**Solar Electric Technician (Level 2)**

**Module 5: Installation and assembly**

**E11: Assignment - Practice on connecting cables to designated terminals and testing for continuity and functioning**

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| **E11: ASSIGNMENT MEMO** | |
| **Date** | …. |
| **To** | Participants |
| **From** | Trainers |
| **Subject** | Connecting cables to designated terminals and testing for continuity and functioning. |
| **What** | Connect the cables at the component’s terminal and check for continuity and proper functioning. |
| **Why** | To enable participants to perform cable routing and conduiting. |
| **How** | 1. Group of 2 or 4. 2. Gather the required tools/ equipment's and manuals. 3. As per the given instruction, perform cable termination and check for functioning. 4. Answer the questions and discuss the results. |
| **Time** | 60’ |

**Connect the cables from one terminal of the component to another. (Solar PV array to combiner box, combiner box to inverter, Inverter to battery etc.)**

**Required tools/equipment**

* Solar PV cables (DC and AC)
* Cable lugs of different sizes (suitable for various cable gauges)
* Crimping tools, cable strippers, wire cutters
* Heat shrinks tubing and insulation tape
* Multimeter or continuity tester
* Terminal blocks, combiner boxes, junction boxes, inverters, and other components for connection
* Safety gloves and protective equipment

**Instructions**

Follow each step to conclude the assignment.

**Step 1: Strip and prepare the cable for termination.**

* Measure and cut cables to the appropriate lengths for connection between components (e.g., solar panel to combiner box, combiner box to inverter, inverter to battery, etc.).
* Use a wire stripper to carefully remove insulation from the ends of the cables without damaging the conductor.
* Select the appropriate size of cable lugs based on the wire gauge.

**Step 2:** **Attach cable lugs to the cable ends using the crimping tool.**

* Slide the cable lug onto the exposed wire end and ensure a secure fit.
* Use the crimping tool to securely crimp the lug onto the wire, ensuring no loose connections.
* Inspect the crimped connection for any signs of weakness or poor contact.

**Step 3: Connect cables to system components using the terminated lugs.**

* Connect the cable lugs to the appropriate terminals on solar panels, inverters, batteries, and other components.
* Ensure that the connections are secure and tight to prevent loose or faulty connections.
* Use heat shrink tubing or insulation tape to cover exposed parts of the cable to protect against environmental elements and electrical hazards.

**Step 4: Test the connections for continuity and ensure the system is functioning correctly.**

* Use a multimeter or continuity tester to check the continuity of the cables and connections.
* Test each connection to ensure there are no open circuits or poor connections that could cause electrical faults.
* Verify the functionality of the system components after the connections are made.

**Step 5: Group review and discussion (Instructor-led discussion)**

* Each group presents their work, explaining how they made the connections and why they chose specific cable lugs and tools.
* Discuss any challenges faced during the process and the solutions applied.
* Emphasize the importance of secure, well-insulated connections and regularly testing for continuity to ensure system reliability.

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| **Summary of findings** |
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