EMPANELMENT OF VENDOR

TO

SUPPLY, INSTALLATION AND MAINTENANCE OF

SOLAR ENERGY SOLUTIONS FOR THE YEAR 2025-26

CONTENTS OF BID DOCUMENT

LIST OF DOCLUMENTS - (*IN TECHNICAL BID)*

LIST OF DOCUMENTS - *(IN FINANICAL BID)*

Background

SELCO Foundation has been established with a mission of achieving rural development and conservation of the environment by promoting the use of sustainable energy. The foundation has been working on field-based R&D projects since the past 15 years have and have developed various models and processes in sectors of basic energy access, Health, Education, Livelihoods, Financial Inclusion, Built Environment which can be replicated and scaled up to bring about social inclusivity and equity. SELCO Foundation has been working towards enabling socio-economic growth by using renewable energy alternatives and developing decentralized renewable energy integrated energy efficient machinery in the technological front. SELCO Foundation has been supporting the deployment of various clean energy powered systems and appliances as part of the foundation's activities.

In order to take forward the activities of SELCO Foundation, procurement of goods and services happens throughout the year and across various departments. The procurement based on the procurement policy of the organization and includes all activities such as identification, sourcing, soliciting of offers, evaluation and award of orders/contracts that are essential for smooth conduct of the Foundation's operations. SELCO Foundation's procurement policy adopts the "Best Value Proposition" concept by which the value of the offer is based on multiple parameters and not just the most competitive price quoted.

SELCO Foundation is now extending an invitation to vendors for Empanelment for the year 2025-26. The scope involves Supply, Installation and Maintenance of Solar Energy Solutions – DC home lighting and Livelihood, Inverter or PCU based systems for Livelihood, Home lighting, Institutes (Health, Education etc.) and providing comprehensive maintenance for 1 year across various states in India.

INSTRUCTION TO VENDORS

1. Eligibility to vendors:

a. The organization should be in operation for the last 1 year in the field of supply, installation and maintenance of Solar Energy Solutions.

b. Company registration certificates or any other proof of incorporation to be submitted to establish the legal status - Company Incorporation certificate/GST Registration.

c. The company should be able to provide excellent service. It is expected that complaints will be addressed within 48-72 hrs. of lodging. The company should provide a list of service centers and the escalation matrix with the complaint priority.

d. Solar panels used by the company should be of a vendor in India and should have manufacturing company name and the technical specifications

e. Audited statement of accounts of the organization and IT return for last 01-03 financial years.

f. PAN card for the Organization.

g. Self-Declaration Certificate to declare that the organization is not blacklisted.

h. Documents to establish that the organization has implemented similar projects of cumulative worth Rs 10 lakhs or more in the last Financial year

i. Service provider should provide service and maintenance of the system for a minimum period of 1 year. This should include one scheduled service for every six months. If there is requirement of further AMC, then organization should be ready to provide.

j. Interested and eligible vendors may furnish the Technical & Commercial Bids for supply of solar systems.

k. Interested and eligible Vendors may obtain further information or clarification either in person or through phone during office hours from the office of the SELCO Foundation Ph: 080-2649 3145 or through the email – procurement@selcofoundation.org

2. Technical Proposal shall contain:

i. Particulars of the Firm as per Annexure – 4

ii. Checklist of Documents to be submitted as per Annexure – 5

iii. The vendor must submit acceptance letter of guarantee for 5 years for the total performance

of the Solar Energy Systems

iv. The vendor must provide service center details with contact numbers.

3. Commercial bid shall contain:

The rate quoted for supply of Solar Energy Solutions in different regions (Northeast & Rest of India). **The rate quoted should include all taxes levied by the State & Central Govt. Packing, forwarding charges including loading and unloading, Installation, commissioning and 1 year of AMC.**

Transportation: Project based local transportation within the state will be considered at actuals and will not be part of commercial bid under this benchmarking.

4. Price Schedule

The Vendor shall complete the price schedule as per **Annexure 1 – Technical Specifications and PRICE SCHEDULE** furnished in the Bidding Documents, indicating the total cost towards supply, installation and commissioning and Maintenance of solar energy solutions as per the technical specifications mentioned. The SELCO Foundation will not pay any extra charges over and above the rate quoted by the Vendor.

5.1 Fixed price:

Prices quoted by the Vendor are firm final and binding and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as nonresponsive and rejected. (Can we have variation clause added for + / - 7% against market rate). Provision to capture 70% & 30% to be considered and annexure to be attached.

5. Period of Validity of Bids

Bids shall remain valid for a period of 10 month from the 01 June 2025 to 31 March 2026. A Bid valid for a shorter period shall be rejected by theFoundation as non-responsive.

6. Format and Signing of Bid

The Vendor ***shall give a set of soft/hard copies of all the documents*** in the sealed cover.

The Bids could be submitted preferably through online form mentioned below or by hand or post/courier to the below mentioned address

Procurement Officer,
SELCO Foundation,
#690, 15th Cross, 2nd Phase, JP Nagar,
Bengaluru, Karnataka- 560078
https://forms.gle/Xfu4dvvyaosS2LPLA

7. Preliminary Examination

The Foundation will examine the Bids to determine whether they are complete, whether anycomputational errors have been made, whether required sureties have been furnished whether the documents have been properly signed, and whether the bids are generally in

order.

Arithmetical errors will be rectified on the following basis. If there is a discrepancy between words and figures, the lowest of the two shall prevail and the bid shall stand corrected to that effect. The Foundation may waive any minor infirmity or non- conformity or irregularityin a bid, which does not constitute a material deviation, provided such a waiver does not prejudice or affect the relative ranking of any vendor.

8. ACCEPTANCE OR REJECTION OF BIDS:

a) **CEO**, SELCO Foundation reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to award of contract, without there by incurring any liability or any obligation to inform the affected vendor or vendors of thegrounds for the said action.

b) Any Bid with incomplete information is liable for rejection.

SCOPE & OBJECTIVE:

The objective of the contract is to empanel vendors for Supply, Installation and Maintenance of Solar Energy Solutions – DC home lighting and Livelihood, Inverter or PCU based systems for Livelihood, Home lighting, Institutes (Health, Education etc.) and providing comprehensive maintenance for 1 year across various states in India during year 2025-26.

Major components or scope for empanelment will be

1. Provision of materials for supply and installation must align with the approved design and Bill of Quantities (BOQ) provided by SELCO.
2. Vendors are required to promptly respond to all inquiries and fulfill orders in accordance with the terms outlined in the purchase order.
3. Pricing should be in line with prevailing market rates.
4. Time-to-delivery is critical to the project's success. It should be clearly defined and included in the agreement. Delivery performance will be monitored, and monthly reports on delivery performance will be shared. Each proposal must specify the lead time.
5. Warranty terms must be clearly stated in the proposal and will form part of the agreement. This encompasses both the total system warranty and warranties provided by manufacturers.
6. Proposals should include one year of comprehensive maintenance for the system, consisting of a minimum of two scheduled visits every six months.
7. Vendors are expected to provide acceptance of comprehensive maintenance for subsequent years upon request.
8. A training module for end users on basic troubleshooting and maintenance should be developed and provided in digital format.
9. SELCO will monitor the quality of the products supplied and installation, which will be documented in the Monthly Quality Performance Report.
10. Vendors must submit a detailed product catalogue of the offerings, scope of work, and any other relevant supporting documents along with their proposal.

1. **Agreement:** The Agreement between Vendor and Foundation with respect to the supply of Product (the "Product") shall consist of these terms or any terms mutually agreed to in writing hereafter by Vendor and Foundation. Besides the Vendor shall also be bound by any additional or different terms,

whether printed or otherwise, in Foundation's Purchase Order (the “PO”) / Request For Quotation (RFQ) or in any other communication from Foundation to Vendor. The Agreement shall be for the benefit of Vendor and Foundation and not for the benefit of any other person or entity.

2. **Prices:** Prices benchmarked by the Foundation shall be considered as firm and not subject to escalation due to any variations in the prices of materials, labour and/or any other reasons whosoever which may occur while the order is being carried out. Any increase in the prices shall be communicated to the Foundation at least 30 days in advance before raising the PO.

3. **Payment Terms:** Unless otherwise agreed upon between the parties, the following payment terms will be maintained: 50%-70% of total amount as advance and balance 50%-30% against receipt of completion certificate, hand over letter, certification of satisfactory working condition of the solar system by local authority and/or Foundation representatives.

4. In the event of any delay of any delay by the vendor/service provider/consultant, SELCO Foundation shall have the right to impose a penalty of 0.5% for every week the delay persists and such penalty shall not exceed an amount of 5% of the Project cost. The work shall begin from the time the agreement is signed by both parties or a Purchase Order is issued to the vendor/service provider/ consultant. All delays shall be considered from the date the work starts, as explained in this clause.
5.
6. **Insurance:** Insurance shall be arranged by the Vendor till the products are supplied to the end point and installation is completed. Arrangement of transport, warehouse for stocking and safe keeping of the material till the handover is within the Vendor’s scope of work and Foundation will not be responsible for any missing item or damage that is incurred before the system is handed over to the Centre authority. The Vendor will ensure insurance coverage and damage to service staff by way of any accidents during the course of this engagement with the Foundation for providing the services covered under this agreement.

7. **Inspection, Checking, Testing:** The products covered by the Purchase Order shall be subject to inspection within a reasonable time after arrival at the place of delivery. Besides the Foundation is also entitled to do a preliminary inspection at the manufacturing site/godown of the vendor by giving prior notice. The vendor shall provide free access to the Foundation’s representative/s during normal working hours at vendor's or his/its sub-vendor's works and places at their disposal, internal test reports, material/component test certificates, approved drawings. Even if inspections and tests are fully carried out, vendor shall not be absolved to any degree from their responsibilities to ensure that products supplied, comply strictly with requirements, of the purchase order at the time of delivery, inspection on arrival at site, after its erection or start-up and guarantee period. In any case, the products supplied must be strictly in accordance with the Purchase order failing which the Foundation shall have the right to reject goods and hold the vendor liable for non-performance of contract.

8. **Packing:** The products shall be dispatched by the vendor adequately packed in appropriate packing which should be suitable for inland carriage and ensure complete safety of goods from any kind of damage in transport and all products should be properly lubricated. The vendor should ensure the compliance under "The Legal Metrology Packaged Commodity Rules, 2011”. SELCO Foundation cannot be held responsible for discharging any liabilities, penalties under the rules. All costs including penalties etc. will be borne by the vendor or deducted from payments due.

9. **Assembly, after sales service and training:** Vendor shall be fully responsible for the assembly of the product at the destination site and completeness of the system from the angle of its end use. The vendor shall provide necessary "After Sales Service" and also impart training to the Foundation's technicians in the operation and maintenance of the product free of cost to the satisfaction of the Foundation. Any Complaints on the system will be resolved within 3 to 5 working days of reporting.

   Installation will be done as per the standards agreed upon. Active contact number will be displayed at the site for registering any complaints on the performance of the product. Vendor shall provide the necessary placards as per project specifications with Do's and Don'ts.

   The vendor will visit minimum two times during the first year for servicing and the service visit report duly signed by the end-user will be submitted to the Foundation.
   The vendor herewith also agrees to sign AMC (Annual Maintenance Contract) and provide on call service beyond the warranty period.

10. **Audit:**
    SELCO FOUNDATION reserves the right to audit the quality of material, installation and O&M (operation and Maintenance) by its own staff or authorized representatives. Failure to adhere to the guidelines will result in a penalty including blacklisting from future orders.

11. **Delivery terms**: The time and delivery date as agreed between the Foundation and Vendor shall be the essence of the contract. No variation shall be permitted, except with prior authorization in writing from the Foundation. The products should be delivered securely packed and in good order and conditions at the place and within the time specified for their delivery. In specific orders, Late delivery clause with corresponding penalty clause may be applicable. This will be notified and agreed at the time of placing PO.

12. **Risk Purchase on Default:** In case of default on the part of the vendor to supply all the products or part thereof covered by the contract up to the standard/specifications within the contractual delivery period stipulated in the contract, the Foundation shall have the right to purchase such products or other of similar description at the risk and cost of the vendor. However, vendor shall be liable to pay penalty under clause 8 above for resultant delay.

13. **Delay due to force majeure :** If any time during the continuance of the contract the performance in whole or part by either party on any obligation under the contract shall be prevented or delayed by reason of any war, hostility, explosions, epidemics, quarantine restrictions, or other acts of God, then provided, notice of the happening of any such event is given by either party to the other within twenty one days from the date of occurrence thereof, neither party shall be reason of such event be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance and delay in performance and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist. In case Force Majeure Condition persists for a period exceeding sixty (60) days, either party may at its option terminate the contract.

14. **Rejection, Removal of Rejected Goods and Replacement:** In case the testing and inspection at any stage by inspectors reveal that the product, material and workmanship do not comply with the specifications and requirements, the same shall be removed by the Vendor at his/its own expenses and risk within the time allowed by the Foundation. The Foundation shall be at liberty to dispose of such rejected goods in such manner as he may think appropriate, in the event the vendor fails to

remove the rejected goods within the period as aforesaid. All expenses incurred by the Foundation for such disposal shall be to the account of the vendor. The freight paid by the Foundation, if any, on the inward journey of the rejected material shall be reimbursed by the vendor to the Foundation before the rejected materials are removed by the Vendor. The vendor will have to proceed with the replacement of that product or part of the product without claiming any extra payment if so, required by the FOUNDATION, within 1 weeks of notification. The time taken for replacement in such an event will not be added to the contractual delivery period.

15. **Warranty:** The vendor shall warrant that every material/product to be supplied be new and free from all defects and faults in design, material, workmanship and manufacture and shall be of the highest quality. The items should be consistent with the established, recognised or stipulated standards for material of the type usually used for the purpose and in full conformity with the specifications and drawings or samples. The Warrantee is as follows.

Specification	**Years**
Solar Panel	25 - 30 Years
Battery	100 AH and Above 5 Years (replacement warranty) Below 100 AH 3 Years (replacement warranty)
LiFePO4 Battery	10 Years (replacement warranty)
Solar Inverter	5 Years
Charge Regulator	1 Years
DC Luminaries	1 Year
DC Fan	1 Year

16. **Performance Guarantee**: The Vendor shall guarantee that any/all material used in execution of the Work order shall be in strict compliance with characteristics requirements and specifications agreed upon. The Vendor shall guarantee that all material and products shall be repaired or replaced, as the case may be, at his own expense in case the same have been found to be defective in respect of material, workmanship for smooth and rated operation within the warranty period from the date of commissioning. Acceptance by the Foundation of any product and materials or their replacement will not relieve the Vendor of his/its responsibility concerning the above guarantee. In case of any legal case against the Foundation by any ultimate user of the product with respect to the performance of the system (during the warranty period), the Vendor should support the Foundation with required and relevant technical testing and reports supporting the performance of the product and to defend that the non-performance of the product is not because of any manufacturing defect.

The warranty replacements will be made within 7 to 12 working days from the date of receipt of the Complaint at the site.

17. **Other Clauses:**
    a. The Vendor will treat all information given under this agreement as information with proprietary value and will not disclose the same to competitors or any outsiders. Vendor will not at any time, except under legal process, divulge any trade or business secret relating to the Foundation or any customer or agent of the Foundation, which may become known by virtue of the position as Vendor, save in so far as such disclosure shall be necessary in the interest and for the benefit of the said Foundation and will be true and faithful to the Foundation in all dealings and transactions whatsoever relating to the said

Project.

b. Either party may terminate this contract forthwith in the event of any fraud or misconduct on part of the other party; the Foundation may terminate this contract in the event of delay in supply/ installation of the products by the Vendor beyond 15 days from what is stipulated in the WO or the Vendor may terminate in the event of 3 consecutive delays of 15 days from what is agreed to between the parties in making payment to the Vendor. Any notice to be given hereunder shall be sufficiently given to the other party if forwarded by registered post or by Courier Service to the registered address of the other party mentioned in this agreement or the last known postal address of the other party. Upon the termination of this contract, the Vendor shall refund the entire amount paid by the Foundation. The Vendor shall deliver all deeds, documents and paper in his possession relating to the business of the Foundation.
c. Both the Foundation and the Vendor fully and freely intend to create an independent Vendor relationship under this Agreement. Nothing herein shall be deemed to establish a partnership, joint venture, association or employment relationship between the parties. Both parties agree that the Vendor has sole and exclusive control over the manner and means employed in performing their activities under this Agreement in matters that are not specifically discussed and agreed upon between the parties to this Agreement.
d. The Foundation represents and warrants that (a) it has the full right and authority to enter into this Agreement, and no consent or authorization not obtained prior to the Effective Date is necessary to be obtained, (b) the Foundation is a charitable trust registered under the laws of India and is authorized to do business to the extent necessary to fulfil its obligations hereunder.
e. Except as specifically set forth in this Agreement, neither party makes any representation or warranty of any kind, express or implied, including without limitation any warranty of merchantability, any warranty of fitness for a particular purpose or use, any warranty of non-infringement, or any other statutory warranty. Each party expressly disclaims any and all implied warranties.
f. This agreement shall not be amended or renewed, except in writing mutually agreed by both parties. The project shall be fully completed as agreed in the above-mentioned terms and conditions.
g. This Agreement along with the WO contains the entire terms of agreement between the Parties and supersedes any previous oral or written understandings, commitments or agreements pertaining to the subject matter. This Agreement may not be amended, assigned nor any obligation waived, except by in writing signed by both Parties.
h. In the event that any or any part of the provisions contained in this Agreement is determined to be invalid, unlawful or unenforceable to any extent, such provision shall be severed from the remaining provisions which shall continue to be valid and enforceable to the fullest extent permitted by law.

18. **Compliance with Laws and Regulations –** The Vendor will comply with all applicable laws, rules, regulations and statutory requirements and amendments thereof, in the manufacture and distribution of products and supplies and in providing services to the SELCO and during the term of this Purchase Order.

19. **Child Labor-** The Vendor will, its parent entities, partners or subcontractors nor any of its subsidiary or affiliated entities (if any) is engaged in any practice inconsistent with the rights set forth in the Child Labour (Prohibition and Regulation) Act of 1986, which, inter alia, requires that a child shall be protected from performing any work that is likely to be hazardous or to interfere with the child's

education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

20. **Forced Labour**- The Vendor will not engage in any activity that will result in forced or compulsory labour under applicable laws including the Bonded Labour System (Abolition) Act, 1976.

21. **Abuse of Labor-**Vendor will act in accordance with applicable laws and regulations and will not violate the rights of labourers as stated in The Factories Act, 1948 and similar legislations.

22. **Working Hours, Overtime, Wages and Other Benefits**-Working hours, wages and benefits shall be provided by the Vendor to its staff and employees in accordance with applicable laws including the Minimum Wages Act, 1948.

23. **Declaration of blacklisting-** Vendor represents and warrants to SELCO that, as on the date of signing of this Purchase Order, it is neither blacklisted/ debarred nor it is under a declaration of ineligibility by Central / State or Semi-Government Organization/Department or Institutions and Public Sector Undertakings in India and abroad. Vendor further undertakes to duly inform SELCO in the event it is blacklisted subsequent to execution of this Purchase Order.

24. **Compliance with Anti-bribery Laws:**
    i. Vendor and each of its directors, officers, employees, agents or other (collectively referred to as "Vendor") represent and warrant that it shall not either directly or on behalf of SELCO Foundation give, offer, promise to offer, or authorize the offer, directly or indirectly (proxy bribing), anything of value (such as money, shares, goods or service, gifts or entertainment) to government officials, government customers, potential government customers or foreign government officials including officials of any public international organizations or officials of any political party either in India or abroad ("Officials") with an Intent to influence any act or decision in his or her official capacity Induce the Official to do or omit to do any act in violation of his or her lawful duty to obtain any improper advantage, or Induce to use such Official 's influence improperly to affect or influence an act or decision.
    ii. The Vendor shall not provide any offering, promising, giving or receive, solicit or accept a financial or other advantage, or any other thing of value, with the intention of influencing or rewarding the behaviour of a person in a position of trust to perform a public, commercial or legal function to obtain or retain a commercial advantage.
    iii. Vendor understands and acknowledges that any non- adherence to the warranty as stated herein above will be violation of the provisions of the Indian Prevention of Corruption Act,1988 and other applicable laws and legislations ("Anti-bribery Laws").
    iv. In addition, Vendor agrees to promptly report to SELCO Foundation of any incident of breach or potential breach of this section.

25. **Compliance with Sexual Harassment of Women (Prevention, Prohibition & Redressal) Act, 2013 (POSH):** The Service Provider shall agree to adhere to the mandates prescribed under the Sexual Harassment of Women (Prevention, Prohibition & Redressal) Act, 2013, which requires all workplaces to have a Policy and Internal Committee to address complaints of sexual harassment that women may face at the workplace.

26. **Indemnity –** The Vendor shall indemnify, save and hold harmless, SELCO, its subsidiaries, affiliates, officers, directors and employees, against any and all losses, penalties and expense including court costs and reasonable attorney fees resulting from any breach of these warranties by Vendor. SELCO Foundation shall have the right cancel this Purchase Order with immediate effect, without any liability whatsoever, if Vendor acts in beach of the warranties. SELCO Foundation shall have the right to deny the ORC claimed under any invoice pursuant to this Purchase Order and recover, if already paid the full amount, if Vendor is found to be in beach of these warranties.

27. **Limitation of Liability** SELCO Foundation's aggregate liability for all the claims under this Purchase Order, shall not exceed the total consideration under this Purchase Order. SELCO Foundation shall not be liable for any indirect, special, punitive, exemplary, speculative or consequential damages, including, but not limited to, any loss of use, loss of data, business interruption, and loss of income or profits, irrespective of whether it had an advance notice of the possibility of any such damages. Vendor shall be liable for any/all damages/losses suffered by SELCO Foundation as a result Vendor's default/ delay under this PO.

28. **Governing Law and Arbitration:** The Parties agree that this Agreement shall be governed and construed in accordance with the laws of India. The Parties here to agree that they shall use all reasonable efforts to resolve between themselves any disputes, controversy or claim arising out of or relating to this Agreement. If the Parties fail to resolve the matter within the 30 days of occurrence of any despite, such dispute, controversy or claim shall be settled by binding arbitration under the Indian Arbitration and Conciliation Act, 1996. There shall be one arbitrator mutually appointed by the Parties. The place of arbitration shall be Bangalore and the arbitration proceedings shall be in English. The courts at Bangalore alone shall have the jurisdiction to entertain and, or try any dispute arising out of or in connection with or in relation to the terms of this Agreement.

ANNEXURE- 1

TECHNICAL SPECIFICATIONS and PRICE SCHEDULE

PARTICUILARS TO BE SUBMITED IN THE COMMERCIAL BID

PRICE SCHEDULE FOR empanelment of vendors to Supply, Installation and Maintenance Of solar energy-based Solutions.

Rates quoted by the vendor:

- The rates should be mentioned item wise clearly in figures Item-wisedetails of rates quoted
- Rates should be inclusive of applicable GST
- Rates should in separate tables for each region – North East and Rest of India.
- Make of the product should be captured in the quote
- Warranty should be clearly defined

REGION: _____

Sr no	Category	Variant	Description	Attribute Value	Unit	Price	Make
1	Panel	Poly- Crystalline	Poly- Crystalline 24V	250	Wp		
2	Panel	Poly- Crystalline	Poly- Crystalline 24V	300	Wp		
3	Panel	Poly- Crystalline	Poly- Crystalline 24V	330	Wp		
4	Panel	Poly- Crystalline	Poly- Crystalline 24V	335	Wp		
5	Panel	Poly- Crystalline	Poly- Crystalline 24V	370	Wp		
6	Panel	Poly- Crystalline	Poly- Crystalline 24V	400	Wp		
7	Panel	Poly- Crystalline	Poly- Crystalline 12V	75	Wp		
8	Panel	Poly- Crystalline	Poly- Crystalline 12V	80	Wp		
9	Panel	Poly- Crystalline	Poly- Crystalline 12V	105	Wp		
10	Panel	Poly- Crystalline	Poly- Crystalline 12V	125	Wp		
11	Panel	Poly- Crystalline	Poly- Crystalline 12V	160	Wp		

12	Panel	Poly- Crystalline	Poly- Crystalline 12V	165	Wp		
13	Panel	Poly- Crystalline	Poly- Crystalline 12V	210	Wp		
14	Panel	Mono- Crystalline	Mono- Crystalline12V	20	Wp		
15	Panel	Mono- Crystalline	Mono- Crystalline12V	40	Wp		
16	Panel	Mono- Crystalline	Mono- Crystalline12V	50	Wp		
17	Panel	Mono- Crystalline	Mono- Crystalline12V	60	Wp		
18	Panel	Mono- Crystalline	Mono- Crystalline12V	75	Wp		
19	Panel	Mono- Crystalline	Mono- Crystalline12V	105	Wp		
20	Panel	Mono- Crystalline	Mono- Crystalline12V	125	Wp		
21	Panel	Mono- Crystalline	Mono- Crystalline12V	165	Wp		
22	Panel	Mono- Crystalline	Mono- Crystalline12V	200	Wp		
23	Panel	Mono- Crystalline	Mono- Crystalline12V	220	Wp		
24	Panel	MONOPERC	MONOPERC 12V	130	Wp		
25	Panel	MONOPERC	MONOPERC 12V	135	Wp		
26	Panel	MONOPERC	MONOPERC 12V	195	Wp		
27	Panel	MONOPERC	MONOPERC 12V	200	Wp		
28	Panel	MONOPERC	MONOPERC 12V	205	Wp		
29	Panel	MONOPERC	MONOPERC 24V	255	Wp		
30	Panel	MONOPERC	MONOPERC 24V	260	Wp		
31	Panel	MONO PERC	MONOPERC 24V	265	Wp		
32	Panel	MONO PERC	MONOPERC 24V	270	Wp		
33	Panel	MONO PERC	MONOPERC 24V	340	Wp		
34	Panel	MONO PERC	MONOPERC 24V	345	Wp		
35	Panel	MONO PERC	MONOPERC 24V	350	Wp		
36	Panel	MONO PERC	MONOPERC 24V	355	Wp		
37	Panel	MONO PERC	MONOPERC 24V	360	Wp		
38	Panel	MONO PERC	MONOPERC 24V	365	Wp		
39	Panel	MONO PERC	MONOPERC 24V	370	Wp		
40	Panel	MONO PERC	MONOPERC 24V	375	Wp		
41	Panel	MONO PERC	MONOPERC 24V	380	Wp		

42	Panel	MONOPERC	MONOPERC 24V	385	Wp		
43	Panel	MONOPERC	MONOPERC 24V	390	Wp		
44	Panel	MONOPERC	MONOPERC 24V	395	Wp		
45	Panel	MONOPERC	MONOPERC 24V	400	Wp		
46	Panel	MONOPERC	MONOPERC 24V	405	Wp		
47	Panel	MONOPERC	MONOPERC 24V	410	Wp		
48	Panel	MONOPERC	MONOPERC 24V	415	Wp		
49	Panel	MONOPERC	MONOPERC 24V	420	Wp		
50	Panel	MONOPERC	MONOPERC 24V	425	Wp		
51	Panel	MONOPERC	MONOPERC 24V	430	Wp		
52	Panel	MONOPERC	MONOPERC 24V	435	Wp		
53	Panel	MONOPERC	MONOPERC 24V	440	Wp		
54	Panel	MONOPERC	MONOPERC 24V	445	Wp		
55	Panel	MONOPERC	MONOPERC 24V	450	Wp		
56	Panel	MONOPERC	MONOPERC 24V	455	Wp		
57	Panel	MONOPERC	MONOPERC 24V	460	Wp		
58	Panel	MONOPERC	MONOPERC 24V	465	Wp		
59	Panel	MONOPERC	MONOPERC 24V	470	Wp		
60	Panel	MONOPERC	MONOPERC 24V	475	Wp		
61	Panel	MONOPERC	MONOPERC 24V	480	Wp		
62	Panel	MONOPERC	MONOPERC 24V	485	Wp		
63	Panel	MONOPERC	MONOPERC 24V	490	Wp		
64	Panel	MONOPERC	MONOPERC 24V	495	Wp		
65	Panel	MONOPERC	MONOPERC 24V	500	Wp		
66	Panel	MONOPERC	MONOPERC 24V	505	Wp		
67	Panel	MONOPERC	MONOPERC 24V	510	Wp		
68	Panel	MONOPERC	MONOPERC 24V	515	Wp		
69	Panel	MONOPERC	MONOPERC 24V	520	Wp		
70	Panel	MONOPERC	MONOPERC 24V	525	Wp		
71	Panel	MONOPERC	MONOPERC 24V	530	Wp		

72	Panel	MONOPERC	MONOPERC 24V	535	Wp		
73	Panel	MONOPERC	MONOPERC 24V	540	Wp		
74	Panel	MONOPERC	MONOPERC 24V	545	Wp		
75	Panel	MONOPERC	MONOPERC 24V	550	Wp		
76	Panel	MONOPERC	MONOPERC 24V	555	Wp		
77	Panel	MONOPERC	MONOPERC 24V	560	Wp		
78	Panel	MONOPERC	MONOPERC 24V	565	Wp		
79	Panel	MONOPERC	MONOPERC 24V	570	Wp		
80	Panel	MONOPERC	MONOPERC 24V	575	Wp		
81	Panel	MONOPERC	MONOPERC 24V	580	Wp		
82	Panel	MONOPERC	MONOPERC 24V	585	Wp		
83	Panel	MONOPERC	MONOPERC 24V	590	Wp		
84	Panel	MONOPERC	MONOPERC 24V	595	Wp		
85	Panel	MONOPERC	MONOPERC 24V	600	Wp		
86	Panel	MONOPERC	MONOPERC 24V	605	Wp		
87	Panel	MONOPERC	MONOPERC 24V	610	Wp		
88	Panel	MONOPERC	MONOPERC 24V	615	Wp		
89	Panel	MONOPERC	MONOPERC 24V	620	Wp		
90	Panel	MONOPERC	MONOPERC 24V	625	Wp		
91	Panel	MONOPERC	MONOPERC 24V	630	Wp		
92	Panel	MONOPERC	MONOPERC 24V	635	Wp		
93	Panel	MONOPERC	MONOPERC 24V	640	Wp		
94	Panel	MONOPERC	MONOPERC 24V	645	Wp		
95	Panel	MONOPERC	MONOPERC 24V	650	Wp		
96	Panel	MONOPERC	MONOPERC 24V	655	Wp		
97	Panel	MONOPERC	MONOPERC 24V	660	Wp		
98	Panel	MONOPERC	MONOPERC 24V	665	Wp		
99	Panel	MONOPERC	MONOPERC 24V	670	Wp		
100	Panel	MONOPERC	MONOPERC 24V	675	Wp		
101	Panel	MONOPERC	MONOPERC 24V	680	Wp		

102	Panel	MONOPERC	MONOPERC 24V	685	Wp		
103	Panel	MONOPERC	MONOPERC 24V	690	Wp		
104	Panel	MONOPERC	MONOPERC 24V	695	Wp		
105	Panel	MONOPERC	MONOPERC 24V	700	Wp		
106	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	340	Wp		
107	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	345	Wp		
108	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	350	Wp		
109	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	355	Wp		
110	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	360	Wp		
111	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	365	Wp		
112	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	370	Wp		
113	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	375	Wp		
114	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	380	Wp		
115	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	385	Wp		
116	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	390	Wp		
117	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	395	Wp		
118	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	400	Wp		
119	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	405	Wp		
120	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	410	Wp		
121	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	415	Wp		
122	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	420	Wp		
123	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	425	Wp		
124	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	430	Wp		
125	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	435	Wp		
126	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	440	Wp		
127	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	445	Wp		
128	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	450	Wp		
129	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	455	Wp		
130	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	460	Wp		
131	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	465	Wp		

132	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	470	Wp		
133	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	475	Wp		
134	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	480	Wp		
135	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	485	Wp		
136	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	490	Wp		
137	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	495	Wp		
138	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	500	Wp		
139	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	505	Wp		
140	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	510	Wp		
141	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	515	Wp		
142	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	520	Wp		
143	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	525	Wp		
144	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	530	Wp		
145	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	535	Wp		
146	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	540	Wp		
147	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	545	Wp		
148	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	550	Wp		
149	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	555	Wp		
150	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	560	Wp		
151	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	565	Wp		
152	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	570	Wp		
153	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	575	Wp		
154	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	580	Wp		
155	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	585	Wp		
156	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	590	Wp		
157	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	595	Wp		
158	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	600	Wp		
159	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	605	Wp		
160	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	610	Wp		
161	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	615	Wp		

162	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	620	Wp		
163	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	625	Wp		
164	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	630	Wp		
165	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	635	Wp		
166	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	640	Wp		
167	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	645	Wp		
168	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	650	Wp		
169	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	655	Wp		
170	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	660	Wp		
171	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	665	Wp		
172	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	670	Wp		
173	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	675	Wp		
174	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	680	Wp		
175	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	685	Wp		
176	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	690	Wp		
177	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	695	Wp		
178	Panel	Bifacial MONOPERC	Bifacial MONOPERC 24V	700	Wp		
179	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	315	Wp		
180	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	320	Wp		
181	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	325	Wp		
182	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	330	Wp		
183	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	335	Wp		
184	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	340	Wp		
185	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	345	Wp		
186	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	350	Wp		
187	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	360	Wp		
188	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	365	Wp		
189	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	370	Wp		
190	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	375	Wp		
191	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	380	Wp		

192	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	385	Wp		
193	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	390	Wp		
194	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	395	Wp		
195	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	400	Wp		
196	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	405	Wp		
197	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	410	Wp		
198	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	415	Wp		
199	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	420	Wp		
200	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	425	Wp		
201	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	430	Wp		
202	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	435	Wp		
203	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	440	Wp		
204	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	445	Wp		
205	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	450	Wp		
206	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	455	Wp		
207	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	460	Wp		
208	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	465	Wp		
209	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	470	Wp		
210	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	475	Wp		
211	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	480	Wp		
212	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	485	Wp		
213	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	490	Wp		
214	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	495	Wp		
215	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	500	Wp		
216	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	505	Wp		
217	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	510	Wp		
218	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	515	Wp		
219	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	520	Wp		
220	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	525	Wp		
221	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	530	Wp		

222	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	535	Wp		
223	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	540	Wp		
224	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	545	Wp		
225	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	550	Wp		
226	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	555	Wp		
227	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	560	Wp		
228	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	565	Wp		
229	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	570	Wp		
230	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	575	Wp		
231	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	580	Wp		
232	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	585	Wp		
233	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	590	Wp		
234	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	595	Wp		
235	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	600	Wp		
236	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	605	Wp		
237	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	610	Wp		
238	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	615	Wp		
239	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	620	Wp		
240	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	625	Wp		
241	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	630	Wp		
242	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	635	Wp		
243	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	640	Wp		
244	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	645	Wp		
245	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	650	Wp		
246	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	655	Wp		
247	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	656	Wp		
248	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	660	Wp		
249	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	665	Wp		
250	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	670	Wp		
251	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	675	Wp		

252	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	680	Wp		
253	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	685	Wp		
254	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	690	Wp		
255	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	695	Wp		
256	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	700	Wp		
257	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	705	Wp		
258	Panel	Bifacial N-Type TOPCon	Bifacial N-Type TOPCon24V	710	Wp		
259	Panel	N-Type TOPCon	N-Type TOPCon24V	315	Wp		
260	Panel	N-Type TOPCon	N-Type TOPCon24V	320	Wp		
261	Panel	N-Type TOPCon	N-Type TOPCon24V	325	Wp		
262	Panel	N-Type TOPCon	N-Type TOPCon24V	330	Wp		
263	Panel	N-Type TOPCon	N-Type TOPCon24V	335	Wp		
264	Panel	N-Type TOPCon	N-Type TOPCon24V	340	Wp		
265	Panel	N-Type TOPCon	N-Type TOPCon24V	345	Wp		
266	Panel	N-Type TOPCon	N-Type TOPCon24V	350	Wp		
267	Panel	N-Type TOPCon	N-Type TOPCon24V	360	Wp		
268	Panel	N-Type TOPCon	N-Type TOPCon24V	365	Wp		
269	Panel	N-Type TOPCon	N-Type TOPCon24V	370	Wp		
270	Panel	N-Type TOPCon	N-Type TOPCon24V	375	Wp		
271	Panel	N-Type TOPCon	N-Type TOPCon24V	380	Wp		
272	Panel	N-Type TOPCon	N-Type TOPCon24V	385	Wp		
273	Panel	N-Type TOPCon	N-Type TOPCon24V	390	Wp		
274	Panel	N-Type TOPCon	N-Type TOPCon24V	395	Wp		
275	Panel	N-Type TOPCon	N-Type TOPCon24V	400	Wp		
276	Panel	N-Type TOPCon	N-Type TOPCon24V	405	Wp		
277	Panel	N-Type TOPCon	N-Type TOPCon24V	410	Wp		
278	Panel	N-Type TOPCon	N-Type TOPCon24V	415	Wp		
279	Panel	N-Type TOPCon	N-Type TOPCon24V	420	Wp		
280	Panel	N-Type TOPCon	N-Type TOPCon24V	425	Wp		
281	Panel	N-Type TOPCon	N-Type TOPCon24V	430	Wp		

282	Panel	N-Type TOPCon	N-Type TOPCon24V	435	Wp		
283	Panel	N-Type TOPCon	N-Type TOPCon24V	440	Wp		
284	Panel	N-Type TOPCon	N-Type TOPCon24V	445	Wp		
285	Panel	N-Type TOPCon	N-Type TOPCon24V	450	Wp		
286	Panel	N-Type TOPCon	N-Type TOPCon24V	455	Wp		
287	Panel	N-Type TOPCon	N-Type TOPCon24V	460	Wp		
288	Panel	N-Type TOPCon	N-Type TOPCon24V	465	Wp		
289	Panel	N-Type TOPCon	N-Type TOPCon24V	470	Wp		
290	Panel	N-Type TOPCon	N-Type TOPCon24V	475	Wp		
291	Panel	N-Type TOPCon	N-Type TOPCon24V	480	Wp		
292	Panel	N-Type TOPCon	N-Type TOPCon24V	485	Wp		
293	Panel	N-Type TOPCon	N-Type TOPCon24V	490	Wp		
294	Panel	N-Type TOPCon	N-Type TOPCon24V	495	Wp		
295	Panel	N-Type TOPCon	N-Type TOPCon24V	500	Wp		
296	Panel	N-Type TOPCon	N-Type TOPCon24V	505	Wp		
297	Panel	N-Type TOPCon	N-Type TOPCon24V	510	Wp		
298	Panel	N-Type TOPCon	N-Type TOPCon24V	515	Wp		
299	Panel	N-Type TOPCon	N-Type TOPCon24V	520	Wp		
300	Panel	N-Type TOPCon	N-Type TOPCon24V	525	Wp		
301	Panel	N-Type TOPCon	N-Type TOPCon24V	530	Wp		
302	Panel	N-Type TOPCon	N-Type TOPCon24V	535	Wp		
303	Panel	N-Type TOPCon	N-Type TOPCon24V	540	Wp		
304	Panel	N-Type TOPCon	N-Type TOPCon24V	545	Wp		
305	Panel	N-Type TOPCon	N-Type TOPCon24V	550	Wp		
306	Panel	N-Type TOPCon	N-Type TOPCon24V	555	Wp		
307	Panel	N-Type TOPCon	N-Type TOPCon24V	560	Wp		
308	Panel	N-Type TOPCon	N-Type TOPCon24V	565	Wp		
309	Panel	N-Type TOPCon	N-Type TOPCon24V	570	Wp		
310	Panel	N-Type TOPCon	N-Type TOPCon24V	575	Wp		
311	Panel	N-Type TOPCon	N-Type TOPCon24V	580	Wp		

312	Panel	N-Type TOPCon	N-Type TOPCon24V	585	Wp		
313	Panel	N-Type TOPCon	N-Type TOPCon24V	590	Wp		
314	Panel	N-Type TOPCon	N-Type TOPCon24V	595	Wp		
315	Panel	N-Type TOPCon	N-Type TOPCon24V	600	Wp		
316	Panel	N-Type TOPCon	N-Type TOPCon24V	605	Wp		
317	Panel	N-Type TOPCon	N-Type TOPCon24V	610	Wp		
318	Battery	Lead Acid C10	Flooded Flat plate Lead Acid, C10 Series12V	20	Ah		
319	Battery	Lead Acid C10	Flooded Flat plate Lead Acid, C10 Series12V	40	Ah		
320	Battery	Lead Acid C10	Flooded Flat plate Lead Acid, C10 Series12V	50	Ah		
321	Battery	Lead Acid C10	Flooded Flat plate Lead Acid, C10 Series12V	60	Ah		
322	Battery	Lead Acid C10	Flooded Flat plate Lead Acid, C10 Series12V	80	Ah		
323	Battery	Lead Acid C10	Flooded Flat plate Lead Acid, C10 Series12V	100	Ah		
324	Battery	Lead Acid C10	Flooded Flat plate Lead Acid, C10 Series12V	120	Ah		
325	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series12V	135	Ah		
326	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series12V	150	Ah		
327	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series12V	165	Ah		
328	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series12V	180	Ah		
329	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series12V	200	Ah		
330	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series12V	220	Ah		
331	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	100	Ah		

332	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	200	Ah		
333	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	300	Ah		
334	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	400	Ah		
335	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	500	Ah		
336	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	550	Ah		
337	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	600	Ah		
338	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	650	Ah		
339	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	700	Ah		
340	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	750	Ah		
341	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	800	Ah		
342	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	850	Ah		
343	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	900	Ah		
344	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	950	Ah		
345	Battery	Tubular GEL , C10	Tubular GEL , C10 2V	1000	Ah		
346	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	20	Ah		
347	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	30	Ah		
348	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	40	Ah		
349	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	50	Ah		
350	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	65	Ah		
351	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	75	Ah		
352	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	80	Ah		
353	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	100	Ah		
354	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	120	Ah		
355	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	135	Ah		
356	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	150	Ah		
357	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	200	Ah		
358	Battery	Tubular GEL , C10	Tubular GEL , C10 12V	220	Ah		
359	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	20	Ah		
360	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	30	Ah		
361	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	40	Ah		

362	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	50	Ah		
363	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	65	Ah		
364	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	75	Ah		
365	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	80	Ah		
366	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	100	Ah		
367	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	120	Ah		
368	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	135	Ah		
369	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	150	Ah		
370	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	200	Ah		
371	Battery	AGM VRLA C10	AGM VRLA , C10 series 12V	220	Ah		
372	Battery	AGM VRLA	AGM VRLA , C10 series 2V	200	Ah		
373	Battery	AGM VRLA	AGM VRLA , C10 series 2V	300	Ah		
374	Battery	AGM VRLA	AGM VRLA , C10 series 2V	400	Ah		
375	Battery	AGM VRLA	AGM VRLA , C10 series 2V	500	Ah		
376	Battery	AGM VRLA	AGM VRLA , C10 series 2V	550	Ah		
377	Battery	AGM VRLA C10	AGM VRLA , C10 series 2V	600	Ah		
378	Battery	AGM VRLA	AGM VRLA , C10 series 2V	650	Ah		
379	Battery	AGM VRLA	AGM VRLA , C10 series 2V	700	Ah		
380	Battery	AGM VRLA	AGM VRLA , C10 series 2V	750	Ah		
381	Battery	AGM VRLA	AGM VRLA , C10 series 2V	800	Ah		
382	Battery	AGM VRLA C10	AGM VRLA , C10 series 2V	850	Ah		
383	Battery	AGM VRLA C10	AGM VRLA , C10 series 2V	900	Ah		
384	Battery	AGM VRLA C10	AGM VRLA , C10 series 2V	950	Ah		
385	Battery	AGM VRLA C10	AGM VRLA , C10 series 2V	1000	Ah		
386	Battery	Li-FePO4	Li-FePO4 12.8V	20	Ah		
387	Battery	Li-FePO4	Li-FePO4 12.8V	30	Ah		
388	Battery	Li-FePO4	Li-FePO4 12.8V	40	Ah		
389	Battery	Li-FePO4	Li-FePO4 12.8V	50	Ah		
390	Battery	Li-FePO4	Li-FePO4 12.8V	60	Ah		
391	Battery	Li-FePO4	Li-FePO4 12.8V	80	Ah		

392	Battery	Li-FePO4	Li-FePO4 12.8V	100	Ah		
393	Battery	Li-FePO4	Li-FePO4 12.8V	120	Ah		
394	Battery	Li-FePO4	Li-FePO4 12.8V	150	Ah		
395	Battery	Li-FePO4	Li-FePO4 12.8V	200	Ah		
396	Battery	Li-FePO4	Li-FePO4 25.6V	20	Ah		
397	Battery	Li-FePO4	Li-FePO4 25.6V	30	Ah		
398	Battery	Li-FePO4	Li-FePO4 25.6V	40	Ah		
399	Battery	Li-FePO4	Li-FePO4 25.6V	50	Ah		
400	Battery	Li-FePO4	Li-FePO4 25.6V	60	Ah		
401	Battery	Li-FePO4	Li-FePO4 25.6V	80	Ah		
402	Battery	Li-FePO4	Li-FePO4 25.6V	100	Ah		
403	Battery	Li-FePO4	Li-FePO4 25.6V	120	Ah		
404	Battery	Li-FePO4	Li-FePO4 25.6V	150	Ah		
405	Battery	Li-FePO4	Li-FePO4 25.6V	200	Ah		
406	Battery	Li-FePO4	Li-FePO4 51.2V	100	Ah		
407	Battery	Li-FePO4	Li-FePO4 51.2V	150	Ah		
408	Battery	Li-FePO4	Li-FePO4 51.2V	200	Ah		
409	Battery	Li-FePO4	Li-FePO4 51.2V	300	Ah		
410	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	150	Ah		
411	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	200	Ah		
412	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	300	Ah		
413	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	400	Ah		
414	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	500	Ah		
415	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	600	Ah		
416	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	800	Ah		

417	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	900	Ah		
418	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	1100	Ah		
419	Battery	Lead Acid C10	Flooded Tall Tubular Lead Acid C10 Series2V	1200	Ah		
420	Inverter	Single Phase Solar Inverter	Single Phase SI 2KVA24V2500WMPPT24V	2	kVA		
421	Inverter	Single Phase Solar Inverter	Single Phase SI 3KVA36V3500WMPPT36V	3	kVA		
422	Inverter	Single Phase Solar Inverter	Single Phase SI 3.5KVA48V3500WMPPT48V	3.5	kVA		
423	Inverter	Single Phase Solar Inverter	Single Phase SI 5KVA48V5000WMPPT48V	5	kVA		
424	Inverter	Single Phase Solar Inverter	Single Phase SI 6KVA96V6000WMPPT96V	6	kVA		
425	Inverter	Single Phase Solar Inverter	Single Phase SI 7.5KVA96V7500WMPPT96V	7.5	kVA		
426	Inverter	Single Phase Solar Inverter	Single Phase SI 10KVA120V10000WMPPT120V	10	kVA		
427	Inverter	Single Phase Solar Inverter	Single Phase SI 2KVA24V2000WPWM24V	2	kVA		
428	Inverter	Single Phase Solar Inverter	Single Phase SI 3KVA48V3000WPWM48V	3	kVA		
429	Inverter	Single Phase Solar Inverter	Single Phase SI 0.5KVA12V500WPWM12V	0.5	kVA		
430	Inverter	Single Phase Solar Inverter	Single Phase SI 0.85KVA12V850WPWM12V	0.85	kVA		
431	Inverter	Single Phase Solar Inverter	Single Phase SI 1.1KVA12V850WPWM12V	1.1	kVA		
432	Inverter	Single Phase Solar Inverter	Single Phase SI 1.4KVA24V1500WPWM24V	1.4	kVA		
433	Inverter	Single Phase Solar Inverter	Single Phase SI 2KVA24V200WPWM24V	2	kVA		

434	Inverter	Single Phase Solar Inverter	Single Phase SI 1KVA12V1000WMPPT12V	1	kVA		
435	Inverter	Single Phase Solar Inverter	Single Phase SI 1KVA24V1000WMPPT24V	1	kVA		
436	Inverter	Single Phase Solar Inverter	Single Phase SI 15KVA240V16500WMPPT240V	15	kVA		
437	Inverter	Single Phase Solar Inverter	Single Phase SI 3.75KVA48V3000WMPPT48V	3.75	kVA		
438	Inverter	Single Phase Solar Inverter	Single Phase SI 5KVA48V4000WMPPT48V	5	kVA		
439	Inverter	Single Phase Solar Inverter	Single Phase SI 1KVA48V1000WMPPT48V	1	kVA		
440	Inverter	Single Phase Solar Inverter	Single Phase SI 2KVA48V2000WMPPT48V	2	kVA		
441	Inverter	Single Phase Solar Inverter	Single Phase SI 3KVA48V3000WMPPT48V	3	kVA		
442	Inverter	Single Phase Solar Inverter	Single Phase SI 4KVA48V4000WMPPT48V	4	kVA		
443	Inverter	Single Phase Solar Inverter	Single Phase SI 5KVA48V5000WMPPT48V	5	kVA		
444	Inverter	Single Phase Solar Inverter	Single Phase SI 6KVA48V6000WMPPT48V	6	kVA		
445	Inverter	Single Phase Solar Inverter	Single Phase SI 8KVA48V8000WMPPT48V	8	kVA		
446	Inverter	Single Phase Solar Inverter	Single Phase SI 10KVA48V10000WMPPT48V	10	kVA		
447	Inverter	Single Phase Solar Inverter	Single Phase SI 5KVA96V5000WMPPT96V	5	kVA		
448	Inverter	Single Phase Solar Inverter	Single Phase SI 6KVA96V6000WMPPT96V	6	kVA		
449	Inverter	Single Phase Solar Inverter	Single Phase SI 7.5KVA96V7500WMPPT96V	7.5	kVA		
450	Inverter	Single Phase Solar Inverter	Single Phase SI 8KVA120V8000WMPPT120V	8	kVA		

451	Inverter	Single Phase Solar Inverter	Single Phase SI 10KVA240V10000WMPPT240V	10	kVA		
452	Inverter	Single Phase Solar Inverter	Single Phase SI 12.5KVA120V12000WMPPT120V	12.5	kVA		
453	Inverter	Single Phase Solar Inverter	Single Phase SI 20KVA120V15000WMPPT120V	20	kVA		
454	Inverter	Single Phase Solar Inverter	Single Phase SI 20KVA240V20000WMPPT240V	20	kVA		
455	Inverter	Single Phase Solar Inverter	Single Phase SI 25KVA240V25000WMPPT240V	25	kVA		
456	Inverter	Single Phase Solar Inverter	Single Phase SI 30KVA240V30000WMPPT240V	30	kVA		
457	Inverter	Single Phase Solar Inverter	Single Phase SI 40KVA240V40000WMPPT240V	40	kVA		
458	Inverter	Single Phase Solar Inverter	Single Phase SI 50KVA240V50000WMPPT240V	50	kVA		
459	Inverter	Single Phase Solar Inverter	Single Phase SI 40KVA360V40000WMPPT360V	40	kVA		
460	Inverter	Single Phase Solar Inverter	Single Phase SI 50KVA360V50000WMPPT360V	50	kVA		
461	Inverter	Three Phase Solar Inverter	Three Phase SI 5KVA48V5000WMPPT48V	5	kVA		
462	Inverter	Three Phase Solar Inverter	Three Phase SI 8KVA48V8000WMPPT48V	8	kVA		
463	Inverter	Three Phase Solar Inverter	Three Phase SI 10KVA48V10000WMPPT48V	10	kVA		
464	Inverter	Three Phase Solar Inverter	Three Phase SI 15KVA48V15000WMPPT48V	15	kVA		
465	Inverter	Three Phase Solar Inverter	Three Phase SI 10.5KVA120V10500WMPPT120V	10.5	kVA		
466	Inverter	Three Phase Solar Inverter	Three Phase SI 15KVA180V15000WMPPT180V	15	kVA		
467	Inverter	Three Phase Solar Inverter	Three Phase SI 20KVA240V20000WMPPT240V	20	kVA		

468	Inverter	Three Phase Solar Inverter	Three Phase SI 25KVA240V25000WMPPT240V	25	kVA		
469	Inverter	Three Phase Solar Inverter	Three Phase SI 30KVA360V30000WMPPT360V	30	kVA		
470	Inverter	Three Phase Solar Inverter	Three Phase SI 40KVA360V40000WMPPT360V	40	kVA		
471	Inverter	Three Phase Solar Inverter	Three Phase SI 50KVA360V50000WMPPT360V	50	kVA		
472	Inverter	Three Phase Solar Inverter	Three Phase SI 60KVA360V36000WMPPT360V	60	kVA		
473	Inverter	Three Phase Solar Inverter	Three Phase SI 80KVA360V80000WMPPT360V	80	kVA		
474	Inverter	Three Phase Solar Inverter	Three Phase SI 105KVA480V105000WMPPT480V	105	kVA		
475	Inverter	Three Phase Solar Inverter	Three Phase SI 120KVA480V120000WMPPT480V	120	kVA		
476	Inverter	Three Phase Solar Inverter	Three Phase SI 150KVA480V150000WMPPT480V	150	kVA		
477	Inverter	Three Phase Solar Inverter	Three Phase SI 200KVA480V200000WMPPT480V	200	kVA		
478	Inverter	Three Phase Solar Inverter	Three Phase SI 250KVA672V250000WMPPT672V	250	kVA		
479	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM12V	6	A		
480	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM12V	10	A		
481	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM12V	20	A		
482	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM12V	30	A		
483	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM12V	40	A		
484	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM24V	10	A		

485	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM24V	20	A		
486	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM24V	30	A		
487	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM24V	40	A		
488	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM48V	30	A		
489	Charge Controller	Solar Charge Controller-PWM	Charge Controller -PWM48V	40	A		
490	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT12V	10	A		
491	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT12V	20	A		
492	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT12V	30	A		
493	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT12V	40	A		
494	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT24V	10	A		
495	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT24V	20	A		
496	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT24V	30	A		
497	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT24V	40	A		
498	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT48V	30	A		
499	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT48V	40	A		
500	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT48V	60	A		
501	Charge Controller	Solar Charge Controller-MPPT	Charge Controller -MPPT48V	80	A		

502	Switches	Switch - AC	Modular Switch - AC	6	A		
503	Switches	Switch - AC	Modular Switch - AC	10	A		
504	Switches	Switch - AC	Modular Switch - AC	16	A		
505	Switches	Swich -AC Two Way	Modular Switch - AC Two Way	6	A		
506	Switches	Swich -AC Two Way	Modular Switch - AC Two Way	10	A		
507	Switches	Swich -AC Two Way	Modular Switch - AC Two Way	16	A		
508	Switches	Switch with Indicator	Modular Switch with Indicator-AC	6	A		
509	Switches	Switch with Indicator	Modular Switch with Indicator-AC	10	A		
510	Switches	Switch with Indicator	Modular Switch with Indicator-AC	16	A		
511	Fan Regulator	-	Electronic, 2-Modular, 5-Level speed control, 80 - 100 W	10	A		
512	Change Over Switch	Single Phase Changeover Switch- Manual	Requires manual operation to switch power sources	20	A		
513	Change Over Switch	Single Phase Changeover Switch- Manual	Requires manual operation to switch power sources	32	A		
514	Change Over Switch	Single Phase Changeover Switch- Manual	Requires manual operation to switch power sources	50	A		
515	Change Over Switch	Single Phase Changeover Switch- Manual	Requires manual operation to switch power sources	63	A		
516	Change Over Switch	Three Phase Changeover Switch- Manual	Requires manual operation to switch power sources	20	A		
517	Change Over Switch	Three Phase Changeover Switch- Manual	Requires manual operation to switch power sources	32	A		
518	Change Over Switch	Three Phase Changeover Switch- Manual	Requires manual operation to switch power sources	50	A		
519	Change Over Switch	Three Phase Changeover Switch- Manual	Requires manual operation to switch power sources	63	A		
520	Change Over Switch	Three Phase Changeover Switch- Manual	Requires manual operation to switch power sources	80	A		
521	Change Over Switch	Three Phase Changeover Switch- Manual	Requires manual operation to switch power sources	100	A		

522	Socket	Socket -AC	Modular Socket - AC	6	A		
523	Socket	Socket -AC	Modular Socket - AC	10	A		
524	Socket	Socket -AC	Modular Socket - AC	16	A		
525	Socket	Single Phase -Industrial Socket & Plug	Socket and Plug	32	A		
526	Socket	Three Phase -Industrial Socket & Plug	Socket and Plug	32	A		
527	Socket	Socket - USB port	Modular Socket - USB port	USB			
528	Socket - Combo	Socket - Combo	Switch, socket, 3 pin plug, 3 Modular box with plate , Indicator	10	A		
529	Socket - Combo	Socket - Combo	Switch, socket, 3 pin plug, 3 Modular box with plate , Indicator	16	A		
530	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, c curve	10	A		
531	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, c curve	20	A		
532	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, c curve	25	A		
533	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, c curve	32	A		
534	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, c curve	63	A		
535	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, c curve	80	A		
536	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, c curve	10	A		
537	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, c curve	20	A		
538	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, c curve	25	A		
539	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, c curve	32	A		
540	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, c curve	50	A		

541	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, c curve	63	A		
542	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, c curve	80	A		
543	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, B curve	10	A		
544	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, B curve	20	A		
545	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, B curve	25	A		
546	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, B curve	32	A		
547	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, B curve	63	A		
548	MCB	Single Pole MCB - AC	Single phase MCB - AC Single Pole, B curve	80	A		
549	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, B curve	10	A		
550	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, B curve	20	A		
551	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, B curve	25	A		
552	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, B curve	32	A		
553	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, B curve	50	A		
554	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, B curve	63	A		
555	MCB	Double Pole MCB -AC	Single phase MCB - AC Double Pole, B curve	80	A		
556	MCB	Four pole MCB - AC	Three phase MCB - AC Four Pole, c curve	32	A		
557	MCB	Four pole MCB - AC	Three phase MCB - AC Four Pole, c curve	63	A		

558	MCB	Four pole MCB - AC	Three phase MCB - AC Four Pole, c curve	80	A		
559	MCB	Double Pole MCB - DC	MCB - DC DoublePole	10	A		
560	MCB	Double Pole MCB - DC	MCB - DC DoublePole	20	A		
561	MCB	Double Pole MCB - DC	MCB - DC DoublePole	32	A		
562	MCB	Double Pole MCB - DC	MCB - DC DoublePole	40	A		
563	MCB	Double Pole MCB - DC	MCB - DC DoublePole	50	A		
564	MCB	Double Pole MCB - DC	MCB - DC DoublePole	63	A		
565	MCB	Double Pole MCB - DC	MCB - DC DoublePole	80	A		
566	MCB	Single Pole MCB - DC	MCB - DC Single Pole	10	A		
567	MCB	Single Pole MCB - DC	MCB - DC Single Pole	16	A		
568	MCB	Single Pole MCB - DC	MCB - DC Single Pole	20	A		
569	MCB	Single Pole MCB - DC	MCB - DC Single Pole	25	A		
570	MCB	Single Pole MCB - DC	MCB - DC Single Pole	32	A		
571	MCB	Single Pole MCB - DC	MCB - DC Single Pole	40	A		
572	MCB	Single Pole MCB - DC	MCB - DC Single Pole	50	A		
573	MCB	Single Pole MCB - DC	MCB - DC Single Pole	63	A		
574	MCB	Single Pole MCB - DC	MCB - DC Single Pole	80	A		
575	MCB	Single Pole MCB - DC	MCB - DC Single Pole	100	A		
576	AC Distribution Box	Modular	Double door, Wall mounting type, DIN rail, Neutral busbar, Earth busbar	4	way		
577	AC Distribution Box	Modular	Double door, Wall mounting type, DIN rail, Neutral busbar, Earth busbar	6	way		
578	AC Distribution Box	Modular	Double door, Wall mounting type, DIN rail, Neutral busbar, Earth busbar	8	way		
579	AC Distribution Box	Modular	Double door, Wall mounting type, DIN rail, Neutral busbar, Earth busbar	10	way		

580	AC Distribution Box	Modular	Double door, Wall mounting type, DIN rail, Neutral busbar, Earth busbar	12	way		
581	AC Distribution Box	Modular	Double door, Wall mounting type, DIN rail, Neutral busbar, Earth busbar	14	way		
582	AC Distribution Box	Modular	Double door, Wall mounting type, DIN rail, Neutral busbar, Earth busbar	24	way		
583	Ceiling Rose	-	6 A, 230 V, FR polycarbonate outer housing with ducts, Inner metal ring with high conductive brass terminals (White colour)	-			
584	Angle Holder	-	6 A, 230 V, FR polycarbonate outer housing with ducts, Inner metal ring with high conductive brass terminals (White colour).	-			
585	Swicth Box	Modular - Surface Mounting	Surface mounting type, ABS material with brass studs, Provision for conduits. (White Color)	1	Modular		
586	Swicth Box	Modular - Surface Mounting	Surface mounting type, ABS material with brass studs, Provision for conduits. (White Color)	2	Modular		
587	Swicth Box	Modular - Surface Mounting	Surface mounting type, ABS material with brass studs, Provision for conduits. (White Color)	4	Modular		
588	Swicth Box	Modular - Surface Mounting	Surface mounting type, ABS material with brass studs, Provision for conduits. (White Color)	6	Modular		

589	Swicth Box	Modular - Surface Mounting	Surface mounting type, ABS material with brass studs, Provision for conduits. (White Color)	8	Modular		
590	Swicth Box	Modular - Surface Mounting	Surface mounting type, ABS material with brass studs, Provision for conduits. (White Color)	10	Modular		
591	Swicth Box	Modular - Surface Mounting	Surface mounting type, ABS material with brass studs, Provision for conduits. (White Color)	12	Modular		
592	Swicth Box	Modular - Surface Mounting	Surface mounting type, ABS material with brass studs, Provision for conduits. (White Color)	16	Modular		
593	Junction Box	CIRCULAR SURFACE BOXES WITH LID	UPVC material, 20 mm diameter, White colour, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable	1	way		
594	Junction Box	CIRCULAR SURFACE BOXES WITH LID - Angle	UPVC material, 20 mm diameter, White colour, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable	2	way		
595	Junction Box	CIRCULAR SURFACE BOXES WITH LID - Through	UPVC material, 20 mm diameter, White colour, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable	2	way		
596	Junction Box	CIRCULAR SURFACE BOXES WITH LID	UPVC material, 20 mm diameter, White colour, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable	3	way		
597	Junction Box	CIRCULAR SURFACE BOXES WITH LID	UPVC material, 20 mm diameter, White colour, Flame retardant,	4	way		

			Low halogen, Low smoke, Smoke suppressing, Temperature stable				
598	Conduit pipe	uPVC	UPVC pipe (White color), 20 mm diameter, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable.	20	mm		
598-1	Conduit pipe	PVC	PVC pipe (White color), 20 mm diameter, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable.	20	mm		
599	Coupler	uPVC- Extruded	UPVC pipe (White color), 20 mm diameter, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable.	20	mm		
600	Elbow	UPVC Elbow - Short	UPVC pipe (White color), 20 mm diameter, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable.	20	mm		
601	Elbow	UPVC Elbow - Long- SLIP TYPE BEND	UPVC pipe (White color), 20 mm diameter, Flame retardant, Low halogen, Low smoke, Smoke suppressing, Temperature stable.	20	mm		
602	Square Box	-	6 A, 230 V, FR polycarbonate outer housing with ducts, Inner metal ring with high conductive brass terminals (White colour).	-			
603	Wall Plug	Plastic Wall Plug	UPVC material, Size - 35 x 8 mm, Crack-proof, White colour, Eco-friendly.	-			
604	Wall Plug	Plastic Wall Plug	UPVC material, Size - 25 x 7 mm, Crack-proof, White colour, Eco-friendly.	-			

605	Screw	-	Stainless steel/Galvanized Iron - rust-free material, Size - 35 x 8 mm, Flat head with deep slot.	-			
606	Screw	-	Stainless steel/Galvanized Iron - rust-free material, Size - 25 x 7 mm, Flat head with deep slot.	-			
607	Electrical Insulation Tape	-	Size - 18 x 0.125 mm, High insulating resistance, Moisture & Corrosion resistant, Flame-retardant, Long-lasting adhesion.	-			
608	Pipe Saddle Clamps	-	UPVC material, Size: 20 mm diameter, Light duty pipe clamp, Single nail.	20	mm		
609	Cable Tie	-	Polypropylene Material, Size – 150 mm, White Colour.	150	mm		
610	Cable Tie		Polypropylene Material, Size – 100 mm, White Colour.	100	mm		
611	Cable Lugs	-	2.5 Sq.mm, Pin-type, Tin-coated copper.	2.5	sqmm		
612	Cable Lugs	-	4 Sq.mm, Pin-type, Tin-coated copper.	4	sqmm		
613	Cable Lugs	-	6 Sq.mm, Pin-type, Tin-coated copper.	6	sqmm		
614	Felxible Pipe	-	Polypropylene material, 20 mm diameter, White colour, Flame retardant, Anti-distortion.	20	mm		
615	Labelling Tags	-	Size - 3 x 1 Inch, Synthetic paper, Self-adhesive, Fluorescent Green colour, Waterproof, Temperature resistant.	-			
616	Labelling Tags	-	Size - 40 x 10 mm Synthetic paper, Self-adhesive, White colour, Waterproof, Temperature resistant.	-			

617	LED Bulb	LED Bulb -AC		5	W		
618	LED Bulb	LED Bulb -AC		9	W		
619	LED Bulb	LED Bulb -AC		10	W		
620	LED Bulb	LED Bulb -AC		12	W		
621	LED Bulb	LED Bulb -DC	12V	5	W		
622	LED Bulb	LED Bulb -DC	12V	10	W		
623	LED Bulb	LED Bulb -DC	24V	5	W		
624	LED Bulb	LED Bulb -DC	24V	10	W		
625	LED Tubelight	LED Tubelight -DC	12V	10	W		
626	LED Tubelight	LED Tubelight -DC	12V	20	W		
627	LED Tubelight	LED Tubelight -DC	24V	10	W		
628	LED Tubelight	LED Tubelight -DC	24V	20	W		
629	LED Tubelight	LED Tubelight -AC		10	W		
630	LED Tubelight	LED Tubelight -AC		20	W		
631	Outdoor Light (Dusk to Dawn Operation)	LED - AC	Outdoor Light (Dusk to Dawn Operation)	20	W		
632	Outdoor Light Arm	-	GI Material	-	-		
633	FAN	WALL MOUNTED - DC	12V	28	W		
634	FAN	WALL MOUNTED - DC	24V	28	W		
635	FAN	WALL MOUNTED - AC		28	W		
636	FAN	WALL MOUNTED - AC		50	W		
637	FAN	CEILING - AC		32	W		
638	FAN	CEILING - DC	12V	32	W		
638	RCCB	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	25	A		
639	RCCB	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	40	A		
640	RCCB	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	63	A		
641	RCCB	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	80	A		
642	RCCB	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	25	A		

643	RCCB	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	40	A		
644	RCCB	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	63	A		
645	RCCB	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	80	A		
646	RCBO	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	16	A		
647	RCBO	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	25	A		
648	RCBO	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	32	A		
649	RCBO	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	40	A		
650	RCBO	THREE PHASE - FOUR POLE	Four Pole , 30mA, AC, 10 kA	63	A		
651	RCBO	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	6	A		
652	RCBO	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	10	A		
653	RCBO	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	16	A		
654	RCBO	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	25	A		
655	RCBO	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	32	A		
656	RCBO	SINGLE PHASE - DOUBLE POLE	Double Pole , 30mA, AC, 10 kA	40	A		
657	Bus Bar	Copper Bus Bar	High conductivity, corrosion-resistantupto 33KVV	400-6300	A		
658	Bus Bar	Aluminum Bus Bar	Lightweight, cost-effective, used in power gridsUp to 11kVV	200-5000	A		
659	Bus Bar	Insulated Bus Bar	Encased in insulation for additional safetyUp to 1kVV	100-2500	A		
660	Bus Bar	Flexible Bus Bar	Layered copper strips for flexibility in connectionsUp to 3kVV	300-4000	A		

661	Solar Array Junction Box	1-in / 1-out	MCB Rating : 500 Vdc, 20 A (Double Pole) SPD Rating : 150 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 1 no's	-			
662	Solar Array Junction Box	1-in / 1-out	MCB Rating : 500 Vdc, 20 A (Double Pole) SPD Rating : 250 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 1 no's	-			
663	Solar Array Junction Box	1-in / 1-out	MCB Rating : 800 Vdc, 20 A (Double Pole) SPD Rating : 600 Vdc, Type 2, 40 kA (Double pole with indicators)	-			
664	Solar Array Junction Box	1-in / 1-out	MCB Rating : 500 Vdc, 25 A (Double Pole) SPD Rating : 125 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 1 no's	-			
665	Solar Array Junction Box	2-in / 1-out	MCB Rating : 500 Vdc, 40 A (Double Pole) SPD Rating : 350 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 2 no's	-			
666	Solar Array Junction Box	3-in / 1-out	MCB Rating : 500 Vdc, 50A (Double Pole) SPD Rating : 460 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 3no's	-			

667	Solar Array Junction Box	3-in / 1-out	MCB Rating : 500 Vdc, 50 A (Double Pole) SPD Rating : 600 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 3no's	-			
668	Solar Array Junction Box	3-in / 1-out	MCB Rating : 600 Vdc, 50A (Double Pole) SPD Rating : 600 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 3no's	-			
669	Solar Array Junction Box	3-in / 1-out	MCB Rating : 500 Vdc, 50A (Double Pole) SPD Rating : 150 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 3no's	-			
670	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63A (Double Pole) SPD Rating : 200 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's	-			
671	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63 A (Double Pole) SPD Rating : 250 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's	-			
672	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63 A (Double Pole) SPD Rating : 350 Vdc, Type 2, 40 kA (Double pole with indicators)	-			

			String inline fuse with bracket (DIN RAIL) : 20A - 4no's				
673	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63 A (Double Pole) SPD Rating : 600 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's	-			
674	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63 A (Double Pole) SPD Rating : 65 Vdc, Type 2, 40 kA (Double pole with indicators)	-			
675	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63A (Double Pole) SPD Rating : 180 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's	-			
676	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63 A (Double Pole) SPD Rating : 250 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's	-			
677	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63 A (Double Pole) SPD Rating : 275 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's	-			
678	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63A (Double Pole) SPD Rating : 300 Vdc, Type 2, 40	-			

			kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's				
679	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63 A (Double Pole) SPD Rating : 350 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's	-			
680	Solar Array Junction Box	4-in / 1-out	MCB Rating : 500 Vdc, 63 A (Double Pole) SPD Rating : 250 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 4no's	-			
681	Solar Array Junction Box	5-in / 1-out	MCB Rating : 500 Vdc, 80 A (Double Pole) SPD Rating : 300 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 5no's	-			
682	Solar Array Junction Box	5-in / 1-out	MCB Rating : 500 Vdc, 80 A (Double Pole) SPD Rating : 275 Vdc, Type 2, 40 kA (Double pole with indicators) String inline fuse with bracket (DIN RAIL) : 20A - 5no's	-			
683	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 1 kVA - 1ϕ	MCB Rating : 230 Vac, 16 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	1	kVA		

684	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 2 kVA - 1ϕ	MCB Rating : 230 Vac, 16 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	2	kVA		
685	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 3 kVA - 1ϕ	MCB Rating : 230 Vac, 16 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	3	kVA		
686	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 3 kVA - 1ϕ	MCB Rating : 230 Vac, 20 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	3	kVA		
687	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 4 kVA - 1ϕ	MCB Rating : 230 Vac, 32 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	4	kVA		
688	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 5 kVA - 1ϕ	MCB Rating : 230 Vac, 25 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	5	kVA		
689	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 5 kVA - 1ϕ	MCB Rating : 230 Vac, 32 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	5	kVA		
690	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 6 kVA - 1ϕ	MCB Rating : 230 Vac, 32 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	6	kVA		

691	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 6 kVA - 1ϕ	MCB Rating : 230 Vac, 40 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	6	kVA		
692	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 7.5 kVA - 1ϕ	MCB Rating : 230 Vac, 50 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	7.5	kVA		
693	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 10 kVA - 1ϕ	MCB Rating : 230 Vac, 50 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	10	kVA		
694	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 10 kVA - 1ϕ	MCB Rating : 230 Vac, 63 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	10	kVA		
695	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 15 kVA - 1ϕ	MCB Rating : 230 Vac, 100 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	15	kVA		
696	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 20 kVA - 1ϕ	MCB Rating : 230 Vac, 125 A (Double Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Double pole with indicators)	20	kVA		
697	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 10 kVA - 3ϕ	MCB Rating : 415 Vac, 32 A (Four Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Four pole with indicators)	10	kVA		

698	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 15 kVA - 3ϕ	MCB Rating : 415 Vac, 50 A (Four Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Four pole with indicators)	15	kVA		
699	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 20 kVA - 3ϕ	MCB Rating : 415 Vac, 63 A (Four Pole) SPD Rating : 275 Vac, Type 2, 40 kA (Four pole with indicators)	20	kVA		
700	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 1 kVA - 1ϕ	MCB Rating : 230 Vac, 16 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	1	kVA		
701	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 2 kVA - 1ϕ	MCB Rating : 230 Vac, 16 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	2	kVA		
702	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 3 kVA - 1ϕ	MCB Rating : 230 Vac, 16 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	3	kVA		
703	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 3 kVA - 1ϕ	MCB Rating : 230 Vac, 20 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	3	kVA		
704	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 4 kVA - 1ϕ	MCB Rating : 230 Vac, 32 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	4	kVA		

705	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 5 kVA - 1ϕ	MCB Rating : 230 Vac, 25 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	5	kVA		
706	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 5 kVA - 1ϕ	MCB Rating : 230 Vac, 32 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	5	kVA		
707	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 6 kVA - 1ϕ	MCB Rating : 230 Vac, 32 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	6	kVA		
708	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 6 kVA - 1ϕ	MCB Rating : 230 Vac, 40 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	6	kVA		
709	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 7.5 kVA - 1ϕ	MCB Rating : 230 Vac, 50 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	7.5	kVA		
710	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 10 kVA - 1ϕ	MCB Rating : 230 Vac, 50 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	10	kVA		
711	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 10 kVA - 1ϕ	MCB Rating : 230 Vac, 63 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	10	kVA		

712	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 15 kVA - 1ϕ	MCB Rating : 230 Vac, 100 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	15	kVA		
713	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 20 kVA - 1ϕ	MCB Rating : 230 Vac, 125 A (Double Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Double pole with indicators)	20	kVA		
714	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 10 kVA - 3ϕ	MCB Rating : 415 Vac, 32 A (Four Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Four pole with indicators)	10	kVA		
715	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 15 kVA - 3ϕ	MCB Rating : 415 Vac, 50 A (Four Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Four pole with indicators)	15	kVA		
716	Grid Input Protection Box with Line indicator, SPD and MCB	GIPB - 20 kVA - 3ϕ	MCB Rating : 415 Vac, 63 A (Four Pole) SPD Rating : 320 Vac, Type 2, 40 kA (Four pole with indicators)	20	kVA		
717	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	1	sqmm		
718	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper	1.5	sqmm		

			Conductor for Voltage Grade 1100 Volts				
719	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	2.5	sqmm		
720	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	4	sqmm		
721	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	6	sqmm		
722	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	10	sqmm		
723	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	16	sqmm		

724	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	25	sqmm		
725	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	35	sqmm		
726	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	50	sqmm		
727	Cable	AC/DC	EFFR PVC Insulated Single Core Unsheathed Industrial Flexible Cable conforming to IS 694:2010 with Bright Annealed Copper Conductor for Voltage Grade 1100 Volts	70	sqmm		
728	Cable	Solar Cable – UV protected	Flexible Tinned Copper Conductor Single Core Multistrand, Cross Linked, Zero Halogen Low Smoke Insulation and Cross Linked Low Smoke Sheathing , Heat Resistant upto 120^{o}C and UV Resistant Solar Cables	4	sqmm		

729	Cable	Solar Cable – UV protected	Flexible Tinned Copper Conductor Single Core Multistrand, Cross Linked, Zero Halogen Low Smoke Insulation and Cross Linked Low Smoke Sheathing , Heat Resistant upto 120^{o}C and UV Resistant Solar Cables	6	sqmm		
730	Cable	Solar Cable – UV protected	Flexible Tinned Copper Conductor Single Core Multistrand, Cross Linked, Zero Halogen Low Smoke Insulation and Cross Linked Low Smoke Sheathing , Heat Resistant upto 120^{o}C and UV Resistant Solar Cables	10	sqmm		
731	Cable	Solar Cable – UV protected	Flexible Tinned Copper Conductor Single Core Multistrand, Cross Linked, Zero Halogen Low Smoke Insulation and Cross Linked Low Smoke Sheathing , Heat Resistant upto 120^{o}C and UV Resistant Solar Cables	16	sqmm		
732	Cable -2 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	1.5	sqmm		
733	Cable -2 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	2.5	sqmm		
734	Cable -2 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC	4	sqmm		

			Sheathed Flexible Unarmoured Cables 1100 Volts.				
735	Cable -2 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	6	sqmm		
736	Cable -3 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	4	sqmm		
737	Cable -3 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	6	sqmm		
738	Cable -3 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	10	sqmm		
739	Cable -4 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	4	sqmm		
740	Cable -4 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	6	sqmm		

741	Cable -4 core	AC/DC	Annealed Bare Cu Flexible Conductor PVC Insulated, Tinned Cu Braided (Screened) PVC Sheathed Flexible Unarmoured Cables 1100 Volts.	10	sqmm		
742	Cable	Earthing Cable	Single Core Earth Cable Green / Yellow LSHF, 0.6/1kV, IEC 60228 Class 2, tinned copper	1	sqmm		
743	Cable	Earthing Cable	Single Core Earth Cable Green / Yellow LSHF, 0.6/1kV, IEC 60228 Class 2, tinned copper	4	sqmm		
744	Cable	Earthing Cable	Single Core Earth Cable Green / Yellow LSHF, 0.6/1kV, IEC 60228 Class 2, tinned copper	6	sqmm		
745	Cable	Earthing Cable	Single Core Earth Cable Green / Yellow LSHF, 0.6/1kV, IEC 60228 Class 2, tinned copper	10	sqmm		
746	Cable	Earthing Cable	Single Core Earth Cable Green / Yellow LSHF, 0.6/1kV, IEC 60228 Class 2, tinned copper	16	sqmm		
747	Cable	Earthing Cable	Single Core Earth Cable Green / Yellow LSHF, 0.6/1kV, IEC 60228 Class 2, tinned copper	25	sqmm		
748	Cable	Earthing Cable	Single Core Earth Cable Green / Yellow LSHF, 0.6/1kV, IEC 60228 Class 2, tinned copper	35	sqmm		

749	Lightning arrester set	lightning arrester set made of high-strength solid aluminum alloy with corrosion-resistant coating, ensuring durability and optimal conductivity in harsh outdoor conditions	**RCC Roof:** Franklin Rod - Multiple spike of 15 mm diameter and 2000 mm long with base plate should be used. GI Elevation pole 40 mm diameter, 3000 mm height. Supporting wires 2.5 sq. mm (120 microns) to be incorporated for stability to withstand wind speed of 200 – 250 km/hr. Ceramic insulation to be provided between lightning arrestor base plate and GI elevation pole. Baseplate of elevation pole should be provided with anchor fasteners and to be provided with civil work **Tin Roof:** T-based clamp of following specifications to be used Structural material : GI - 120 microns. L – Angle geometry Profile L – Angle thickness – 3mm L- Angle LxB – 37x37mm Hexagonal Nut – M8x20mm Hexagonal bolt – M8x6mm Vertical pole - 1500 mm Support Wire 4 Sq.mm	15/2000	mm		

750	Lightning arrester set	copper-bonded lightning arrester set with an average coating thickness of 250/100 microns, ensuring superior conductivity, corrosion resistance, and long-term durability	Franklin Rod - Multiple spike of 15 mm diameter and 2000 mm long with base plate should be used. GI Elevation pole 40 mm diameter, 3000 mm height. Supporting wires 2.5 sq. mm (120 microns) to be incorporated for stability to withstand wind speed of 200 – 250 km/hr. Ceramic insulation to be provided between lightning arrestor base plate and GI elevation pole. Baseplate of elevation pole should be provided with anchor fasteners and to be provided with civil work Tin Roof: T-based clamp of following specifications to be used Structural material : GI - 120 microns. L – Angle geometry Profile L – Angle thickness – 3mm L- Angle LxB – 37x37mm Hexagonal Nut – M8x20mm Hexagonal bolt – M8x6mm Vertical pole - 1500 mm Support Wire 4 Sq.mm	15/2000	mm		
751	Cable/Down conductor for Lightning Arrestor	Copper conductor with UV-resistant insulation for the lightning arrester down conductor, ensuring superior conductivity, durability, and	Insulated (outdoor) GI strip of size 25 x 3 mm to be used. Each joint should consist of 2 - hexagonal nut and bolt assembly. Saddle insulators to be provided along the length of the down	25 x3	mm		

		secure fastening with weatherproof clamps.	conductor. Termination to the earthing electrode using SS Test links with clamps				
752	Cable/Down conductor for Lightning Arrestor	-	Aluminium Cable of 50 Sq.mm	50	sqmm		
753	Earthing Kit	Chemical earthing with copper bond	Chemical earthing powder (50 kg per pit). Solid electrode (Steel) Bonded copper – 16 mm diameter, 2000 mm long with 250 microns Bonding thickness, tin-coated copper lugs with insulation, SS clamps with SS nut-bolts assembly. protective FRP Chamber with lid should be made.Earthing pit size should be minimum of 6-inch diameter and 2.5-meters long and should be filled with back fill compound. SS flats to be used between GI strips and electrodes. Inter connection of Lightning arrestor earthing pits are to be made using GI strips 120 microns, 25 x 3 mm. Inter connection of AC and DC earthing pits are to be made using 16 Sq.mm. 2 x Copper Busbar of 6-inch long, 5-hole, 3 mm thick	16/2000	mm		

754	Connectors	MC4 Connector standard	Single -conatct solar connector for PV systemup to 1.5KV DCV	30A-50A			
755	Connectors	MC4 Y-Branch Connector standard	Allows parallel connection for protectionup to 1.5KV DCV	30A-50A			
756	Connectors	MC4 Inline fuse connector	Includes an inline fuse for protectionup to 1.5KV DCV	10A-30A			
757	Isolator	Manual Switch	Manually operated for circuit disconnectionup to 690V ACV	16A-3150A			
758	Isolator	Automatic Switch	Operates automatically under fault conditionsup to 690V ACV	63A-2500A			
759	Disconnector	PV Disconnector (DC Isolator)	use for safe DC circuit disconnectorup to 1.5KV DCV	16A-400A			
760	Fuse Box	Enclosed fuse box	Houses fuses for circuit protectionup to 1.5KV DCV	10A-400A			
761	Fuse Box	Modular Fuse box	Compac design for easy installationup to 690V ACV	10A-125A			
762	Fuse	HRC Fuse (High Rupturing Capacity)	For high short circuit protectionup to 690V ACV	16kA-120kA			
763	Distribution box	DCDB (DC Distribution Box) Single string	Protects a single PV stringup to 1.5kV DCV	10A-30A			
764	Distribution box	DCDB - Multi-string	Used for Multiple PV stringsup to 1.5kV DCV	30A-200A			
765	Distribution box	ACDB (AC Distribution Box) Single Phase	Distributes AC power In single - Phase230V ACV	16A-100A			
766	Distribution box	ACDB - Three phase	Distributes AC power In Three - Phase400V-690V ACV	63A-2500A			
767	Battery Box	Plastic	Battery trolley box with wheels - Hard Plastic	1 - 2 Batteries			
768	Battery rack (Lead Acid)	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) 2. Acid absorbent mat The elevation height of battery rack should be 4-	2 batteries			

			inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
769	Battery rack (Lead Acid)	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) 2. Acid absorbent mat The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	3 batteries			

770	Battery rack (Lead Acid)	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) 2. Acid absorbent mat The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	4 batteries			
771	Battery rack (Lead Acid)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) 2. Acid absorbent mat The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm	6 batteries			

			(Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
772	Battery rack (Lead Acid)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) 2. Acid absorbent mat The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	8 batteries			
773	Battery rack (Lead Acid)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) 2. Acid absorbent mat The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns.	10 batteries			

			● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
774	Battery rack (Lead Acid)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) 2. Acid absorbent mat The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	16 batteries			
775	Battery rack (Lead Acid)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) 2. Acid absorbent mat The elevation height of battery	20 batteries			

			rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
776	Battery rack (VRLA)	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	2 batteries			

777	Battery rack (VRLA)	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	3 batteries			
778	Battery rack (VRLA)	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint	4 batteries			

			should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
779	Battery rack (VRLA)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	6 batteries			
780	Battery rack (VRLA)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm	8 batteries			

			● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
781	Battery rack (VRLA)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	10 batteries			
782	Battery rack (VRLA)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile	16 batteries			

			● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
783	Battery rack (VRLA)	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm ● L- Angle LxB – 35 x 35mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	20 batteries			
784	Battery rack (VRLA) Enclosure, door with lock and key	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI	2 batteries			

			structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm ● L- Angle LxB – 35 x 35 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm ● Strips - 25 x 4 mm ● Enclosure door with lock and key (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
785	Battery rack (VRLA) Enclosure, door with lock and key	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm ● L- Angle LxB – 35 x 35 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm ● Strips - 25 x 4 mm ● Enclosure door with lock and key (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut	3 batteries			

			and bolt assembly and welding of any sort should be avoided.				
786	Battery rack (VRLA) Enclosure, door with lock and key	GI Rack	One row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm ● L- Angle LxB – 35 x 35 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm ● Strips - 25 x 4 mm ● Enclosure door with lock and key (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	4 batteries			
787	Battery rack (VRLA) Enclosure, door with lock and key	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm	6 batteries			

			● L- Angle LxB – 35 x 35 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm ● Strips - 25 x 4 mm ● Enclosure door with lock and key (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
788	Battery rack (VRLA) Enclosure, door with lock and key	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm ● L- Angle LxB – 35 x 35 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm ● Strips - 25 x 4 mm ● Enclosure door with lock and key (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	8 batteries			
789	Battery rack (VRLA)	GI Rack	Double row battery rack: 1. Electrical Insulation mat	10 batteries			

	Enclosure, door with lock and key		(Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm ● L- Angle LxB – 35 x 35 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm ● Strips - 25 x 4 mm ● Enclosure door with lock and key (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
790	Battery rack (VRLA) Enclosure, door with lock and key	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm ● L- Angle LxB – 35 x 35 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm ● Strips - 25 x 4 mm	16 batteries			

			● Enclosure door with lock and key (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
791	Battery rack (VRLA) Enclosure, door with lock and key	GI Rack	Double row battery rack: 1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 5 mm ● L- Angle LxB – 35 x 35 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm ● Strips - 25 x 4 mm ● Enclosure door with lock and key (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.	20 batteries			
792	Inverter Rack	GI Rack	1. Electrical Insulation mat (Minimum 0.4 kV) The elevation height of battery rack should be 4-inches above the floor and should be made of GI	-			

			structure ● 120 microns. ● L – Angle geometry Profile ● L – Angle thickness – 3 mm ● L- Angle LxB – 37 x 37 mm ● Hexagonal Nut – M8x20mm ● Hexagonal bolt – M8x6mm (Wood Supports not to be used) In the battery rack, each joint should be assembled with GI nut and bolt assembly and welding of any sort should be avoided.				
793	Markings	-	Marking for AC and DC with Elevated Plaques	Marking for AC and DC			
794	Markings	-	Marking for Lighting Arrestor with Elevated Plaques	Marking for Lighting Arrestor			
795	Markings	-	Signboard for Danger, No Fire and PASS Danger - Electric shock - A4 Danger - High Voltage - A4 No Fire - A5 PASS - A4	Signboard for Danger, No Fire and PASS			
796	Markings	-	Single Line Diagram (SLD) for the system Sun board with 3 mm Thickness - 4 ft x 2 ft	Single Line Diagram			
797	Markings	-	Do's and Don'ts Practices Poster (Solar Panels, Battery and Inverter)	Poster			
798	Fire Extinguisher	Safety Kit	Multi Purpose - ABC Dry powder extinguishing agents (or) CO2 type	2	kg		

			with 2 kg net weight of the charge inside the cylinder.				
799	Fire Extinguisher	Safety Kit	Multi Purpose - ABC Dry powder extinguishing agents (or) CO2 type with 3 kg net weight of the charge inside the cylinder.	3	kg		
800	Fire Extinguisher	Safety Kit	Multi Purpose - ABC Dry powder extinguishing agents (or) CO2 type with 4 kg net weight of the charge inside the cylinder.	4	kg		
801	Fire Extinguisher	Safety Kit	Multi Purpose - ABC Dry powder extinguishing agents (or) CO2 type with 6 kg net weight of the charge inside the cylinder.	6	kg		
802	FireBall	Safety Kit	-	-			

Dated this _____ day of_____2025 The above technical specifications read and understood and signed

Signature of the vendor and address with seal

_____

ANNEXURE 2- TECHNICAL SPECIFICATIONS OF COMPONENTS

The proposed project shall be commissioned as per the technical specifications given below. Any shortcomings or deviations may lead to the cancellation of the Letter of Award, and in such a case the Competent Authority's decision will be final and binding on the vendor.

1. **SOLAR PV MODULE:**

a. The PV modules used must qualify to the latest edition of the IEC PV module qualification test.
b. The total solar PV array capacity should not be less than the allocated capacity and should comprise monocrystalline/polycrystalline/ monoperc/ TOPCON modules of minimum Wp mentioned in the bill of materials. Module capacity less than minimum Wp mentioned in the BoM / Purchase Order shall not be accepted.
c. PV modules must be tested and approved by one of the IEC authorized test centers. The module frame shall be made of corrosion-resistant materials, preferably anodized aluminum of 10 microns thickness.

NOTE:

- Approval from SELCO Foundation should be sought before finalizing the choice of brand for SPV modules.

MODULE WARRANTY:

Module Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than Twelve (12) years from the date of sale to the original customer

a. Defects and/or failures due to manufacturing.
b. Defects and/or failures due to quality of materials
c. Non-conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the vendor's sole cost

PERFORMANCE WARRANTY:

- The degradation of power generated by the module shall not exceed 20% of the maximum rated power over the 30-year period and not more than 8% after the first ten years period.
- Should have a positive power tolerance
- Should be Anti - L.eT.I.D & P.I.D Resistant
- Panel degradation should be linear over a period for 25- 30 years
- Should have temperature coefficient of power (Pmax) ≤ -0.35% /°C
- Should be able to withstand downward force ≥ 5600 pascals
- Should be able to withstand uplift force ≥ 2400 pascals

- Should have tempered/toughened solar glass of > = 2 mm thickness
- Should have anti-reflective surface treatment
- Should have optically clear glass with high transmittance

Additionally, modules should be certified with:

- PV module safety standards
- PID-d.
- Ammonia corrosion Resistance test
- Dynamic Mechanical Load
- Hailstone (35mm)
- Ignitability test
- FSI Tested.
- EL Tested.
- Enlisted Module Manufacturer of DGS&D.
- Application class - Class A (Electric hazard test - Operating voltage >50 Vdc & Modules area can be accessed by public)
- Module fire performance - Type 1 (Burning test & spread of flame test)

2. MODULE MOUNTING STRUCTURE (MMS):

A. **For very low elevation & flat RCC surface mounting:**

- Landscape orientation to be incorporated.
- Triangular MMS to be chosen.
- The MMS should be mounted to the RCC roof using wedge anchor fasteners and a concrete block of L x W x H = 1.5 x 1.5 x 0.25 feet at the front side of the MMS and concrete block of L x W x H = 1.5 x 1.5 x 0.75 feet at the back side of the MMS respectively. The sides of the cube and roof interface should be given a simple 1-inch filet construction. At the top side of the cubes, an upward taper should be formed from cube sides towards M.M.S leg. M15/M20 grade P.C.C should be used for the civil works with minimum 3 days of curing.

B. **For inclined sheet roofs/Tin roofs** (General purpose mounting):

- Mini rails to be incorporated
- Anodized mini rails of 70 microns thickness.
- Mini rail dimension should be of L x H x W x T – 300mm x 100mm x 40mm x 3mm
- Mini rails can be fastened to the purlins using self-driven screws. (Pop riveting can be incorporated on PPGL sheets which are in good condition.)
- EPDM strips to be used as sealant for waterproofing.

C. **For roofs which are unfit for mounting panels:**

- Roofs that are not fit for installation due to less structural stability/very old roofs/rainwater leakage problem, then a suitable location on the ground may be preferred for the panel installation.
- The installation maybe a low elevation MMS with fencing protection around or may be a high elevation MMS (Approval and support from SELCO foundation should be taken prior to installation)

Orientation of the MMS:

- The orientation of the MMS should be due south in general case/flat mounting surfaces.
- If the roof orientation of the building is deviated away from the south (by less than 30 degrees), then the existing orientation of the building roof can be used for mounting the panels. If the deviation is more than 30 degrees, then action to correct the deviation should be taken only after consultation with SELCO Foundation.

NOTE:

- Approval from SELCO Foundation should be sought before finalizing the MMS design in case of any customization required as per the existing site situations.
- Approval from SELCO Foundation should be sought to mount the panels on an alternate location if the existing roof is unfit for mounting panels.

General guidelines:

- Each structure should have an angle of inclination as per the geographical location to receive maximum irradiation.
- All panels should be grounded together with grounding lugs and all the MMS structure should be grounded using grounding clips and should be connected to the respective earthing pit along with AJB.
- All nuts & bolts used should be made of G.I (> 120 microns) or of stainless steel.
- The structure shall be designed to allow easy replacement of any module with walking space around the MMS. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels. Installation of solar structures should not damage the roof in any way. If any concrete or foundation is required, it should be precast type.
- Vendors must follow the above types of roof mounting options, and the solution is dependent on the type of roof at the location. a) Flat roof, b) Tin roof. In all cases, considerations must be made for the roof's age, structural integrity, access to equipment, and necessary setbacks for fire and life safety requirements.

3. ARRAY JUNCTION BOX/COMBINER BOXES:

- The junction box should have good resistances against mechanical stresses and external impacts.
- The junction boxes are to be provided in the PV array for termination of connecting cables.

- The Junction Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement.
- All wires/cables must be terminated through cable lugs. The boxes shall be such that input & output termination can be made through suitable cable glands.
- Proper cable lugs (Fork, pin type) with insulation should be provided for the cables connected with the boxes.
- A.J.B should have segregated inputs for both positive and negative cables emerging from the respective arrays.
- Positive strings should have a self-blown in-line DC fuses
- All the glands provided under the junction box should be used and any unused glands should be sealed for ingress protection.
- Suitable markings shall be provided on the busbar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.
- The AJB should be placed in a shaded place, preferably at the inner side of the wall nearest to the roof.
- IP rating: IP-67.
- Should comply with the R.o.H.S. Directive 2002/95/EC

4. Battery:

The battery chosen for the project should have the following characteristics:

- **Battery type: lead acid /**AGM VRLA/ GEL VRLA
- **Plate technology:** Tubular / Flat plate
- **Terminal type**: L - Type
- **Operating temperature**: -20^{o}C to +55^{o}C
- **Application** - Cyclic application, Float application above 1 hour discharge rate
- **Self-discharge @ STC** - Low self-discharge < 3.0 % per month
- **Life cycle @ 80% D.O.D @ 27°C** - 1500 cycles
- **Ah Efficiency**: >90 %
- **Wh Efficiency:** >80 %

Should have **additional characteristics of:**

- Should exhibit PSOC behavior
- Should have low fumes generation
- Should perform easy recovery after idle period.
- All the batteries capacities mentioned are at a C/10 rate of discharge and the same should also be followed by the vendor. The preferred voltage of each battery is 12 V due to better space utilization. However, vendors quoting for battery banks with 2V cells or other capacities should add a

justification note as annexure to why the particular voltage was opted for. The technical committee will consider this and take a decision on the suitability of such an option. The decision of the technical committee/technical member of the buyer on this matter will be final and binding on the vendor.

- Battery should confirm to the latest B.I.S/ International standards. A copy of the relevant test certificate for the battery should be furnished.
- The battery should be warranted for a minimum of 5 years.
- The battery should be installed inside the premises of the end user on a battery rack. The rack material size should be able to easily bear the battery load. (Each leg should have a respective base plate.)
- The rack's row length should be considered based on the size of the battery as well as the number of batteries placed per row including the 1-inch inter battery gap.
- In case of double row racks, the inter row height should be of a minimum 7-inch separation.
- The battery rack should be of fireproof material and corrosion free (GI rack of 120 microns).
- In the battery rack, each joints should be with nut and bolt assembly and should not be with any type of welding assembly.
- Electrical Insulation mats (IS 15652:2006 standard) with minimum 0.4 kV insulation capacity should be provided on the floor.
- Tin-coated copper lugs (Ring type) with insulation to be used at cable ends to connect each battery terminal.
- Spring washers to be incorporated in the nut-bolt assembly at each battery terminal.
- Battery terminal caps used, should be big enough to cover the entire terminal area and the nut bolt assembly.
- At each battery terminal, petroleum-based gel coating should be applied.
- All cables connecting to the batteries should be provided "conduit pipe" protection and tied to the outer sides of the battery body using cable ties.

NOTE:

Placement of battery should be in proper ventilated room and if not then ventilation in the room should be compulsorily incorporated for the following reasons:

- Safety of the system
- Safety of the end users
- Efficient performance of the system.

Lithium Ferro Phosphate

- The battery cycle life should be minimum of 2000 cycle at 95% discharge.
- The Lithium iron phosphate battery needs a very good "Battery Management System" BMS to ensure the proper charging and discharging of each cell of battery with proper protection of battery when temperature is reaching beyond battery permissible limits. This battery also needs constant

current and constants voltage charging methodology related to upper voltage limit of battery. BMS primary focus are therefore on the safety and the protection of the battery, to Minimize the risk of sudden failure and to maximize the life cycle of the battery.

- BMS (Battery Management System) should be part of battery pack and battery pack enclosure should be as per standard. The battery pack should be integrated with the system in such way that it is theft proof and not removable from system. It should be installed with combination of module structure/luminaire. The height of battery pack will be approximate, 4 meters above the ground.
- The battery pack should be capable of high rate of heat dissipations.
- The battery should operate between temperature range of 0 degC to 60 degC.
- The other feature of the battery should be:

Sr.No.	Description	Specifications
1	Battery Configuration	12.8V ; Li fe PO4
2	Working Temperature Range (both for charging & discharging)	0-60 deg C
3	Storage Temperature Range	@ 0-25 Deg- 6 months
4	Cycle Life (Full charge to full discharge @ 25 deg C before capacityof battery falls below 75%	more than 2000 Cycles
5	Battery Warranty	10 years
6	Capacity of Individual Cells (Minimum)	3.2V cell of 5 AH
7	Type of Cell	Prismatic
8	Nominal Voltage	12.8V
9	Operating Voltage Range	11.2 V - 14.6V
10	Discharge Cut off Voltage	>11.2V
11	Over Charge Cut off Voltage	15.5V+/- 0.2V
12	Charging Time	Around 5 - 5.5 Hours

5. Grid Input Protection Box with Line Indicators:

The GIP box should have good resistances against mechanical stresses and external impacts. The Box shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement.

- GIPB should have Line Indicators
- All wires/cables must be terminated through cable lugs.
- The boxes shall be such that input & output termination can be made through suitable cable glands.
- All the cables (Incoming & Outgoing) should be kept separated and should be given UPVC conduit pipe protection

- All the glands provided under the box should be used and any unused glands should be sealed for ingress protection.
- Preferably, the box should be placed in the PCU room.
- IP rating: IP-67.
- Proper cable lugs (Pin type) with insulation should be provided for the cables connected with the boxes.
- Should comply with the R.oH.S. Directive 2002/95/EC

6. Solar PCU:

The power conditioning unit should be provided to convert DC power produced by SPV modules into AC power. The power conditioning unit/inverter should be off-Grid with Grid interactive and grid charging features.

Typical technical features of the PCU shall be as follows:

Power conditioning unit with inbuilt charge controller of capacity & ratings as specified in the below for various capacities of Solar Power Plants should convert DC power into AC power.

The PCU should be tested from the MNRE approved test centres / NABL /BIS accredited testing- calibration laboratories. In the case of imported power conditioning units, these should be approved by international test houses.

In case of inverters with low ground clearance, a minimum of 3-inch elevation for the same should be incorporated. The elevating means should be a fireproof material (Leg bushes are preferable).

The PCU will have the following features:

a. MPPT charging.
b. Inverter efficiency should be more than 85%
c. The inverter should be compatible with alternators / Generators.
d. Output voltage for single phase 230 V, +/-3% with pure sine wave.
e. Output frequency: 50 Hz
f. Capacity of PCU is specified at minimum 0.8 lagging power factor
g. THD: less than 3%
h. Ambient temperature 50 degree Celsius (max.)
i. Operating humidity 95% maximum
j. Shall be equipped with RS 485 data port output

Protections:

a. Over voltage (automatic shutdown)

b. Under voltage (automatic shutdown)
c. Overload - Short circuit (circuit breaker & electronics protection against sustained fault)
d. Over Temperature
e. Temperature compensation
f. Battery, PV reverse polarity

Indicators

a. Array on
b. MPPT charger on
c. Battery connected, charging
d. Inverter ON
e. Load on solar/ battery
f. Grid charger on
g. Load on Grid
h. Grid on
i. Fault

Display Parameters

a. Battery Current
b. Battery Voltage
c. PV Panels Voltage
d. PV Panels Current
e. Energy Generation (kWh)
f. Energy – Grid Export (kWh)
g. Grid Voltage
h. PCU Load (kW)
i. PCU Output Voltage
j. PCU Output Frequency
k. PCU Output Current
l. Fault Codes

Cooling: cooling mechanism required - Air Cooled

Inverter should have the RS 485 communication port and the following are the details to be provided:

- Protocol documentation of the inverter model (with clarity of firmware version and models supported).
- Mod bus registers mapping document or string data of the inverter model.

NOTE:
Placement of PCU should be in proper ventilated room and if not then ventilation in the room should be compulsorily incorporated for the following reasons:

- Safety of the system
- Safety of the end users
- Efficient performance of the system.

6.1 Solar Charge Controller:

The charge controller unit should be provided to convert DC power produced by SPV modules, into regulated DC power.

Typical technical features of the CCU shall be as follows:

Charge Controller of capacity & ratings as specified below should convert DC power into regulated DC power.
The CCU should be tested from the MNRE approved test centres / NABL /BIS accredited testing
calibration laboratories. In the case of imported charge controller units, these should be approved
by international test houses.

The CCU will have the following features:

a. PWM charging.
b. CCU Efficiency should be more than 95%
h. Ambient temperature 50 degree Celsius (max.)
i. Operating humidity 95% maximum
j. Optional with RS 485 data port output
k. Wall Mounted

Protections:

a. PV Over voltage
b. PV under voltage
c. Battery Low Disconnect (automatic shutdown)
d. Battery Reconnect (automatic Turnon)
e. Battery Over Voltage (automatic charger shutdown)
f. Overload - Short circuit (electronics protection against sustained fault)
g. Over Temperature

h. Temperature compensation
i. Battery, PV reverse polarity

Indicators

a. Array on
b. Charger on
c. Battery connected, charging
d. Fault

Cooling: cooling mechanism required - Passive / Active

NOTE: Placement of CCU should be wall mounted with base plate and in proper ventilated room and if not then ventilation in the room should be compulsorily incorporated for the following reasons:

- Safety of the system
- Safety of the end users
- Efficient performance of the system.

7. Protections:

The system should be provided with all necessary protections like earthing and lightning protection:-

A. **LIGHTNING PROTECTION:**

Code of practice for protective measures against lightning strikes and surges as per IS 2309-1989 and subsequent amendments should be followed. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against lightning by deploying the required number of lightning arresters.

To increase the coverage area of protection, the lightning arrestor should be given an additional elevation by using G.I. pole. The height of the lightning arrester tip should be minimum 5 meters above the mounting surface. Insulation should be provided between the lightning arrestor and the elevation pole and the building structure. Down conductors should maintain 1.75 m distance from panels, arrays and other power cables around.

- Franklin Rods/Passive type lightning arresters should be incorporated.
- The entire lightning arrester set up (Air terminal pole, spikes and base plates should be of **(solid Aluminium Alloy).**
- Minimum size of the lightning arrester should be 15 mm by diameter and 2000 mm by length.
- The base plate should be 90 mm X 90 mm X 5 mm in dimension
- **RCC roof** - GI Elevation pole 40 mm diameter and 3000 mm height.
- **Inclined Sheet roof** - GI Elevation pole 40 mm diameter and 1500 mm height.
- The lightning protection system incorporated in the installation is only for the protection of the solar PV systems installed.
- The lightning arrestor setup should always be vertical and should be stable against high wind loads.
- In case of RCC flat roofs, the lightning arrestor setup should be provided with anchor fasteners along with civil work made at its base plate.

- In case of metal sheet roof, the lightning arrester should be placed at the apex of the roof . **T-base clamps** should be made use of to install the lightning arrestor.
- Supporting GI wires of 4 sq. mm (120 microns) should be used for additional stability of the lightning arrestor.
- A concrete cube (Civil work) of 1.25 ft x 1.25 ft x 1.25 ft (L x B x H) dimensions should be set.
- The base of the clamp should be given EPDM strips which are to be used as sealant for waterproofing.
- The lightning arrester should be placed preferably at the back of the array and at the sides, with a separation distance of 1.75 meters only (From the panel edges).
- **From Lightning arrestor to ground level:** Aluminium cable of 50 sq.mm should be used. (Aluminium lugs with insulation to be used at each termination points).
- **From Ground to Earth pit:** Insulated (Outdoor) GI Strip (120 microns) of size 25 x 3 mm should be used. GI strips are to be routed by using DMC saddle insulator. Interconnection of aluminium cable with GI strip will be done by using SS nut and bolt assembly (M6, 304 Grade).
- Down conductor to be connected to earthing rod with steel clamps and testlinks.

NOTE:
Copper bonded and G.I rods are not allowed in the installation.

B. **EARTHING:**

Code of practice for protective earthing and protection against electric shocks as per the IEC 62305 and latest standards should be followed. Earthing is a way of transmitting any instant electricity discharge directly to the ground by providing a low resistance path (using electrical cables wires with no joints or metal strips with lesser joints). This instant electricity discharge is mostly in the form of lightning, surge voltages entering through grid lines and due to fault current/leakage current in the system. The goal is to protect the appliances from voltage surges and protect the users from the risk of electrocution due to leakage/fault current in the system.

- Earthing type - Chemical Earthing
- Electrodes used should be a **Solid (Steel) copper-bonded electrode with 250 microns of bonding thickness**
- The electrode should be minimum of 16 mm by diameter and 2000 mm by length, placing should be 500 mm from ground level.
- Earth backfill compound - Clay based (High Moisture), Graphite based (For normal soil conditions) and Bentonite based (For rocky soil conditions) should be used.
- Earth pit should should be filled with back fill compound.
- Earth pit should be 6-inch by diameter and 2500 mm by depth (As long as the electrode's length.)
- Individual earthing for AC Loads should be provided for these components: Grid input protection box, Inverter/PCU, Changeover Switches and connected loads. These all should be connected using MET (Main Earthing Terminal)/ copper Busbar 6-inch long, 5-hole, 3 mm thick).

- Individual earthing for DC Loads should be provided for these components: A.J.B and Battery rack. These all should be connected using MET (Main Earthing Terminal – Busbar).
- Individual earthing for Lightning Arrester should be provided.
- Interconnection of LA earthing - Each lightning arrester will have its respective down conductors going down to the respective earth pits. The lightning arresters are to be Inter-connected at the roof, to enhance the efficacy of the protection, using the down conductor same as the specified in the BOM. Additionally, the earthing pits allocated for the lightning arresters are to be interconnected below the ground (0.5 metres) to enhance the efficacy of the protection, using the down conductor same as the specified in the BOM. This equipotential bonding approach needs to be strictly incorporated at all sites of installations.
- A minimum of 3 m distance between each pit must be maintained and 1.5 m from building foundations and sumps.
- Lightning arrester earthing pit should not be mixed with other earth pits and should be well spaced away from them.
- Earthing pits should have a chamber set at the ground level and should be closed with a metallic lid/F.R.P lid and should have access for maintenance.
- Cable lugs of 16 Sq.mm with insulation should be used for cable-type down conductors to connect with the electrode.
- Proper cable-to-rod & strip-to-rod clamps should be used.
- Clamp materials should be that of stainless steel.
- Earth pit resistance should ideally be 0.5 Ohms and should not exceed 5 Ohms.
- All the earth pits should be given an identification/marking to the devices/structures they are connected to.
- The earthing electrodes used in the project should have CPRI test certification.
- SS clamps/flats to be used between GI strips and electrodes
- Inter connection of Lightning arrestor earthing pits are to be made using GI strips 120 microns, 25 x 3 mm
- Interconnection of AC and DC earthing pits are to be made using 16 sq.mm.

NOTE:
G.I electrodes are not allowed in the installation.

8. CABLES (Over-ground cables):

A. GENERAL INDOOR/AC CABLES:

(Grid input to G.I.P.B -> Inverter -> Changeover switch -> Load distribution box) -> Changeover switch (Solar & Grid-DG input)
Stranded cable conductors should be made of high purity annealed 99.97% electrolytic grade copper with unadulterated FR PVC insulation.
Cable size as mentioned in the bill of materials to be used in the project.

The cables used shall have the following characteristics:

- High thermal stability and temperature withstanding range: -15°C to +85°C.
- Should have a temperature index of 300°C.
- Should have excellent resistance to heat, cold, water, oil, abrasion & UV radiation.
- Should have flexibility & higher bending capacity- 8D minimum bending radius (EFFR wires).
- Should have anti-rodent & anti-Termite resistant properties.
- Should have a high oxygen index (LOI) of > 30%.
- Should have high insulation resistance/Rated for nominal voltage (Uo/U): 600/1100 V.
- Should have low conductor resistance (Maximum conductor resistance at 20°C < 7.41 Ω).
- Should have low smoke density and emissivity (Corrosive halogen acid & toxic gasses below 18%).
- Should be 100% bunching & 100% conductive.
- Should be lead free.

NOTE:
The cables chosen for the project:

- should have passed the flame-resistant flammability test.
- Should confirm the sizing standards tests.
- Should be RoHS & Reach Compliant and should be NABL accredited.
- Cables of multiple brands should not be used in the installation.
- Should have the IEC, CE & ISI certification
- Cables of multiple brands should not be used in the installation

B. SOLAR CABLES/D.C. CABLES/OUTDOOR CABLES:

(Panels -> arrays -> A.J.B -> inverter)
Solar cables should have these specified constructional features:
Type PV1 - F (With double insulation)

- **Conductor:** Fine stranded Wire Tinned Copper Conductor according to BS EN 60228:2005 cl. 5
- **Insulation:** UV resistant, cross linkable, halogen free, flame-retardant compound for core insulation
- **Core Identification:** Red/Black
- **Sheath:** UV resistant, cross linkable, halogen free, flame-retardant compound for Sheath over insulation
- **Cable Colour:** Red/Black
- **Voltage Rating:** 0.6 / 1.0 kV

C. **BATTERY CABLES:**

(Battery -> Battery -> Inverter)
Battery cables should have these specified constructional features:

- **Cable type:** Flexible cable
- **Insulation type:** Double Insulation
- **Insulation material**: Rubber with Flame-retardant, Oil-resistant
- **Conductor:** Fine multi stranded wires, Tinned Copper Conductor
- **Cable colour:** Black
- **Core Identification:** White
- **Crimping:** Both ends crimped
- **Voltage Rating:** 0.6 / 1.0 kV

NOTE:

- Cables of multiple brands should not be used in the installation.
- Should have the IEC, CE & ISI certification

The DC cables chosen for the project should have the following tests passed:

- Flame resistant flammability test.
- The sizing standards tests
- RoHS & Reach compliant

9. **COLOR CODING & LABELING:**

- Correct color codes should be followed for the laying of the cables.
- **For the DC side** - Red color for the positive side and Black color for the negative side should be incorporated and cables of other colors should not be used.
- **For the AC side/Single phase** - Both input and output (DB) of the inverter, Black color to be used for the neutral and Red color to be used for the line.
- **For the AC side/Three phase** - Both input and output (DB) of the inverter, Black color to be used for the neutral and Red, Blue & yellow color to be used for the lines.
- **For earthing** - Green-Yellow color should be used for the earth down conductors.

- **Labelling:**
- Each set of cables should be appropriately labelled by mentioning their origin point and their terminal point and should be easily identifiable for maintenance purposes.
- The components to which the cables are interconnected to, should be clearly labelled
- Labels should be made using permanent markers on white label tags

The cable should be so selected that it should be compatible up to the life of the solar PV panels i.e., twenty-five (25) operational years. Cable ends should be crimped along with cable lugs thoroughly using appropriate lugs. This cable-lug interface must be Insulated. Tin-coated copper cable lugs with respect to cable sizes should be used and they should be of required current ratings. Connectors (MC4) used for the solar cables should be of an IP-67 rating or higher.

Conduit pipe protection to be given to cables connecting:

1. Battery to battery,
2. Battery to inverter,
3. All cables entering the inverter.

DC/Solar cables from PV arrays and earthing cables should be given UPVC pipe protection. The end points of the conduit pipes should be protected from the rainwater/termites/insect's ingress by using appropriate sealant (Foam duct sealant). Cable Tie for outdoor application should be UV resistant. UPVC long “L-bend” pipes to be used wherever the cables pass through sharp edges/roof edges/angles in the wall.
AC cables entering the inverter from the grid input box, and all cables running from inverter up to the main distribution board should be provided with UPVC conduit pipe protection as well.

UPVC conduit pipes of 19 mm by diameter should be used. UPVC long-L-bends of 19 mm diameter should be used at the corners, edges. UPVC 2-way/3-way junction boxes should be used at regular spacing for maintenance purposes. The brands used here should be **ISI** certified.

NOTE:

- Cables should not be left open and should be covered through conduit pipes.
- For DC connections use only DC cables and same for AC connections use only AC cables and do not interchange or mixed.
- Ordinary PVC conduit pipes, bends and junction boxes are not allowed in the installation/to protect the DC & AC cables.

10. LOAD WIRING:

A. Type-1, 100% new load wiring :

- Upon installation of the solar PV systems, the output power from the P.C.U should be fed to solar loads only.
- Non-solar loads i.e., loads other than i.e., heavy loads and non-critical loads, should be separated from the solar lines and these non-critical loads should be simultaneously powered using grid power (using the separate wiring at the health center). The provision to separate the solar loads & non-solar loads using two separate sets of wiring should be made at the health centers on a top-priority basis.
- Laying of cables should be followed by strictly implementing the below mentioned clauses of annexure 2:
- 10: Cables/AC cables
- 10-A: Colour coding & labelling
- 9.2: Earthing
- 11: Change-over switches
- Cable & lug sizes should be as per relevant load capacity/wattage.
- Cable tools such as wire stripper, crimping tools and heat shrink sleeve kits should be used to manage the cables
- Hammer drill tool set, along with core drill-bit should be used to manage cables through the walls
- UPVC solid conduit pipe protection should be provided to protect the connections (new cables laid) made throughout the center. UPVC Junction boxes should be used at junction points for ease of installation and maintenance. Long UPVC bends should be used at sharp edges and bends in the wall.
- Labeling should be done for the components and connections as mentioned below:
  - **Label the Non Solar Loads:**
    - The gang box of the 3-pin sockets provided should be provided with a sticker and the sticker should be 3 Sq. inch by area.
    - The sticker should have a main title **"Grid Power"** on top and a subtitle on the bottom. The name of the solar load that is to be connected with the socket should be mentioned in the subtitle (Say AC, Autoclave, Water Pump etc)
    - Stickers should be pasted such that the name of the non solar load can be seen from the front of the socket and the other part of the sticker covers the side of the gang box.
    - **Label the changeover switch 1:**
    - Outside the door of the switch, all three positions of the lever should have sticker in BOLD LETTERS namely **"Solar - Off - Grid/DG"**
    - The incoming solar lines, the grid/DG lines from COS-2 and the outgoing lines to new DB should be labeled
    - **Label the changeover switch 2:**
    - Outside the door of the switch, all three positions of the lever should have sticker in BOLD LETTERS namely **"Grid - Off - DG"**

11. CHANGE-OVER SWITCHES:

- Knife-type, metal case changeover switches should be used
- Plastic case changeover switches should not be used.
- Changeover switches as per the B.O.M specifications should be used.

- Labeling of the entry & exit points of cables should be clearly marked.
- The lever position at the changeover switch for “Solar” - “Off” - “Grid” should be clearly marked with permanent marker/labels.
- Metal case should be provided with earthing protection.

12. PLAQUES, SLD, SIGN BOARDS, BOM & LOAD DETAILS:

A. Foam Plaques:

- “DOs & DON’Ts” practices for panel, battery and P.C.U handling/routine maintenance tips
- should be pasted at the battery-inverter room
- The size of the plaque should be of A4 size for each component i.e panel, battery & P.C.U maintenance. All the three plaques should then be made as one unit for better geometry of appearance and application over the wall.
- The plaque should carry the contact details of the vendor incharge of the projects, with their office address and customer care contact details. It is suggested to also have alternate contact details included in it for better reach out.
- The plaque should be of the dimensions specified in the BOM
- The plaque should be placed at an average height of 5 feet above the ground at the entrance of the battery-inverter room and should be easily readable.
- Both local language and English should be incorporated in description of details in the plaque
- Strong adhesive (Double sided glue tape) along with washer-screw-wall plugs, should be used to keep the plaques firmly stuck to the wall

B. Metal plaques:

- The plaques should be placed at the entrance of the main building or at the reception counters making them easily noticeable for the visitors at the hospital
- The plaque should be placed at a height of 6-feet from the floor and mounted firmly over the wall using self-tapping screws and plastic reinforcement
- Plaques of two sizes will be provided. The bigger sized plaques are to be used at the district hospitals, sub district hospitals & community health centers, while the smaller ones are to be used at the primary health centers, health and wellness centers, primary health sub centers/sub centers.

C. SLD of PV system:

- A single line diagram of the entire solar PV system components installed and the way they are interconnected at the center should be clearly printed along with their electrical specifications mentioned for each component.
- The size of the SLD board should be as per the BOM specifications as it varies for different types of health centers
- The Sunboard material used to draw the SLD should be a minimum of 3-mm thick and should be glued to the wall firmly along with washer-screw-wall plugs, should be used to keep the plaques firmly stuck to the wall
- The SLD board should be placed in the same room as that of the battery-inverter set-up, and depending upon the room condition the SLD board should be placed such that it gets maximum visibility

Note:

SELCO Foundation will provide the content for SLD.

- **Sign boards:**
- A caution sign board mentioning prohibition of smoking and open flames should be placed at the entrance of the battery-PCU room.
- High voltage & Danger symbol to be depicted at the entrance of the room
- Fire extinguisher operating procedure (PASS sequence) during emergency
- **Earth pits:**
- Each earth pit should be given a labelling to identify the systems they are connected to.
- The size of the sign board should be of A5 size and should be supported by a GI pole of 2.5 feet tall (1.5 feet above the ground), of 2 mm thickness and of 120-micron galvanizing thickness.
- The sign board should have the details
- **Earth pit number**
- Earth pit connected to
- Ohmic value of the earth pit
- Tested date

13. FIRE EXTINGUISHERS:

The chosen fire extinguishers should be of the ABC Dry powder extinguishing agents or CO2 type with a minimum of 2 Kgs (Sub Centre) and 6 Kgs (Primary Health Centre) of charge or more in the cylinder. The fire extinguishers should be PESO/CCOE approved and CE certified.

Fire extinguishers should have the features as follows:

- Average discharge (%): >95%
- Average discharge time: >9 sec
- Average range of throw: >2 meters
- Operating temperature: -30°C to +60°C
- Fire rating: >1A:34B

Fire extinguishers should have the characteristics as follows:

- Non conductive
- Maximum visibility during discharge
- No thermal (or) static shocks

NOTE:

The fire extinguisher should be placed at the entrance of the battery room and should be serviced periodically to ensure there is proper charge and pressure in the cylinder.

14. SYSTEM COMPLETION-HANDOVER REPORTS:

- Once the installation is complete, the system functionality should be verified, and the instantaneous electrical parameters should be recorded and should be mentioned in the report and the same should be submitted to the SELCO foundation.
- The format sequence to record the parameters should be collected from SELCO foundation.
- All the components used in the installation process, their specifications, the quantity used, grand total should be clearly specified.
- Close-up pictures of the main components of solar PV set-up with GPS coordinates clicked at respective sites should be submitted along with the completion report and should be in the order as follows:
- Solar PV arrays
- A.J.B
- Battery bank
- P.C.U set-up
- G.I.P.B
- Combiner box
- Earth pits
- Lightning arrester
- Change-over switches
- Cable management (outdoor & indoor)
- Foam plaques
- Metal plaques
- SLD
- Load details pasted
- Earth pit sign boards

15. TOOLS & TACKLES AND SPARES:

After completion of installation & commissioning of the power plant, necessary tools & tackles shall be maintained by the successful vendor for maintenance purposes at the local service center.

16. SAFETY MEASURES:

The vendor shall take entire responsibility for electrical safety of the installation(s) and follow all the safety rules & regulations applicable as per Electricity

Act, 2003 and CEA guidelines etc.
The work is to be done in a Health Centre that will be in service. During installation, care shall be taken to ensure no hindrance is caused to patients and medical professionals in the building while they will be on their work.

17. OPERATION AND MAINTENANCE MANUAL:

An operation, instruction and maintenance manual in English and/or local language should be provided along with the solar system. The following minimum details must be provided in the manual:

- Basic principles of photovoltaics.
- A block diagram on Solar PV System - Showing interconnection of its components viz PV modules, batteries, inverters & Charge controls and loads.
- A small write up on expected performance of the SPV systems.
- A list of the critical loads (luminaries and medical equipment) that are to be connected to the solar PV system.
- A separate list of heavy loads which are never to be connected to the system.
- A list containing specification details of panels, batteries, P.C.U., showing type of the model used, model number, voltage & current capacity
- A list of total numbers of items (Solar panels, battery, inverter, earthing pits, lightning arresters, luminaries, fans and medical equipment) that are provided to the center.
- Significance of audio and visual indicators of the solar PV system.
- A SLD of the system installed.
- Clear instructions on regular maintenance and troubleshooting of the solar PV System.
- A list of DOs and DON'Ts practices while handling the solar PV system.
- Name, address and contact details of the customer care service/service provider for repair complaints and scheduled & unscheduled maintenance services.

18. ANNUAL MAINTENANCE:

- Two Scheduled visits per year with 6 months of interval gap should be done.
- Schedule visits should consist of basic maintenance of the system:
- Cleaning of panels and inspecting their condition and performance
- Cleaning of batteries & inspect the battery performance.
- Inspecting inverter performance.
- Verifying the battery-inverter room has proper ventilation maintained
- Verifying the DOs & DON'TS plaques, SLD & load details sheets are present in the battery room
- Verifying the connectivity & condition of earth pits, ensure the resistance of the earth pits is below 5 Ohms
- Inspecting complete wiring (solar PV system with loads connected) as per bill of material.

- Verifying that non-solar loads are not connected to solar system
- Ensure all the solar loads (luminaries, fans, medical equipment) are functional.
- Verifying all the control switches & regulators of solar loads are functional
- Ensuring the lightning arrester set-up is intact
- Checking and verifying system performance with prescribed format provided by SELCO Foundation

19. **Service Level Agreement:**

This is a Service Level Agreement (SLA*) between the vendor and the Foundation. This document identifies the services required and the expected level of services between DD/MM/YYYY to DD/MM/YYYY.

Sl. No	Level	Description	Target Response
1	Informational	Inquiry for information	Within 24 hours
2	Outage/non-functional system	Rectification to be done on a priority basis	Within 72 hours
3	Site assessment	Assessing the issues with the system at the Health Facilities either through physical visit or remote support.	Within 3 days of reporting of issues
4	Rectification/Repair /Replacement within warranty	Any issues reported that require immediate replacement/repair within the warranty tenure	Within 72 hours
5	Rectification/Repair /Replacement outside warranty	Any issues reported that require immediate replacement/repair, quotes to be provided for the same for rectification	Within 24 hours of site assessment
6	Scheduled Maintenance (AMC)	Verify the functionality of system components as mentioned in point 23.	AMC to be conducted at every 6 months interval from the date of Installation. Report should be submitted to SELCO Foundation with seal and signature from concerned Medical

			Officer of the health centre.

QUALITY CERTIFICATION, STANDARDS AND TESTING FOR GRID- CONNECTED ROOFTOP SOLAR PV SYSTEMS/ POWER PLANTS

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

Solar PV Modules/Panels	
IEC 61215 / IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules.
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1 /IS1 6170: Part 1	Photovoltaic (PV) module performance testing and energy rating –: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules - Ammonia (NH3) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
Solar PV Ongrid Inverters	
IEC 62109-1	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power system.
IEC/IS 61683(as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)

IEC62116/UL1741/ IEEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068- 2/IEC 62093 (as applicable)	Environmental Testing of PV System – Power Conditioners and Inverters
Battery	
IS 16270:2023	Storage Batteries for Solar Photovoltaic Application
Fuses	
IS/IEC 60947(Part 1, 2 & 3), EN50521	General safety requirements for connectors, switches, circuit breakers (AC/DC): a. Low-voltage Switchgear and Control-gear, Part 1: General rules b. Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers c. Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units d. EN 50521: Connectors for photovoltaic systems – Safety requirements and tests
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems.
Surge Arrestors	
BFC 17 -102: 2011	Lightening Protection Standard
IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings - Part 5 53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643- 11: 2011	Low-voltage surge protective devices Part 11: Surge protective devices

	connected to low-voltage power systems - Requirements and test methods
Cables	
IEC 60227 /IS694, IEC 60502 /IS1554 (Part 1& 2) / IEC 69947 (as applicable)	General test and measuring method for PVC (Polyvinyl chloride) insulated cabl es (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)
BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
Earthing /Lightning	
IEC 62561 Series	IEC 62561-1
(Chemical earthing) (as applicable)	Lightning protection system components (LPSC) Part 1: Requirements for connection components IEC 62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7 Lightning protection system components (LPSC) -Part 7: Requirements for earthing enhancing compounds
Junction Boxes	
IEC 60529	Junction boxes and solar panel terminal boxes shall beof the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use.
Solar PV Roof Mounting Structure	
IS 2062/ IS 4759	Material for the structure mounting

ANNEXURE 3: DETAILS OF THE ORGANISATION

1	Name of the Vendor	
2	Year of starting the organization & registration number (photocopy of registration certificate orany other relevant document to be enclosed)	
3	Address of the Vendor (along with phone no.&pin code)	
4	Status of Vendor	Proprietorship / Partnership/ Pvt Ltd / Limited/others
5	a) GSTIN : registration (enclosed) b) PAN No. of Income Tax Dept. (Photocopyof I. T. returns for the last financial 02 years to be enclosed	
6	Audit reports for the last 02 years (Certified copy of Chartered Account' report in P&L account to beenclosed)	
7	Experience of Vendor/vendor relating to supplyof solar energy-based solutions (supporting certificates to be enclosed)	
8	Particulars of Physical Infrastructure and total strength of staff available in the organization relating to Vendor/supply/testing etc.,	

Signature of the vendor and address with seal

Date:

ANNEXURE – 4: CHECK LIST OF DOCUMENTS TO BE SUBMITTED IN THE FIRST ENVELOPE(TECHNICAL BID)

Sl.No.	Description	Whether the Document is enclosed or not	PageNo. From and to
1	Details of Organization as per Table –I	YES/NO	
2	Company registration certificates or any other proof of incorporation to be submitted to establish the legal status - Company Incorporation certificate, GST Registration.	YES/NO	
3	Copies of audited financial statementsfor the last 01 financial years	YES/NO	
4	Copies of GST registration and GST returns filed in the last 01 financial years	YES/NO	
5	Copies of income tax registration and income tax returns filed in the last 01-03 financial years.	YES/NO	
6	Acceptance to give 5 years of service for trouble free operation and maintenance.	YES/NO	
7	Address of official Service Centers with contact details.	YES/NO	

I abide by all the above terms & conditions.

SIGNATURE OF THE VENDOR and with office seal

PLACE:

DATE:

CONDITIONS

1. If we are empaneled, here by we undertake to abide by the stipulated terms and conditions of vendor empanelment, to supply, install and maintenance of solar energy-based solutions

2. We agree to abide by this Empanelment bid validity of 10 months from 01 June 2025 to 31 March 2026.

3. We agree to abide by this Empanelment bid and any works awarded to us through this empanelment process, will strictly be executed by adhering to the laws against fraud and corruption enforced in India namely “Prevention of corruption act 1988”.

4. We accept that all disputes between parties will be adjudicated by a competent court in Bangalore, India.

Dated this. . . . . day of..... 2025

Signature

(Name and Address of the Vendor with seal)

(In the capacity of.....Duly authorized to sign the empanelment bid for and on behalf of_____)