**ABB solar inverters**

**TRIO-20.0/27.6 - Three-phase inverter**

**Update notification**

The information in this document relates to the Product Manual (BCG.V0L00.1AP_AA) and the ABB Quick Installation Guide.

**Note for the reader**

This document is to be used together with the original product manual or the Quick installation guide for TRIO-20.0/27.6. All the safety precautions indicated in this manual must be read, understood and followed.

The purpose of this document is to provide notification of updates to the documentation included in the original packaging and the assembly procedures.

**Layout**

Refer to the photos and drawings below for each picture shown in the Quick Installation Guide and the Product Manual relating to the Inverter, the Wiring Box and the Wall-mounting Bracket.

**Purpose**

Refer to the photos in the manual. The identification numbers of the parts refer to the photos in the manual.

- With the help of a spirit level mark the 2 holes in the vertical strip (A) to ensure it is mounted vertically. Drill a hole with a bit which is suitable for the depth required by the plug and fit the plugs into the holes, using the spirit level to check it is vertical.
- Tighten the pin (B) on the vertical strip.

**Wall mounting with alternative bracket:**

(Pag.47-48-49 - Product Manual)

N.B.

- Position the bracket (C) in the slot on the vertical strip (A) and mark the 4 holes, using a spirit level to check it is horizontal.
- Drill with a bit which is suitable for the depth required by the plug and fit the plugs into the holes just made.
- Fit the bracket (D) into the slot of the (A) and tighten the screws, using a spirit level to check it is horizontal.
- Fit the bracket (E) into the slot of the (A) and tighten the screws, using a spirit level to check it is horizontal.

**Dismantling Inverter and Wiring Box**

(Pag.117,118 - Product Manual)

Refer to the photos in the manual for the parts numbers and use the optional coupling screw.

Before dismantling the Inverter and the Wiring Box:

Insert the coupling screw (E) until it comes up against the Wiring Box flange.

Then, follow the instructions provided above but in the reverse order.

**Checking the polarity of the strings**

(negative fuse board), additional characteristic

Each input on the versions (-S2F and -S2X) is equipped with a protection fuse (negative fuse is not fitted during manufacture) and a visual indicator (LED) to indicate correct polarity (LED mounted on the negative fuseboard). To check the polarity, connect all the strings and check that the LEDs on the negative fuse board (see the figure to the side) are activated. If one or more than one LED is not activated, the polarity of the corresponding strings is to be considered INCORRECT. Once the check has been carried out, DISCONNECT both the positive and negative strings and, checking there is no voltage at the DC inputs, install the protection fuses (supplied) with the aid of fuse holders; reconnect the quick-fit connectors. Also check that the fuse current rating is the correct size for the photovoltaic modules installed.

- Fasten the Wiring Box (B) inserting the head of the rear screws into the slots in the bracket, remove the front cover and carry out all the necessary connections.
- N.B. the inverter does not need to be installed (B) at this stage.
- Unscrew the connection screws (C) and remove the cover (D) so that you can access the connector between the Wiring Box and the Inverter.
- Mount the inverter by putting the heads of the rear screws into the slots in the bracket. To make this operation easier, handle (E) or 2 eyebolts (M12) can be fitted in the side holes. The threaded wall plug in the lower part of the heat sink makes contact with the pin (F) keeping the inverter in the ideal position.
- Use the preset screw or insert the coupling screw (optional coupling screw) and tighten it bringing the Wiring Box towards the inverter until it makes easy contact. (see fig.)
- Tighten the 2 internal screws (G) fully to the centring pins in the Wiring Box ensuring the gasket adheres correctly.
- Fix the assembled inverter to the bracket by tightening the locking screw (H) located at the bottom. (see fig.)
- Remove the coupling screw (I) used for coupling carefully as it could come out from below.

N.B.

- Never use any strength greater than 20 N to install the coupling screw (H). If more strength is necessary, use an additional screw (optional). Each coupling screw (H) is supplied with a washer (J), which must be tightened to the limit of the locking function.

**Bracket on alternating walls:**

(Pag.23 - Product Manual)

Bracket on alternating walls: Size (Point 7 - Quick Installation Guide)

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The -S2X version has 5 DC overvoltage surge arresters, as indicated in the block diagram below.

Because the string fuses, situated on each input, are not sized to take strings in parallel (array). This operation can damage the fuse, compromising string protection and consequently causing the inverter to malfunction.

The rear coupling screw is not included in the inverter supply. It can be purchased separately and used as a fitting tool during installation. This tool must be extracted from the wiring box after assembly and can be used in other installations. Before removal, make sure that the connection screws are tightened and that the assembled inverter is secured to the wall bracket. Be careful when removing the coupling screw as it is free to come out from below.

The relay can be set to switch in 7 different contacts.

N, S, L1, S, L2, S, L3, S

- MODE 1 - Alarm (no latch):
  - The relay is activated (status: switched) when a fault (all system or network errors) is activated. When the inverter reconnects to the AC grid, the relay returns to its rest position.

- MODE 2 - Configurable alarm (no latch):
  - The relay is activated (status: switched) when one of the configured errors/warnings is activated (the user can select one or more possible error/warning events). The relay returns to its rest position when the fault has been restored (meaning that the inverter is in "stand-by" mode and could potentially begin a new connection to the grid if DC and AC voltages are present).

- MODE 3 - crepuscular:
  - The relay is activated (status: switched) when the DC input voltage exceeds the minimum threshold for connection to the AC network (Vsystart). The relay returns to its rest position when there is no DC power supply.

- MODE 4 - Alarm (latch):
  - The relay is activated (status: switched) when a fault (all system or network errors) is activated. When the inverter reconnects to the AC grid, the relay returns to its rest position.

- MODE 5 - Configurable alarm (latch):
  - The relay is activated (status: switched) when one of the configured errors/warnings is activated (the user can select one or more possible error/warning events). When the inverter reconnects to the AC grid, the relay returns to its rest position.

- MODE 6 - Configurable alarm table:
  - In this mode the user can independently configure one of the errors/warnings to check the relay according to the Alarm mode (latch) or Alarm mode (no latch).

Environmental alarm (Point 7 - Quick Installation Guide)

The standard string protection fuses installed on the inverter have the following features:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Nominal current</th>
<th>Nominal current (Max.)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 V DC</td>
<td>15 A</td>
<td>20 A</td>
<td>gPV</td>
</tr>
</tbody>
</table>

Characteristics and technical data, Input protections, update

(String fuses (wiring box -S2F/-S2X /-S1J/-S2J), update (Pag. 19 - Product Manual)

Versions -S2F/-S2X /-S1J/-S2J are preinstalled with string fuses in (in the wiring box) which protect the PV generator connected to the inverter in the event of inverse current.

In these versions of the wiring box, you MUST directly connect the individual strings coming into the inverter (do not make field switchboards for parallel strings). This is not present on TROI-20.0/27.6-TL-OUTD.

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表: routine maintenance, update (Pag. 108 - Product Manual)

Annual visual checks
Check there are no obstacles (animals, insects, leaves or anything which could reduce the heat exchanging capacity of the heat sink) at the top, at the bottom and between the fins.

Strings fuses (wiring box -S2F/-S2X/-S1J/-S2J)

The rear coupling screw is not included in the inverter supply. It can be purchased separately and used as a fitting tool during installation. This tool must be extracted from the wiring box after assembly and can be used in other installations. Before removal, make sure that the connection screws are tightened and that the assembled inverter is secured to the wall bracket. Be careful when removing the coupling screw as it is free to come out from below.

The relay is activated (status: switched) when a fault (all system or network errors) is activated. When the inverter reconnects to the AC grid, the relay returns to its rest position.

MODE 1 - Alarm (no latch):
- The relay is activated (status: switched) when a fault (all system or network errors) is activated. When the inverter reconnects to the AC grid, the relay returns to its rest position.

Further information, please contact an ABB representative or go to:
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