

ABB solar inverters

Quick installation guide
TRIO-50.0-TL-OUTD-US

EN



Before starting installation, download the product manual from www.abb.com/solarinverters. Choose the correct country, string inverters, three phase, choose the product and proceed to the "download" section.
Read and follow all safety and installation instructions to avoid disabling any safety features or making the warranty invalid.

Power and productivity
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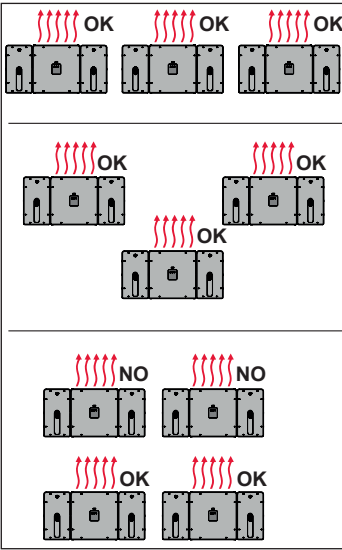


1. Labels and symbols

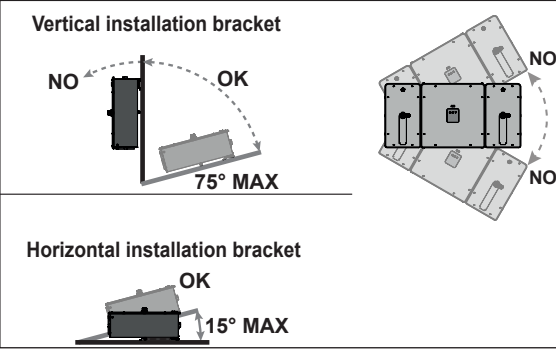
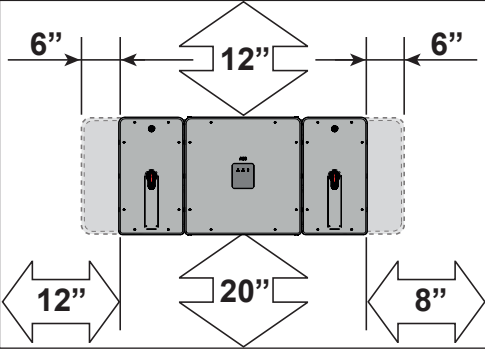
IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS -- KEEP IN A SAFE PLACE!	
The installer must read this document in its entirety before installing or commissioning this equipment. For more detailed information regarding proper installation and use of this product, refer to the product manual located at www.abb.com/solarinverters . The labels on the inverter carry the markings, main technical data and identification of the equipment and manufacturer. The technical data shown in this quick installation guide does not replace that shown on the labels attached to the equipment.	
Symbols used in the guide and on the products	
	These are nationally recognized test laboratory marks showing certification to UL 1741 and CSA-C22 No. 107.1-01
	Phase
	Direct and alternating currents, respectively
	Positive and negative of the input voltage (DC)
	Stored energy discharge time
	Consult product manual
- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.	

2. Choice of installation location

- Installation site and position**
- Consult technical data to confirm the environmental specifications will be met
 - Installation of the unit in a location exposed to direct sunlight is acceptable.
 - Do not install in closed spaces where air does not freely circulate
 - Always ensure that the flow of air around the inverter is not blocked, so as to prevent overheating.
 - Do not install the equipment near flammable substances (minimum distance: 10 ft).
 - Do not install the equipment on wooden walls or other flammable substances.
 - Do not install in rooms inhabited or where the prolonged presence of people or animals is expected, because of the inverter's noise level during operation. The sounds level is heavily influenced by its location (for example, the surface around the inverter, the environment, etc.) and grid quality.
 - Install on a wall or strong structure capable of bearing weight
 - Install vertically or horizontally (i.e. with the inverter on its back), with a maximum inclination as indicated in the figure
 - Maintain minimum clearance from objects blocking air circulation and spacing between inverter as indicated in the figures
 - Ensure sufficient working area in front of the inverter for wiring box access
 - If possible, install at eye-level so that the LEDs can be easily seen
 - Install at a height that takes account of the weight of the equipment
 - Position multiple inverters side-by-side, maintaining minimum clearances (measured from the outermost edge of the inverter)
 - Multiple inverters can also be placed in a staggered arrangement. Minimum clearances for staggered arrangements include width of inverter plus additional allowances for inverters arranged above or below
 - All installations over 6500' (2,000 meters) must be assessed by ABB Technical Sales to determine the proper datasheet derating



Do not block access to the external AC and DC disconnects.
Please refer to the warranty terms and conditions and avoid voiding the warranty with improper installation.

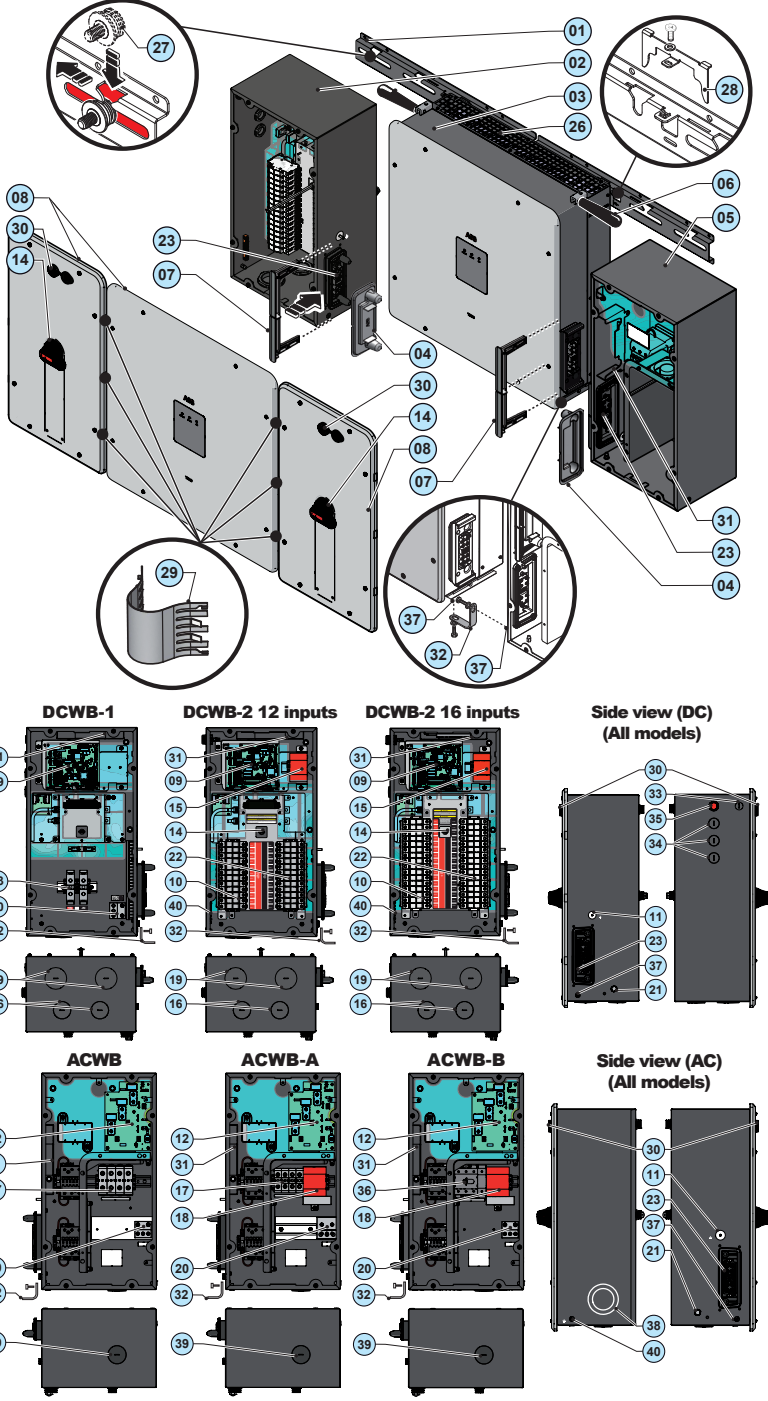


3. Inverter models and components




















The inverter model must be chosen by a specialized technician who has a good knowledge of the installation conditions, the devices that will be installed externally to the inverter, and whether it will eventually be integrated into an existing system.
The 50kW TRIO module is the same for all inverters, however different AC and DC wiring boxes will have been ordered depending on the site design:
- DC wiring box models: DCWB-1; DCWB-2(12 inputs); DCWB-2(16 inputs).
- AC wiring box models: ACWB Standard; ACWB-A; ACWB-B;
The main features of each wiring box are described at section 15 of this document.

Main components

- 01 Mounting bracket
- 02 DC wiring box
- 03 Conversion module
- 04 Quick disconnect connector cover
- 05 AC wiring box
- 06 Handles
- 07 Aluminum locking bracket
- 08 Front cover
- 09 Communication and control board
- 10 Positive (+) side string fuses
- 11 Ground cable attachment points
- 12 AC filter board
- 13 DC input terminal block
- 14 DC disconnect switch
- 15 DC surge protection device
- 16 1.1/2" DC conduit opening
- 17 AC output terminal block
- 18 AC surge protection device
- 19 2" DC conduit opening
- 20 Protective Earth (PE) connection point
- 21 Anti-condensation valve
- 22 Negative (-) side string fuses
- 23 Quick disconnect connectors
- 24 Spacers
- 26 Heatsink
- 27 Rear pins attached to inverter back side
- 28 Stabilization bracket
- 29 Conducting springs
- 30 Key lock
- 31 Quick disconnect cover storage rack
- 32 Ground brackets
- 33 WiFi antenna opening plug (M20 size)
- 34 Signal conduit opening for 3/4" (Pg21 size)
- 35 1/2" signal conduit opening (Pg16 size) or button to reset AFD fault
- 36 AC disconnect switch
- 37 Ground bracket attachment points
- 38 Marking for 1.1/2" AC conduit opening
- 39 1.1/2" AC conduit opening
- 40 Equipment Grounding Conductor (EGC) connection point

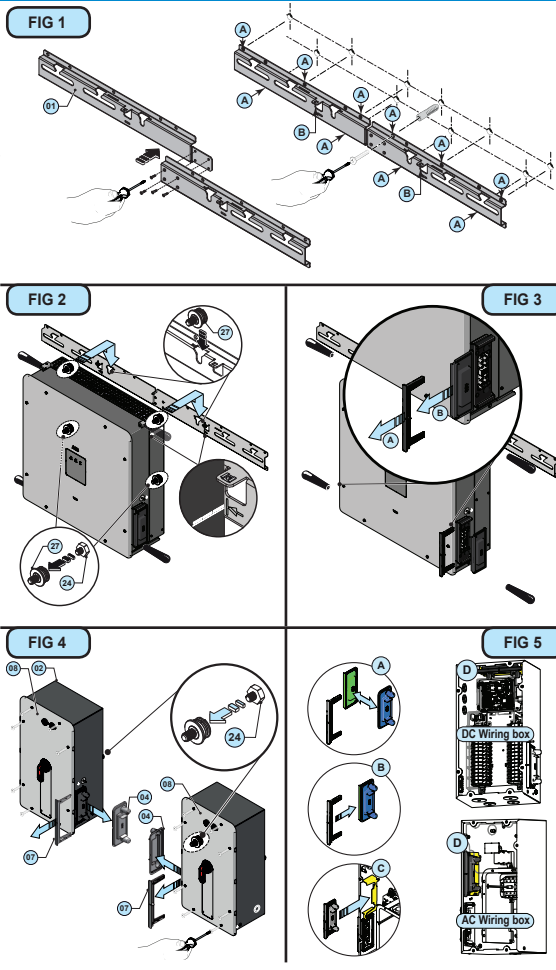


5. Packing list

Components included in all DC wiring box models		Quantity	Components included in mounting kit		Quantity (vertical kit)	Quantity (horizontal kit)	
	Configurable relay connectors	2		M6x16 hex screw (4 to clamp ground brackets and 2 for caged nuts)	6	6	
	Control and communications signal connectors	4		Stabilization brackets to attach the conversion module to the wiring box	2	2	
	M6 hex nut to clamp ground cables to the wiring boxes	2		M6 cage nuts	2	2	
	M6x16 hex screw	1		M6 hex nut to clamp ground cables to the conversion module	2	2	
	Serrated lock M6 washer for securing the ground terminal to the AC wiring box	6		Back spacers ②④ for wall alignment (vertical installation)	4	0	
	Quick installation guide (QIG)			Ground cables for wiring box/power module connection	2	2	
Components included in mounting kit		Quantity (vertical kit)	Quantity (horizontal kit)		Ground brackets ②④ for wiring box-power module connection	2	2
	Bracket ② for vertical wall mounting	1	0		M6 flat washer (4 for ground brackets and 2 for cage nuts)	6	6
	Bracket ④ for horizontal mounting	0	1		Serrated lock M6 washer for ground connection bracket	8	8
	countersunk M5 x 14 hex screws for assembling the attachment bracket	4	10		Conducting springs	6	6

6. Assembly instructions

- Mounting on a vertical wall**
- The bracket 01 is supplied in two separate parts, assemble them using the four M5x14 countersunk screws. (FIG. 1)
 - Position the bracket 01 perfectly level on the wall and use it as a drilling template. (FIG. 1)
 - It is the installer's responsibility to choose an appropriate number and distribution of attachment points. The choice must be based on the type of wall, frame or other support, the type of anchors to be used, and their ability to support 4 times the inverter's weight (4 x 260 lbs=1040 lbs for all models). Attach the bracket to the wall with at least 10 attachment screws. Depending on the type of anchor chosen, drill the required 10 holes (A) to mount the bracket. Put at least four screws in the upper side and at least four in the lower side, with the remainder (up to 20 total) in either location. (FIG. 1)
 - Attach the bracket to the wall or frame (FIG. 1)
 - Install spacers 29 in the two lower rear attachment pins 07 of the conversion module. This will prevent backwards tilt when the conversion module is hung on the bracket. (FIG. 2)
 - Lift the power module up to the bracket using the (optional) handles 06 or the (optional) M12 eyebolts, or another appropriate lifting device. (FIG. 2)
 - Slide the heads of two upper rear attachment pins 27 into the slots 35 on the bracket and confirm that the slots 35 on the bracket are aligned with the line on the sides of the conversion module; this indicates that they have been correctly positioned.(FIG. 2)
 - Remove handle or eye bolts (if used)
 - Remove the quick disconnect connector covers as follows :
 - Pull the aluminum locking bracket outwards (A) (FIG. 3)
 - Pull off the quick disconnect cover (B) (FIG. 3)
 - Save both parts. They will be needed in a later step.
 - Set the wiring box disconnect switches to "0".
 - Unscrew the 8 screws holding the front covers 08 of the DC wiring box 02 and AC wiring box 05 in place.
 - Open the key locks and remove the covers of each wiring box. (FIG. 4)
 - Install spacers 29 in the lower rear attachment pin 20 of each wiring box. This will prevent backwards tilt when the wiring box is hung on the bracket. (FIG. 4)
 - Remove the quick disconnect connector covers from both wiring boxes (See step 9 of this procedure) (FIG. 4). Caps should be kept in the special slot within each wiring box. Proceed as follows:
 - (A) couple a connector cap of the power module (in green in the figure) with one from the wiring box (in blue in the figure).
 - (B) Insert the plastic locking bracket used to block the wiring box cap on the coupled connectors.
 - (C) Insert the two connectors locked by the fork in the dedicated space within each wiring box (D). Repeat the same operation for the other wiring box.**Do not use aluminum locking bracket to clamp the caps. (FIG. 5)**



15. Attach the two green/yellow ground wires to the attachment points ⑪ on each wiring box with the M6 lock washer and the M6 nut which are shipped with the inverter (torque to 11Nm or 8ft-lb). Let the loose end of the cable hang downwards. (FIG. 6)
16. Attach the two ground brackets ⑫ to the attachment points ⑬ on each wiring box with the M6 flat washer, M6 lock washer and the M6 hex screw which are shipped with the inverter. Let the screws loose and not tightened. The bracket is not symmetrical. When you install it in the attachment point ⑭, make sure that the side with 2 holes is facing downwards. (FIG. 6)
17. Insert the rear studs ⑮ on top of first wiring box into the bracket slots. Then do the same with the other wiring box. This way, the wiring boxes will be somewhat detached from the power module, so that they won't interfere with the quick disconnects ⑯. (FIG. 7)
18. Attach the wiring box ground cable to the converter module with the following hardware stackup: lock washer, ground cable, lock washer and hex nut (torque to 11Nm or 8ft-lb). (FIG. 7)
19. Attach the power module to the wiring boxes one at a time by sliding them horizontally onto the bracket ⑰ and make sure that the quick disconnect ⑱ are correctly inserted. (FIG. 7)
20. Once coupling has been completed, the aluminum locking bracket ⑲ must be installed into the appropriate seats on the quick disconnects ⑳. This way, the wiring boxes get mounted to the power module.
21. Insert the stabilization bracket ㉑ into the guides and block the screw on the caged nuts previously mounted on the bracket.
22. Attach the ground brackets ㉒ in the mounting points ㉓ on the lower side of the conversion module with the M6 flat washer, M6 lock washer and the M6 hex screw which are shipped with the inverter (torque to 11Nm or 8ft-lb). (FIG. 8)
23. Torque the two screws (one for each wiring box) on the 2 ground brackets ㉔. (FIG. 8)
23. When wiring is complete, close the key locks and attach the front covers ㉕ to the two wiring boxes (8 screws each).
24. Install the 6 conducting springs ㉖ between the power module cover ㉗ and the wiring box covers, in the unpainted areas. (FIG. 9)


FIG 6

FIG 7

FIG 8

FIG 9

The inverter can also be installed horizontally using the horizontal installation bracket. Horizontal installation instructions are in the TRIO 50kW product manual available at www.abb.com/solarinverters (select appropriate country location on website).

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To prevent electrocution hazards, open and lock out the external AC disconnect switch before connecting the AC conductors, and any time the AC wiring box cover is to be removed. Proper PPE is required.
- Caution! Connect the ground before starting the grid connections.**

AC output overcurrent protection is not provided with the inverter; it is the responsibility of the end user to provide overcurrent protection for the AC output circuit. To reduce the risk of fire, connect only to a circuit provided with an overcurrent protection in accordance with the NEC (ANSI/NFPA 70). The inverter must be connected only to a dedicated branch circuit provided with the maximum branch overcurrent protection device (OCPD) listed in the technical data sheet at the end of the document.

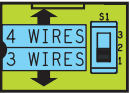
Size conductors per NEC Article 310 -- use 90°C copper wire only; conductors must be sized according to operating temperature range and continuous current ratings. The AC grid wiring is connected through the inverter wiring box.

AC output wire must be UL listed wire rated minimum 600V.


Before connecting the inverter to the distribution grid, set the country standard using the two a05 rotary switches. The inverter can be connected to the grid through a three-wire or a four-wire connection.

- Standard and -A model AC wiring box:**
- AC conductors (4AWG to 000AWG, copper or aluminum, torque to 14Nm / 10.3ft-lb) will be connected to a terminal block ⑰ inside the AC wiring box.
- B model AC wiring box:**
- AC conductors (7AWG to 00AWG, copper, torque to 6Nm / 53in-lb) will connect to the AC disconnect switch ⑳. The AC disconnect switch is designed for copper wire. If aluminum wire is used, terminate the aluminum wire with a bi-metallic terminal.
 - The wires will be connected to the AC disconnect switch inside the AC wiring box.

- AC cable installation:**
- Remove the plug and install the conduit on the bottom side of the wiring box. There is one opening in the wiring box for AC conductors. If needed, a second conduit opening may be added at the location silkscreened on the right-side chassis wall. Use a punch tool or appropriate saw to cut the opening.
 - run the AC cables through the opening(s).
 - Connect the ground cable to the protective earth (PE) connection point ㉑.
 - Connect the grid conductors to the AC output terminal block ⑰ in the Standard / -A models or directly to the disconnect switch ⑳ in the -B wiring box.
 - Give each wire a pull test to confirm the connection is secure.
 - Set the switch on the AC filter board, based on the grid connection configuration: choose **3WIRES** for delta configurations (L1+L2+L3) or **4WIRES** for WYE configurations (L1+L2+L3+Neutral).

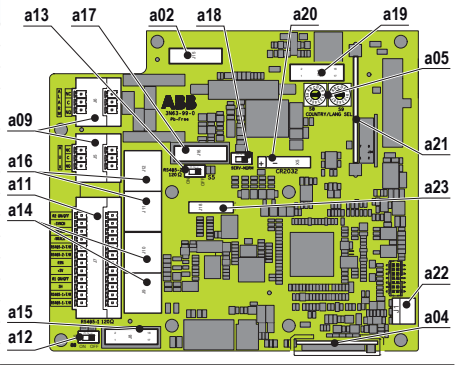


The following table shows the main components and connections available on the communication and control board. Each connection cable reaches the communication board through signal conduit opening ㉒ ㉓.



See the product manual for details on the connections and functions available on the communication and control board.

Inverter Ref.	Manual Ref.	Description of the communication and control board ㉔
J16	a02	Expansion board connector (optional)
S8 - S9	a05	Country grid standard rotary switches
J5 - J6	a09	Multifunction relay connector (ALARM and AUX)
J4	a11	PC RS485 serial connection (PC); 5V auxiliary, remote ON/OFF, and tachometer signal (wind version only)
S2	a12	RS-485 line 1 termination resistor
S4	a13	RS-485 line 2 termination resistor
J7 - J8	a14	RS-485 line 1 termination on RJ-45 connector (requires special wiring)
J10	a15	RS-485 line 1 communication board connector
J5 - J6	a16	RS-485 line 2 termination on RJ-45 connector (requires special wiring)
J9	a17	RS-485 line 2 communication board connector
S6	a18	Normal/service mode toggle switch
J12	a19	Inverter data memory card slot
BT1	a20	Battery housing
J24	a21	AFD (Arc Fault Detector) housing
J1	a22	Grounding kit housing (optional)



- The procedure for inverter commissioning:
- confirm all wires are secure
 - confirm PV polarity
 - confirm all covers are installed and secured
 - close (turn ON) the external AC disconnect switch. For the moment, leave the AC disconnect on the inverter OFF.
 - close (turn ON) DC disconnect switch(es).
 - watch for the green "Power" LED to begin flashing a few seconds after the DC disconnect is closed
 - wait for the yellow "alarm" LED to light up and remain on, indicating there is no AC mains
 - close (turn ON) the inverter AC disconnect
 - watch for the yellow LED to turn off, while the green LED continues to flash while the inverter runs self-tests and grid checks. The time required varies from ~30 seconds to a few minutes, depending on the grid condition and standards
 - watch for the green LED to stop flashing remain ON if when self-tests and grid checks are complete and the inverter starts production.

- Possible errors
- Green LED continues to flash - the solar irradiation is not sufficient to power on the inverter
 - Yellow alarm light illuminates - requires debug using Aurora Manager software
 - red "GFI" LED lights - the inverter detected ground leakage current. Turn the inverter OFF, open the disconnect switches and locate the ground fault.

- For -2 and -3 DC wiring box models only, the AFD performs a self-test when the system is started.
- If the self-test results are OK, the inverter will continue to AC grid connection.
 - If a potential problem on the AFD board is detected, the self test will result in error E053.
- Refer to the product manual (downloadable as described on the cover page) for troubleshooting suggestions.

- During normal operation the input current is continually measured and analyzed.
- If a DC arc fault is detected during operation, the inverter is disconnects from AC grid and generates an E050 error code (readable through Aurora Manager software).
 - Press and hold the AFD reset button on the left side of the DC wiring box for 3 seconds. This will clear the E050 error and restart the self test.
 - If self-test results are OK, the inverter will reconnect to the AC grid; if the DC arc fault is still present, the self-test will result in error E053. Refer to the product manual online for solutions. The AFD self-test can be manually started anytime using the following procedure:
- Turn off the inverter (switching off both DC and AC switches).
 - Turn on both the DC and AC switches and wait for self-test result.
- If the AFD trips frequently, it means arcs are occurring. Turn the inverter OFF and request service to do complete check of the system wiring, including all connections and junction boxes, to locate the problem.

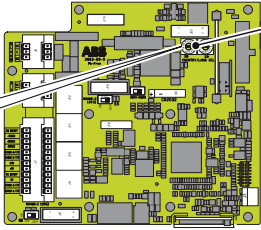
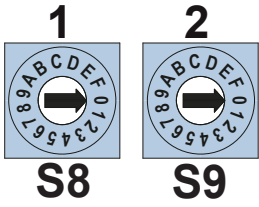
This inverter has been factory programmed to automatically disconnect from the utility distribution system in compliance with UL 1741 and IEEE 1547 specifications. Default voltage and frequency trip limit and trip time settings to comply with these standards are shown in table below. Aurora Manager software can be used to adjust Voltage and Frequency Trip Limit and Trip Time Parameters according to Grid requirements of installation locale. Refer to product manual for instructions on how to use Aurora Manager softwarethe Aurora Manager software.

Condition	Utility source		Max. time (sec) ² at 60Hz before cessation of current
	Voltage (V)	Frequency (Hz)	
A	< 0.50 Vnom (Fixed)	Rated (60Hz)	0.16 (Fixed)
B	0.50 Vnom ≤ V < 0.88 Vnom (Adj. Set Points 55% to 88%)	Rated (60Hz)	2 (Default)(Adj. Set Points 0.16 to 30 sec)
C	1.10 Vnom < V < 1.15 Vnom (Adj. Set Points 110% to 115%)	Rated (60Hz)	1 (Default)(Adj. Set Points 0.16 to 30 sec)
D	1.15 Vnom ≤ V(Fixed)	Rated (60Hz)	0.16 (Adj. 0.001 to 0.16s)
E	Rated	f>60.5Hz (Default)(Adj. 60.2 to 64.0 Hz)	0.16 (Default) (Adj. 0.16 to 300 sec)
F	Rated	f<59.3 Hz (Default)(Adj. 59.8 to 50.0 Hz)	0.16 (Default) (Adj. 0.16 to 300 sec)
G	Rated	f < 57.0 Hz	0.16 (Default) (Adj. 0.16 to 300 sec)
H	Rated	f > 63.0 Hz	0.16 (Default) (Adj. 0.16 to 300 sec)


Before commissioning, the inverter must be set for the correct grid standard. Depending on the country where the inverter is installed, there are different grid standard parameters.

- Before setting the rotary switches, confirm the inverter is OFF!**
- The installer must be aware of the correct grid standard to be set.**
- The inverter is configured using the rotary switches a05. The table shows the grid standard based on the position of the rotary switches a05.
- The list of grid standards provided in the table is valid as of the publication date of this product's QIG and product manual. The grid standards will be continually updated with the introduction of compatible inverter country standards.

Once the inverter is turned on, the grid settings can be modified only within the first 24 hours of operation. DC voltage is required.




Switch		Country grid standard
1	2	
0	0	NOT ASSIGNED
0	4	UL 1741 @ 277V Three Phase
3	4	USA - RULE21 THREE PHASE
3	B	USA - Hawaii THREE PHASE

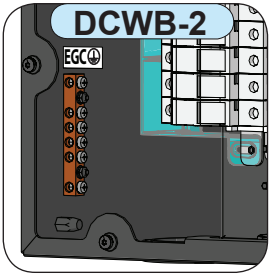
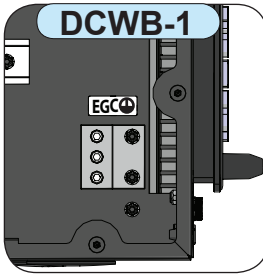
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Confirm the PV array's input polarity is connect.

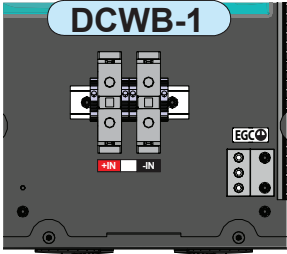
Confirm the PV array has no ground leakage current.

The DC disconnect switch disconnects the DC current from the PV panels in the "OFF" position. The inverter will stop producing power, but DOES NOT disconnect the AC from the grid. To prevent electrocution hazards, all the connection operations must be carried out with the external AC disconnect switch (grid side) of the inverter open and locked out.
- 

The transformerless design of the inverter requires that the PV array to be floating with respect to ground per NEC 690.35. Per NEC 690.35, wires from the PV array must be UL-listed, 1000V minimum rating, 90°C minimum temperature rating.



- The PV array equipment ground wire(s) must be connected to the equipment ground terminal block (labelled "EGC") in the DC wiring box.
- 1 model: EGC terminal block accept 3 wires 4AWG to 0AWG (copper or aluminum). Torque to 14Nm (10.3 ft-lb).
 - 2 model: EGC terminal block accept 6 wires 6AWG to 4AWG (copper). Torque to 14Nm (10.3 ft-lb).



- 1 model, DC wiring box**
- In this model of DC wiring box the PV array is connected to the inverter through the DC input terminal block ⑬ by inserting the cable into the DC conduit openings ⑬ ⑭.

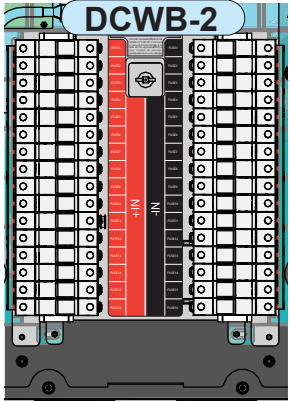
- Confirm the DC cables are 4AWG - 000AWG, copper or aluminum.
- Remove the plug in the bottom of the DC wiring box.
- Run the DC cable through the conduit openings
- Connect PV array to the the DC input terminal block ⑬ (+ and -).
- Torque screws to 14 N-m (10.3 ft-lb).
- When finished, go back and confirm the polarity is correct for each string.
- Give each wire a pull test to confirm the connection is secure.

- 2 Model, DC wiring box**
- 2 models have fuse holders for each individual string conductor. 12-input and 16-input models are available.



Fuses are sized for single-string currents only. Strings may be not paralleled in the PV array.

- Confirm the DC cables are 8 AWG to 4 AWG.
- Remove the plug in the bottom of the DC wiring box.
- Insert the DC conductors through the opening.
- Connect each string to the appropriate fuse holders (+ and -) following site wiring diagrams.
- Torque screws to 3.4Nm (30 in-lb).
- When finished, go back and confirm the polarity is correct for each string.
- Give each wire a pull test to confirm the connection is secure.



Characteristics and Technical Data	Absolute maximum DC input voltage (Vmax,abs)	1000 Vdc							
	Start-up DC input voltage (Vstart)	300...500 Vdc (default 360 Vdc)							
	Operating DC input voltage range (Vdcmín...Vdcmax)	0.7xVstart...950 Vdc (min 250 Vdc)							
	Rated DC input voltage (Vdcr)	715 Vdc							
	Rated DC input power (Pdcr)	51250 W							
	Number of independent MPPT	1							
	MPPT input DC voltage range (VMPPT min ... VMPPT max) at Pacr	520...800 Vdc							
	Maximum DC input current (Idc max)	100 A							
	Maximum input short circuit current (Isc max)	144 A							
	Number of DC inputs string / pairs	12 or 16 string combiner model available / 1 pair standard model							
	DC connection type	Field wired fuse holders (-2 combiner model) / terminal blocks (standard model)							
	Input protection								
	Reverse polarity protection	Yes, from current limited source							
	Input over voltage protection - Varistor	Yes							
	Input over voltage protection - plug In modular surge arrester	Type II SPD (optional 12 and 16 string DC combiner option)							
	Photovoltaic array isolation control	According to local standard							
	DC switch rating	1000 Vdc / 200 A							
	Output								
	AC Grid connection type	3Ø, 3W+GND or 4W+GND							
	Rated AC power (Pacr@cosφ=1)	50000 W							
	Maximum AC output power (Pac max@cosφ=1)	50000 W							
	Maximum apparent power (Smax)	50000 VA							
	Rated AC grid voltage (Vacr)	480 Vac							
	AC output voltage range (Vacmin...Vacmax)	422...528 Vac							
	Maximum AC output current (Iac max)	61.0 A							
	Contributory fault current	66.0 A							
	Rated output frequency (fr)	60 Hz							
	Output frequency range (fmin...fmax)	57...63 Hz							
	Nominal power factor and adjustable range	> 0.995, 0...0...± 1 with max Smax							
	AC connection type	Screw terminal block							
Output protection									
Anti-islanding protection	According to local standard								
Maximum external AC overcurrent protection	100 A								
Output over voltage protection - Varistor	Yes								
Operating performances									
Maximum efficiency (ηmax)	98.3 %								
Weighted efficiency (CEC)	97.5 %								
Communication									
Remote monitoring	VSN300 Wifi Logger Card (optional), VSN700 Data Logger (optional)								
Wireless local monitoring	VSN300 Wifi Logger Card (optional)								
User interface	LEDs / No display								
Available ports	2 RS-485 ports								
Environment									
Ambient temperature	-13...+144°F (-25...+60°C) with automatic derating > 122°F (50°C)								
Relative humidity	0...100% condensing								
Typical acoustic emission pressure	75 dB(A) @ 1 m								
Maximum operating altitude without derating	6560 ft / 2000 m								
Physical									
Environmental protection rating	Certified to NEMA 4X (NEMA 3R for fan tray)								
Cooling	Forced air over external heatsink								
Size (W x H x D)	58.7" x 28.5" x 12.4" / 1491mm x 725mm x 315 mm								
Weight	210 lbs overall, 145 lbs electronic compartment, s33 lbs wiring box								
Mounting system	Wall bracket or horizontal support								
Over voltage category according to IEC 62109-1	II (DC input) III (AC output)								
Safety									
Isolation level	Transformerless								
Marking	TUV								
Safety and EMC standards	UL1741, UL1699B, IEEE1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part 15 Sub-part B Class B Limits								
Product line Model Transformerless Outdoor rated DC option AC option Region Bracket option Number of fused string input Voltage									
Model configurations									
TRIO	-50.0	-TL	-OUTD	-1	-X	-US	-H	n/a	-480
				-2	-A		-V	12	
				-3	-B			16	
Available options									
-1	DC	Input lugs for use with external combiner, DC disconnect switch, conduit entry							
-2	DC	Touch-safe fuse holder string combiner, DC disconnect switch, AFCI, DC SPD, conduit entry							
-3	DC	Board mounted fused string combiner, DC disconnect switch, AFCI, DC SPD, MC4 connectors (available late 2016)							
-X	AC	Standard AC output lugs, conduit entry							
-A	AC	AC output lugs, conduit entry and AC SPD							
-B	AC	AC output lugs, conduit entry, AC SPD and AC disconnect switch							
-V	Bracket	Vertical mounting bracket							
-H	Bracket	Horizontal mounting bracket							
-12	DC	12-string combiner							
-16	DC	16-string combiner							
Note. Features not specifically listed in the current data sheet are not included in the product.									

Contact us

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