ABB Solar inverters
Quick Installation Guide
PVI-10.0/12.0-I-OUTD-400

In addition to what is stated below, the safety and installation information provided in the installation manual must be read and followed. The technical documentation and the safety data sheet are for the protection of the user. The device must be used in the manner described in the manual. It is not the case the safety device guaranteed by the inverter might be ineffective.

1. The tables on the inverter have the Agency marking, main technical data and declaration of the equipment and manufacturer.

2. The labels attached to the equipment must NOT be removed, damaged, dirtied, hidden, etc., if the service package is requested, the field is to be used in the version number: 4N1975554544 shown on the label affixed to the top (inverter).

3. In the manual section in some cases on the equipment, the danger or hazardous zones are indicated with warning, yellow, symbols or icon.

4. All warnings must be read and understood promptly inform the Service ABB.

5. Care must be taken and all instructions must be followed.

6. Always refer to installation manual.

7. General warning - important safety information.

8. Protection rating of equipment.

9. Temperature range.


11. Hot surfaces.

12. Direct and alternating current, respectively.

13. Time need to discharge stored energy.

Environmental checks
- Consult the technical data to check the environmental parameters to be observed.

Installation of the unit in a location exposed to direct sunlight must be avoided as it may cause the inverter to overheat.
- Protect the inverter from any contact with rain or snow. Under no circumstances should it be installed in water.
- Do not expose the electronics to multiple voltage, temperature or humidity stress. Under no circumstances should the inverter be exposed to any other environment.

Installation of the inverter must not compromise access to any disconnection devices or other equipment that may be located externally.

Possible exclusion due to improper installation.

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Final installation of the inverter must be carried out in accordance with the instructions provided.

Provide for a suitable layout of the environment to be used, and comply with the minimum distances indicated in the figure so that heat dissipation is not affected by other inverters.

Final installation of the inverter must not compromise access to any disconnection devices or other equipment that may be located externally.

Provide for the necessary terminals and connect the data available on the website and evaluate any possible exclusion due to improper installation.

Inverter Model and Components

Lifting and transport

The means used for lifting must be suitable to bear the weight of the equipment.

Lifting

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Structure of the display menu

Each cable which must be connected to the connectors of the communication and control signals must pass through one of the five service cables (G/L). An RS485 cable (that takes cables from 1 mm² to 8 mm² in diameter and a gauge with five holes to insert the cable gland which enables two separate cable entries of a maximum diameter of 3 mm to be accommodated, are available.

Warning! To ensure environmental protection IP65 it is necessary to fix the cable glands to the inverter chassis with a minimum tightening torque of 1 Nm.

Connection to the RS485 communication line

The RS485 communication port is the inverter’s communication port. The ABB inverters use an ABB RS485/DUPLINK communication mode made up of two communication cables (Y+ and Y-) and a communication reference cable (Z). All three cables must be connected in a straight configuration. The inverter can be connected to the serial port using the RJ45 connector (cable for one for each side of the terminal block). The connection is made with RJ45 contacts ‘straight through’ or the 1/2 Duplex configuration. Communication via the terminal block (PE) is recommended. The communication is terminated automatically by switching the dip switch off. The dip switch must be set to ‘OFF’ off.

Characteristics and sizing of the line cable

For the connection of the inverter to the grid, you can choose between a six core (3 phase + PE) and a six core (3 phase + PE + neutral) cable. The six-core cable must be sized to prevent a dangerous overheat in the grid due to high impendence of the line that connects the inverter to the power supply point.

Display

The inverter is powered ONLY by the voltage coming from the photovoltaic generator. Presence of grid voltage above 0.2 V is NOT SUFFICIENT to permit the inverter to start up.

During the grid voltage check and measurement of the insulation resistance, the voltage for the grid voltage and frequency and the insulation resistance measurement on the inverter are shown on the display. The inverter only operates if the grid power levels fall within the range foreseen by current regulations and if the insulation resistance falls within the set parameters.

If the preliminary checks for parallel connection to the grid are successful, the inverter connects to the grid and begins to export power to the grid. At this stage, the display shows the inverter’s parameters in cycles. The green LED (G1) stays lit whereas the others are off. The inverter commissioning procedure is as follows:

- Switch the six-core cable ABB (Cable) to the ON position or close the external switches: if the input voltage applied to one of the two input channels is less than 0.2 V, the inverter will not start.
- The message ‘Installing... Please Wait’ will be displayed. Depending on the input voltage value, the inverter will show various messages on the display and change the behavior of the internal logic.

Commissioning

During the normal operation of the inverter the display cycles through the GENERAL INFORMATION. This information relates to the input and output parameters of the inverter and identification parameters. It is possible to boot logging in a scanner to be constantly displayed.

Press ESC to access the three main menus, which have the following functions:

1. STATISTICS: Display the statistics
2. INFO: Modify the settings of the inverter
3. Display service messages for the operator

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The list of grid standards given in the table was valid at the time of issue of the manual. It will be continually updated as new country standards with which the inverter is compatible are introduced.

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