

SOLAR INVERTERS

ABB string inverters

TRIO-60.0-TL-OUTD-US-480

60 kW



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01 TRIO-60.0-TL
outdoor string inverter

The TRIO-60.0 inverter is ABB's three-phase string solution for cost efficient large decentralized photovoltaic systems for both commercial and utility applications.

Modular design

TRIO-60.0 has a landscape modular design to guarantee maximum flexibility. The separate and configurable AC and DC compartments increase the ease of installation and maintenance with their ability to remain separately wired from the inverter module inside the system. The TRIO comes with the most complete wiring box configurations available including up to 16 DC inputs, AC and DC switches and monitored type II AC and DC surge arresters.

Flexibility of installation

The TRIO-60.0's forced air cooling system, designed for a simple and fast installation, enables for the maximum flexibility of installation. The option of horizontal or vertical mounting brackets enables the best use of space available beneath or behind the solar modules.

The TRIO-60.0 has been designed to maximize the ROI in large systems. It has all the advantages of a decentralized configuration for both rooftop and ground-mounted installations.

Design flexibility

The double stage conversion topology offers the advantage of a wide input voltage range for maximum flexibility of the system design.

Highlights

- Modular landscape design to guarantee maximum flexibility
- Separate and configurable AC and DC compartments increase the ease of installation and maintenance
- Complete wiring box configurations; including, 12 or 16 inputs, AC and DC switches
- Forced air cooling system
- Mounting supports for both horizontal or vertical positions
- Wide input voltage range for maximum flexibility of the system design
- Transformerless topology

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TRIO-60.0-TL-OUTD-US

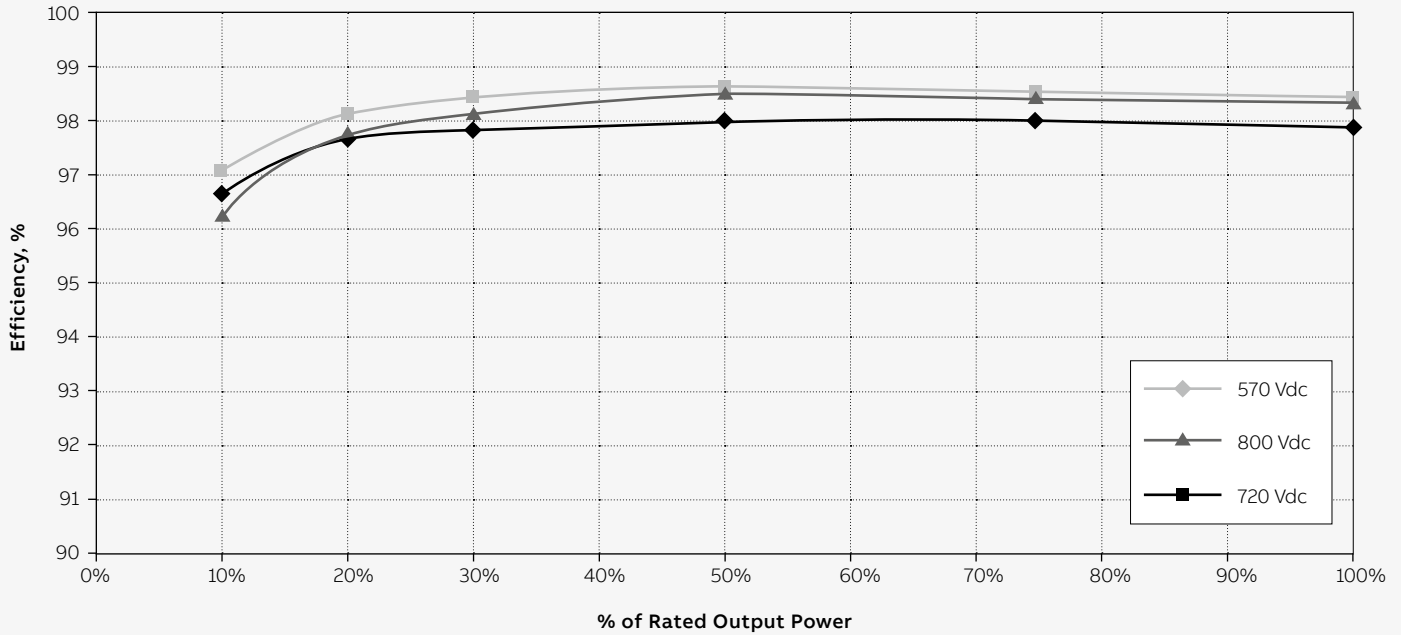
60 kW



Technical data and types

Type code	TRIO-60.0-TL-OUTD-US
Input side	
Absolute maximum DC input voltage ($V_{max,abs}$)	1000 V
Start-up DC input voltage (V_{start})	420...700 V (Default 500 V)
Operating DC input voltage range ($V_{dcmin}...V_{dcmax}$)	0.7xVstart ...950 V (min 360 V)
Rated DC input voltage (V_{dcr})	720 Vdc
Rated DC input power (P_{dcr})	61800 W
Number of independent MPPT	1
MPPT input DC voltage range ($V_{MPPTmin} ... V_{MPPTmax}$) at P_{acr}	570-800 Vdc
Maximum DC input current (I_{dcmax})	108 A
Maximum input short circuit current	170 A
Number of DC inputs pairs	12 or 16 string combiner model available / 1 pair standard model
DC connection type	Input lugs (DCWB-1), Conduit entry (DCWB-2)
Input protection	
Reverse polarity protection	Yes, from limited current source
Input over voltage protection - varistor	Yes
Input over voltage protection for each MPPT - plug in modular surge arrester	Type 2
Photovoltaic array isolation control	According to US standards
DC switch rating	200 A / 1000 V
Fuse rating (version with fuses)	15 A / 1000 V
Output side	
AC Grid connection type	Three-phase (3W+PE or 4W+PE)
Rated AC power ($P_{acr} @ \cos\phi=1$)	60000 W
Maximum AC output power ($P_{acmax} @ \cos\phi=1$)	60000 W
Maximum apparent power (S_{max})	60000 VA
Rated AC grid voltage (V_{acr})	480 V
AC voltage range	422-528 V
Maximum AC output current ($I_{ac,max}$)	77 A
Contributory fault current	92 A
Rated output frequency (f_i)	60 Hz
Output frequency range ($f_{min}...f_{max}$)	57...63 Hz
Nominal power factor and adjustable range	> 0.995, 0...± 1 with max S_{max}
Maximum AC cable section allowed	AWG 3/0 without AC switch, AWG 1/0 with AC switch (option ACWB-B)
AC connection type	Screw terminal block
Output protection	
Anti-islanding protection	According to US standards
Maximum external AC overcurrent protection	100 A
Output overvoltage protection - varistor	Yes
Operating performance	
Maximum efficiency (η_{max})	98.5%
Weighted efficiency (CEC)	98.0%
Safety	
Isolation level	Transformerless
Marking	TUV
Safety and EMC standard	UL1741, Rule 21, HECO tester per UL 1741 SA, UL1699B, IEEE1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part 15 Sub-part B Class B Limits

CEC Efficiency = 98.0 percent



Technical data and types

Type code	TRIO-60.0-TL-OUTD-US
Communication	
Remote monitoring	VSN300 Wifi Logger Card (opt.), VSN700 Data Logger (opt.)
Wireless local monitoring	VSN300 Wifi Logger Card (opt.)
User interface	LEDs / No display
Available port	2 RS485
Environmental	
Ambient temperature range	-25...+60°C/-13...140°F with derating above 45°C/113°F
Relative humidity	4%...100% condensing
Sound pressure level, typical	75 dB(A) @1 m
Maximum operating altitude without derating	6560 ft / 2000 m
Physical	
Environmental protection rating	NEMA 4X (NEMA 3R for fan tray)
Cooling	Forced air over external heatsink
Dimension (H x W x D)	58.7 x 28.5 x 12.4 in (1491 x 725 x 315 mm)
Weight	210 lbs overall, 145 lbs electronic compartment, ≤ 33 lbs lbs each wiring box (full optional)
Mounting system options	Wall bracket, horizontal support
Available product variants	
Inverter power module	TRIO-60.0-TL-OUTD-US-POWER MODULE
DC wiring box options	
Input lugs for use with external combiner, DC disconnect switch, conduit entry	DCWB-1-TRIO-60.0-TL-OUTD-US
Touch-safe fuse holder 12 string combiner, DC disconnect switch, AFCI, DC SPD, conduit entry	DCWB-2-TRIO-60.0-TL-OUTD-US/12 INPUTS
Touch-safe fuse holder 16 string combiner, DC disconnect switch, AFCI, DC SPD, conduit entry	DCWB-2-TRIO-60.0-TL-OUTD-US/16 INPUTS
AC wiring box options	
AC output lugs, conduit entry	ACWB-TRIO-60.0-TL-OUTD-US
AC output lugs, conduit entry and AC SPD	ACWB-A-TRIO-60.0-TL-OUTD-US
AC output lugs, conduit entry, AC SPD and AC disconnect switch	ACWB-B-TRIO-60.0-TL-OUTD-US

Remark. Features not specifically listed in the present data sheet are not included in the product

For more information please contact
your local ABB representative or visit:

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

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