ABB solar inverters

TRIO-20.0/27.6 - Three-phase inverter
Update notification

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 - Three-phase inverter. All the safety precautions indicated in this manual must read, understood and followed.

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

Purpose

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

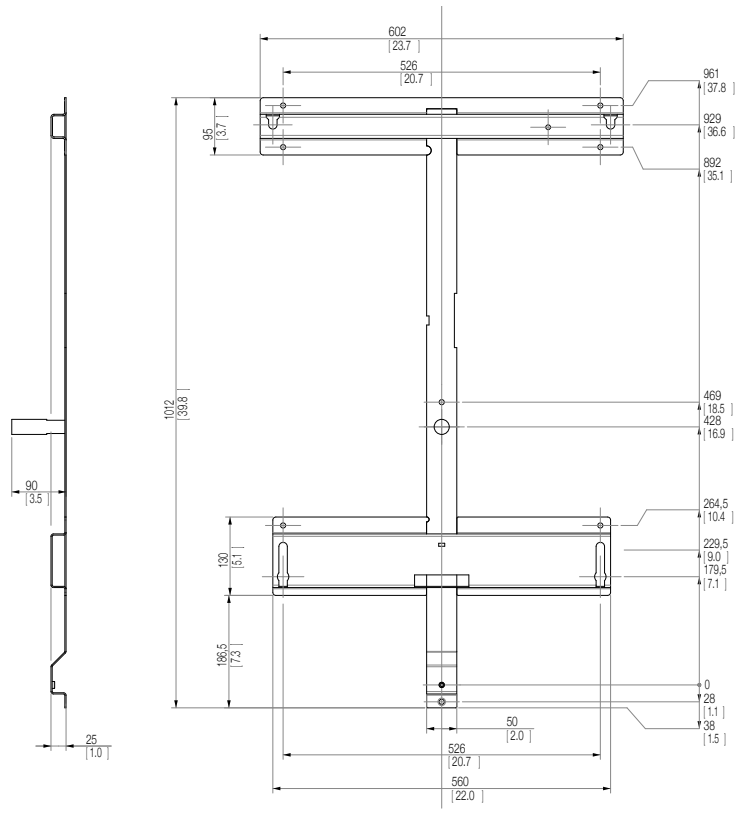
Layout

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.

Power and productivity
for a better world™

Bracket on alternating walls: Size (Pag.23 - Product Manual)

All dimensions are expressed in mm and [inches]

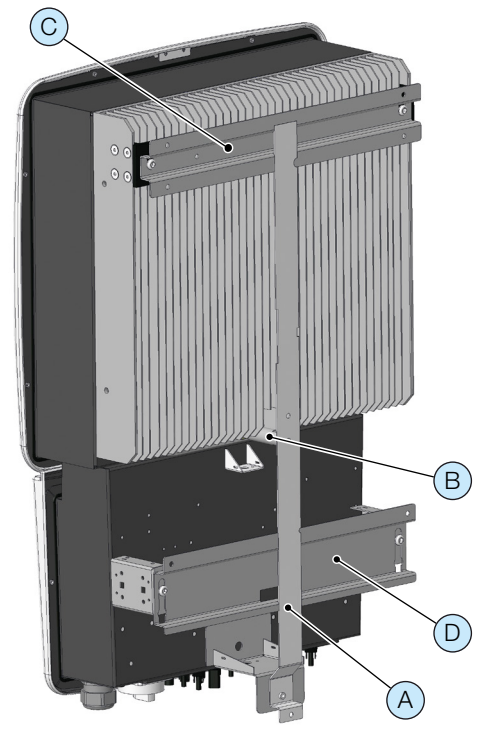


Wall mounting with alternative bracket: (Pag.47-48-49 - Product Manual) (Point 7 - Quick Installation Guide)

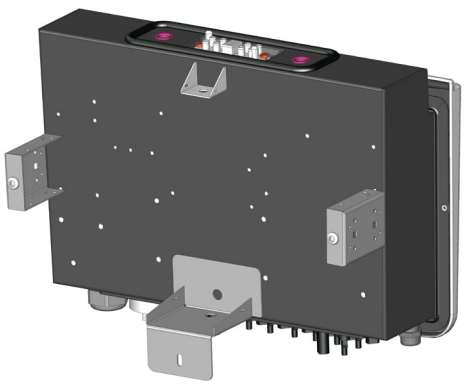
For the identification numbers of the parts refer to the photos in the manual.

- 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 (A) vertical strip
- 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
- Position the bracket (D) in the slot on the strip (A) and mark the 2 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 (C) into the slot of the (A) and tighten the screws, using a spirit level to check it is horizontal
- Fit the bracket (D) into the slot of the (A) and tighten the screws, using a spirit level to check it is horizontal

- Fasten the Wiring Box (02) 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 (03) at this stage
- Unscrew the connection screws (07) and remove the cover (04) 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, handles (06) 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 (B), keeping the inverter in the ideal position.
- Use the prefitted screw or insert the coupling screw (05) (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 (07) 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 (27) located at the bottom. (see fig.)



- Remove the coupling screw (05) used for coupling carefully as it could come out from below



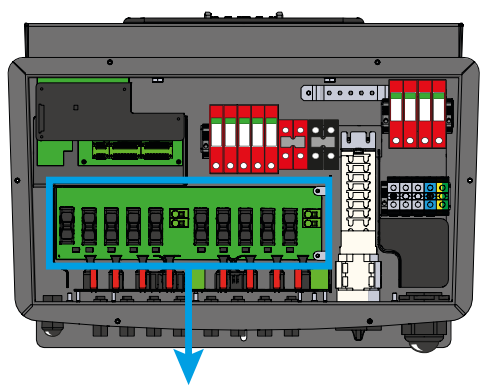
Dismantling Inverter and Wiring Box (Pag. 117, 118 - Product Manual)

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 (05) until it comes up against the Wiring Box flange

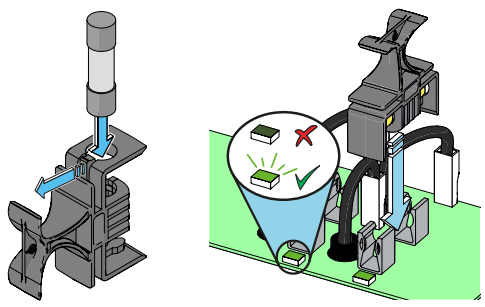
Then, follow the instructions provided above but in the reverse order.

Checking the polarity of the strings (negative fuse board), additional characteristic



Negative string fuses

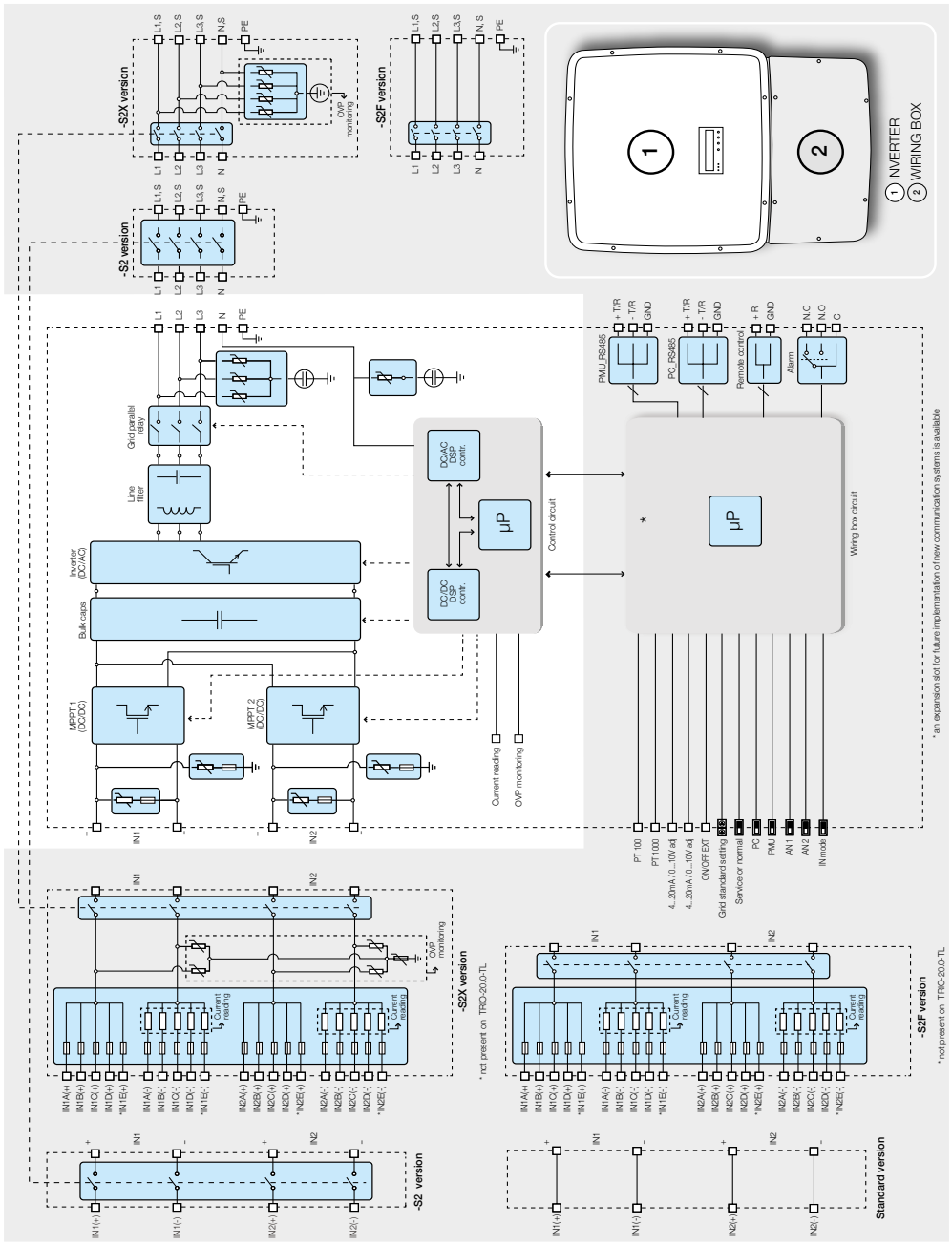
Each input on the versions (-S2F and -S2X) is equipped with a protection fuse (negative fuse is not fitted during manufacture) and a visual indicator (LED) to indicate correct polarity (LED mounted on the negative fuseboard). To check the polarity, connect all the strings and check that the LEDs on the 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.



During the polarity check of the strings, the disconnect switch must be set to OFF.

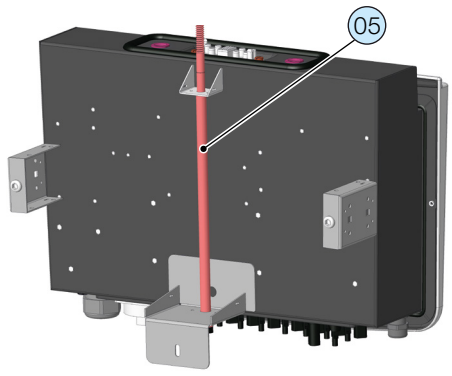
Block Diagram, update (pag. 34 - Product Manual)

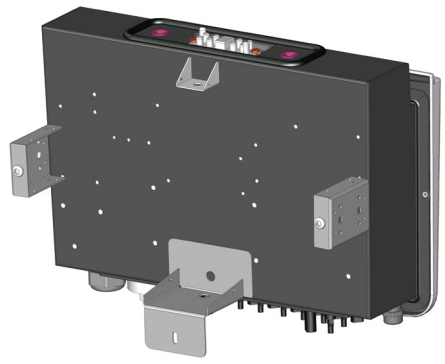
The -S2X version has 5 DC overvoltage surge arresters, as indicated in the block diagram below.



Coupling screw, optional (Pag. 48 - Product Manual) (Point 7 - Quick Installation Guide)

The rear coupling screw (05) 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 (07) 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.





String fuses (22) (wiring box -S2F/-S2X/-S1J/-S2J), update (Pag. 19 - Product Manual)

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

Voltage	Nominal current	Nominal current (Max.)	Type
1000 V DC	15A	20A	gPV

Characteristics and technical data, Input protections, update (Pag. 20 - Product Manual)

Input protection	TRIO-20.0/27.6-TL-OUTD
Maximum current for each input connector (only versions -S2F/-S2X /-S1J/-S2J)	13.5 A

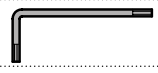
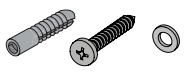
String fuses, update (Pag. 35 - Product Manual)

Versions -S2F/-S2X /-S1J/-S2J are preinstalled with string fuses in (02) the wiring box (22) 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 because the string fuses (22), 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.

List of components supplied, update (Pag. 41 - Product Manual)

Components available for -S2F / -S2X / -S1J/ -S2J models		Total quantity
	Fuses gPV - 1000V DC - 15.0 A	16 (20 kW) 20 (27.6 kW)

List of components not supplied, update (Pag. 41 - Product Manual)

List of components no longer supplied		Quantity
	Male key TORX TX20	1
	Plugs, screws and washers for wall mounting	10 + 10 + 10

Designated anchorings need to be used depending on the type of wall. The anchorings must ensure that the inverter is correctly supported. The type and size of the anchorings will depend on the type of wall. Size them taking into consideration an overall load 4 times the weight of the inverter (420 kg) distributed over the 6 fastening points of the horizontal brackets.

Table: 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.

Alarm relay mode (Pag. 98-99 - Product Manual)

Th "Alarm" section of the "Settings" menu is used to set the activation state of a relay (available both as a normally open contact – N.O. – and as a normally closed contact – N.C.).
This contact can be used, for example, to: activate a siren or a visual alarm, control the disconnect device of an external transformer, or control an external device.
The relay can be set to switch in 7 different modes:

MODE 0 - Production:
The relay is activated (status: switched) when the inverter connects to the AC grid. When the inverter disconnects from the AC grid, the relay contact returns to its position of rest.

MODE 1 - Alarm (no latch):
The relay is activated (status: switched) when a fault (all system or network errors) is activated. 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 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 (Vstart). The relay returns to is 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).

- It is recommended that packaging is kept in case any returns are required; returning items in insufficient packaging will invalidate the warranty.
- Always keep the Quick Installation Guide, all accessories supplied and the connector cover.
- The Quick Installation Guide and accessories are not to be returned as they will not be resupplied.
- If returning the Wiring Box, the connector cover must be fitted for transport. If it is not fitted, the warranty will be invalidated.

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

www.abb.com/solarinverters
www.abb.com/solar
www.abb.com

BCD.00641 Rev. A EN 03.12.2015

Power and productivity for a better world™