प्रणाली का रेखा चित्र

- The systems of 320 Watt shall be for the existing inverters on 12V solar array and having single battery of 12VDC and the system of 640 Watt will be for the existing inverters on 24V solar array and having double batteries to form 24VDC battery bank. For example, the block diagram of 320 watt solar inverter chargers is given as under:-
- 320 वाट की प्रणाली 12V सौर सरणी पर मौजूदा इनवर्टर के लिए होगी और 12 वीडीसी की एकल बैटरी होगी और 640 वाट की प्रणाली 24V सौर सरणी पर मौजूदा इनवर्टर के लिए होगी और 24VDC बैटरी बैंक बनाने के लिए डबल बैटरी होगी। उदाहरण के लिए, 320 वाट सौर इन्वर्टर चार्जर के ब्लॉक आरेख को निम्नानुसार दिया गया है: -



NEOSOL

INSTALLATION AND COMMISSIONING GUIDELINES

- सोलर पैनल को सूर्य की दिशा में दक्षिण की तरफ (20 - 28) की स्थिति में छाया मुक्त क्षेत्र में रखें ।
- पैनल को जोड़ने के लिए 10 मीटर 2 .5 वर्ग व्यास के दोहरे कोर के तांबे तीन केबल का प्रयोग करें ।
- सोलर पैनल की स्थापना ठोस सरंचना /मंच (लोहे व सीमेंट के साथ) पर की जानी चाहिए ।

GENERAL GUIDELINES

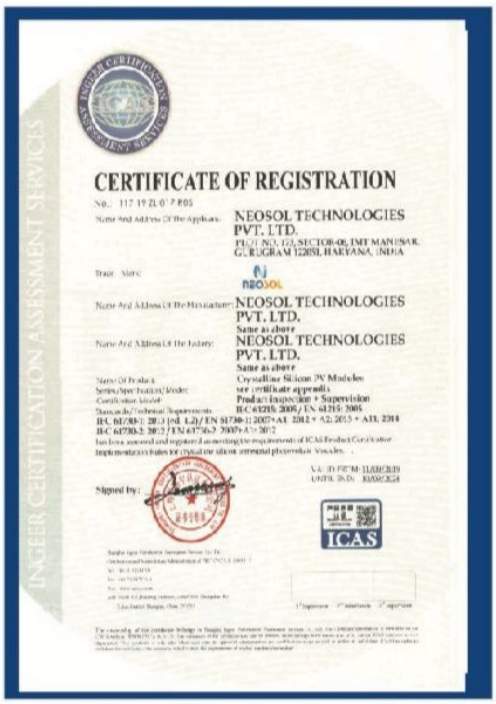
- कृपया धूल व गंदगी को साफ पानी या गीले कपडे से जल्दी सुबह या देर शाम को साफ करें, डिटरजेंट/ साबुन को प्रयोग न करें , धातु /ठोस वस्तु का प्रयोग न करें ।
- सोलर पैनल की केबल को मजबूती से न खींचे । जिसके कारन जोड ढीले न हो ।
- सिस्टम को खोलकर बांधने की कोशिश न करे ।

WARRANTY POLICY-वारंटी पालिसी

Sr. No.	System Components	Specification	Certification BIS/IEC	System Warranty
1	Solar PV Module	160W/320W	IEC 61215 IS /IEC 61730-1 & IS/IEC 61730-2	25 years As per MNRE (GOI) Specification (Performance warranty output should not be less than 90% at the end of 10 years and 80% at the end of 25 years).
2	SMU/Solar Charge Controller	12v-20Amp 24v-40Amp	Test Report from NABL Accredited Lab	5 Years
3	Structure	Rail Type Galvanized Iron with Minimum 80Micron Anodized Structure with Dimensions 40*40*40*2MM		5 Years
4	Solar Cable	PVC Insulated cables, UV resistant DC Wire 4Sqmm	EN 50618	30 Years

- वारंटी शून्य हो जायेगे यदि दोष टूटने, पैनल के छाया में होने, गलत वायरिंग, इकाई से छेड़छाड़, गलत प्रयोग व गलत स्थापना के कारण है।

Certifications



CERTIFICATE OF REGISTRATION

No.: 117 19 ZL 0 7 ROS

Name And Address Of The Applicant: NEOSOL TECHNOLOGIES PVT. LTD.
PLOT NO. 173, SECTOR-06, IMT MANESAR,
G. IGRAM 122051, HARYANA, INDIA

Trade Mark: NEOSOL

Name And Address Of The Manufacturer: NEOSOL TECHNOLOGIES PVT. LTD.
Same as above

Name And Address Of The Factory: NEOSOL TECHNOLOGIES PVT. LTD.
Same as above

Name Of Product: Crystalline Silicon PV Modules
Series/Specification/Model: see certificate appendix
Certification Model: Product Inspection + Supervision
Standards/Technical Requirements: IEC 61215: 2005 / EN 61215: 2005
IEC 61730-1: 2013 (ed. 1.0) / EN 61730-1: 2007+A1: 2012 + A2: 2015 + A11: 2014
IEC 61730-2: 2012 / EN 61730-2: 2007+A1: 2012
has been assessed and registered as meeting the requirements of ICAS Product Certification implementation Rules for crystalline silicon terrestrial photovoltaic modules.

Signed by:

VALID FROM: 11/MAR/2019
UNTIL END: 10/MAR/2024

ICAS

Appendix: Page 1 of 1

No.: 117 19 ZL 017 ROS

Certified PV module models:

NS36P2-3, NS36P2-5, NS36P5-10, NS36P5-20, NS36P5-30, NS36P5-37, NS36P5-40
NS36P5-50, NS36P5-60, NS36P5-75, NS36P6-80, NS36P6-100, NS36P6-130,
NS36P6-120, NS36P6-150, NS36P6-160, NS36P6-165, NS36P6-170,
NS36P6-180, NS36P6-195, NS36P6-200, NS36P6-210, NS36P6-220, NS60P6-230,
NS60P6-240, NS60P6-245, NS60P6-250,
NS72P6-250, NS72P6-265, NS72P6-270, NS72P6-280, NS72P6-285, NS72P6-290,
NS72P6-295, NS72P6-300, NS72P6-305, NS72P6-3.0, NS72P6-310, NS72P6-320,
NS72P6-325.

Note: This appendix is valid when read in conjunction with the certificate

Signed by:

Approval Date: 11/09/2019
Expiry Date: 10/09/2021

ICAS

ISO 9001:2015

Certificate of Registration

This is to certify that the Quality Management System of

NEOSOL TECHNOLOGIES PVT. LTD.

OFFICE:- 6/8, FLAT NO-7, 2ND FLOOR, PUNJABI BAGH WEST,
NEW DELHI- 110026, INDIA.
WORKS :-PLOT NO-173, SECTOR- 6, IMT MANESAR,
GURGAON - 122051, HARYANA, INDIA.

has been audited and conformed to be in accordance with the requirements of

ISO 9001:2015

The Quality Management System is Applicable to :

MANUFACTURING OF SOLAR PV MODULES AND SUPPLY, INSTALLATION COMMISSIONING, OPERATIONS AND MAINTENANCE OF SOLAR PV POWER PROJECTS, SOLAR THERMAL PROJECTS AND SOLAR LIGHTING SYSTEMS.

Certificate No: 16QA107
Initial Registration Date: 21/12/2016
First Surveillance Date: 21/12/2017
Second Surveillance Date: 21/12/2018

Issuance Date: 21/12/2016
Date of Expiry*: 20/12/2019

DIRECTOR

JAS-ANZ

IAF

ACCURATE BUSINESS CERTIFICATION PRIVATE LIMITED

ISO 14001:2015

Certificate of Registration

This is to certify that the Environmental Management System of

NEOSOL TECHNOLOGIES PVT. LTD.

OFFICE:- 6/8, FLAT NO- 7, 2ND FLOOR, PUNJABI BAGH WEST,
NEW DELHI- 110026, INDIA.
WORKS:- PLOT NO-173, SECTOR- 6, IMT MANESAR,
GURGAON - 122051, HARYANA, INDIA

Has been Audited and Conformed to be in in accordance with the requirements of

ISO 14001:2015

The Environmental Management System is Applicable to :

MANUFACTURING OF SOLAR PV MODULES AND SUPPLY, INSTALLATION COMMISSIONING, OPERATIONS AND MAINTENANCE OF SOLAR PV POWER PROJECTS, SOLAR THERMAL PROJECTS AND SOLAR LIGHTING SYSTEMS.

Certificate No: 16EA107
1st Cal Registration Date: 21/12/2016
First Surveillance Date: 21/12/2017
Second Surveillance Date: 21/12/2018

Issuance Date: 21/12/2016
Date of Expiry*: 20/12/2019

DIRECTOR

JAS-ANZ

IAF

ACCURATE BUSINESS CERTIFICATION PRIVATE LIMITED

ICAS

IEC 61215
IEC 61730

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Govt. of India MNRE APPROVED

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Factory Address

Plot.173, Sector-6, IMT, Manesar,
Gurgaon - 122051 (Haryana)
+91 124- 4245146

Regd. Address

6/85, West Punjabi Bagh
New Delhi-110026
+91-11-25739035 / 45094709

TOLL FREE NUMBER **1800-313-5670**

YouTube

info@neosoltechnologies.com www.neosoltechnologies.com