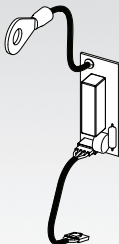


ABB SOLAR INVERTERS

Quick Installation Guide

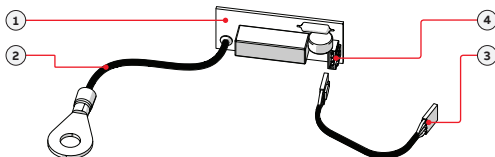
PVS-50/60-GROUNDING KIT
(For PVS-50/60-TL)







1. Main components

Main components

- 1 Negative grounding board
- 2 Negative pole connection cable
- 3 Wiring signals
- 4 Wiring connector signals



2. Supplied component list

Components available in the kit	Quantity
 Negative grounding board	1
 Wiring signals	1
 Warning label	1
 Quick Installation Guide	1

3. Assembly instructions



Access to the zones inside the inverter must be carried out with the equipment disconnected from the network and from the photovoltaic generator. Isolate the inverter by externally disconnecting the AC voltage and DC voltage as well as any voltage connected to multifunction relays. Opening only the DC switches inside the inverter does not permit to operate in safe way considering that some internal parts may remain at hazardous voltages.

When the PVS-50/60-GROUNDING KIT is assembled in one or more inverters connected in parallel to the same transformer winding:

1. the inverters and the PV Array must be installed in Closed Electrical Operating Areas where the access is restricted to instructed persons.

The above is required because the below listed protections against electrical shock hazard on the PV arrays are not included inside inverter or do not operate when grounding-kit is installed:

- Array insulation resistance detection for functionally grounded arrays
- Protection by application of Residual Current Devices
- Residual current monitoring for sudden changes

The following forms of shock hazard protections are provided integral to the inverter:

- Continuous residual current to ground
2. the maximum current flowing to earth, in case of ground fault on the DC side of the plant will be less than $N \times 500\text{mA}$ (PVS-50) or $N \times 600\text{mA}$ (PVS-60) where N is the number of inverters connected to the same transformer winding. This current value must be considered to size the wires and to evaluate the risk of fire.



The earth protection circuit (PE) of the PV plant must have the same potential of the earth protection circuit (PE) of the building (in case of roof-top installation).



The extraneous conductive parts of the building and the earthed conductive parts of the plant must not be accessible simultaneously.



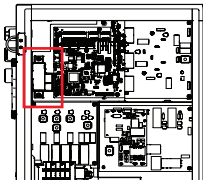
It is not recommended to use the grounding kit in buildings with high risk of fire.



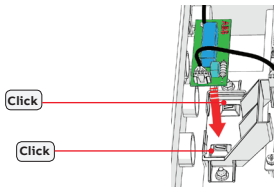
It is not recommended to use the grounding kit in buildings with LPS (lightening protection systems) to avoid potential differences among different earthed conductive parts of the PV plant that people can touch. Restricted access to PV plant reduces this hazard.

The GROUNDING KIT must be installed inside the wiring compartment.

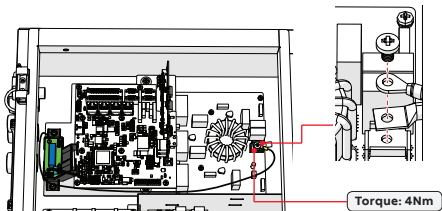
- Open the front cover.
- Install the grounding board on the holder positioned on the lower side of the communication and control card (area highlighted in the figure to the side).



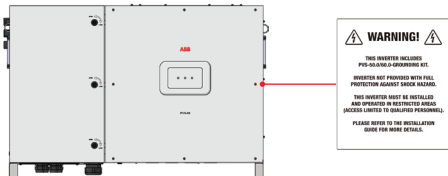
- Press down lightly on both sides of the board until two holding clips will secure the board to the support.



- Connection of the two Grounding Kit card cables.



- Apply the Warning Label in the right side of the inverter (close to the other labels).



4. Grounding Kit enable via Web User Interface

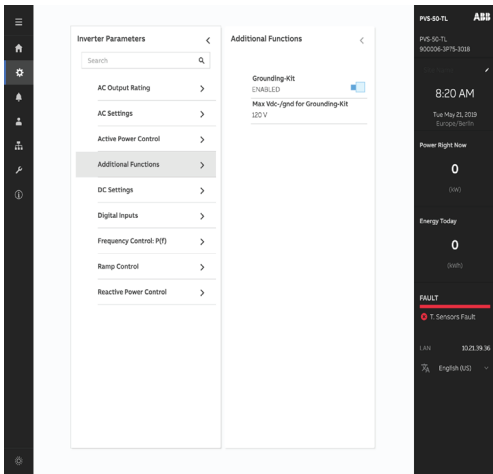
After commissioning the unit it is necessary to enable the GROUNDING KIT entering in the Web UI using the administrator account generated during the previous commissioning procedure.

Enter the Menu: **Setting/Additional Function** and:

1) Set as ENABLED the Grounding Kit with the proper selector.

2) Set the "Max Vdc-/gnd for Grounding Kit" (range: 0...200V); recommended value: 120V. This parameter identifies the threshold Voltage between negative pole and ground, which triggers the inverter disconnection for Ground fault (E037).

See the picture below:

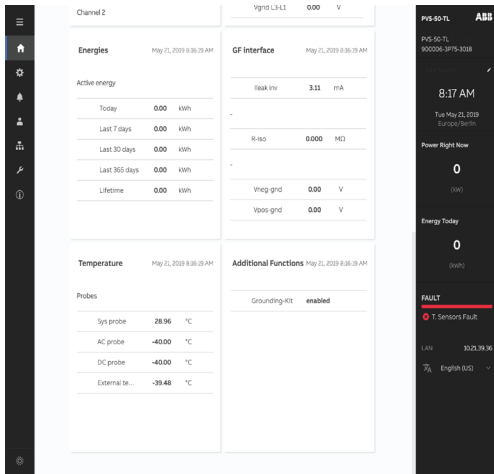


After the previous setting, in the Menu **Home/Additional Functions** will compare the statement "Grounding-kit **enabled**".

In the Menu **Home /GF interface** subsection the following parameters are described:

- a) Vneg-gnd → Voltage between negative pole and ground
- b) Vpos-gnd → Voltage between positive pole and ground

See the picture below:



5. Technical data

Grounding kit

Compatibility	Three-phase inverter models: PVS-50/60-TL
Type of grounding	Resistive
Pole connected to the Ground/Earth	Negative

System requirements

Isolating transformer	Mandatory ¹⁾
Configuration of the isolating transformer	-IT System- Delta or wye configuration on the inverter side, can be used, but transformer poles, including star center point (neutral), cannot be connected/referred to ground
Configuration of the photovoltaic strings	If the system has multiple inverters connected to the same transformer, all strings must be of the same panel type, number of panels in series and orientation.

Maximum number of inverters that can be connected in parallel on a single winding of transformer:

Nominal power of the transformer	1000 kVA	1250 kVA	1600 kVA	2000 kVA	2500 kVA
Maximum number of PVS-50-TL	20	25	32	40	N.A.
Maximum number of PVS-60-TL	17	21	27	33	40

1. NOT SUITABLE for single-or multi-inverter systems that are directly connected to the low voltage network.

The features that are not specifically mentioned in this data sheet are not included in the product

