Solar inverters

ABB string inverters
TRIO-50.0-TL-OUTD
50 kW

The new TRIO-50.0 inverter is ABB's three-phase string solution for cost efficient large decentralized photovoltaic systems for both commercial and utility applications.

The most powerful ABB string inverter available today, this new addition to the TRIO family has been designed with the objective to maximize the ROI in large systems with all the advantages of a decentralized configuration for both rooftop and ground-mounted installations.

Modular design

TRIO-50.0 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 16 DC inputs with fast connectors, monitored fuses, AC and DC switches and monitored type II AC and DC surge arresters.

Flexibility of installation

The forced air cooling system, designed for a simple and fast installation, allows for the maximum flexibility of installation. The inverter comes with mounting supports for both horizontal and vertical positions which allow for the best use of space available beneath the solar panels.

Design flexibility

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

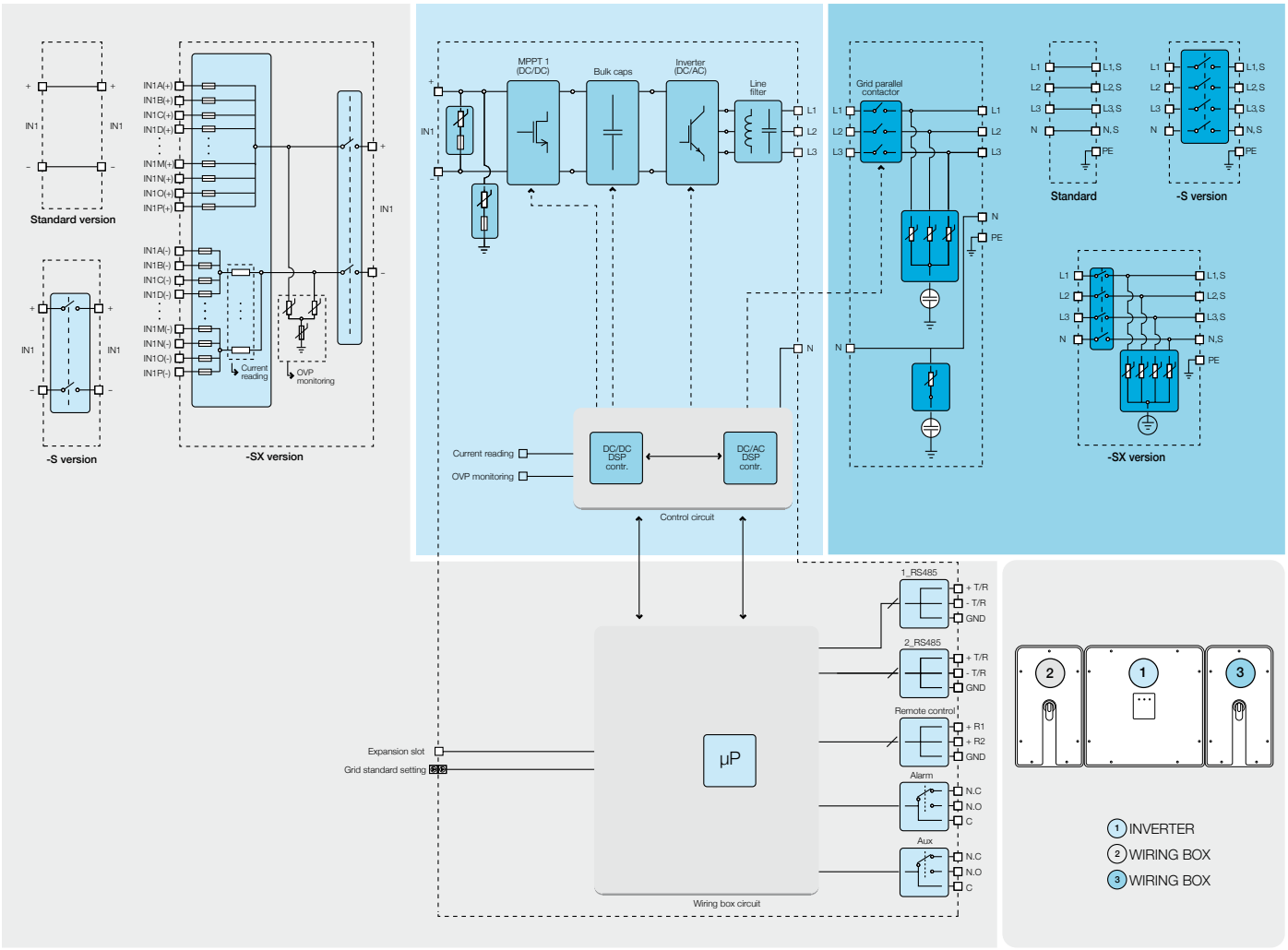
Highlights

- Transformerless topology
- Each inverter is set on specific grid codes which can be selected directly in the field
- Separate AC and DC compartments are available in different configurations
- Wide input range
- Both vertical and horizontal installation

Technical data and types (preliminary)

Type code	TRIO-50.0-TL-OUTD
Input side	
Absolute maximum DC input voltage ($V_{max,abs}$)	1000 V
Start-up DC input voltage (V_{start})	300…500 V (Default 360)
Operating DC input voltage range (V_{dcmin}…V_{dcmax})	0,7xV_{start} …950 V (min 250 V)
Rated DC input voltage (V_{dcr})	610 Vdc
Rated DC input power (P_{dcr})	51200 W
Number of independent MPPT	1
MPPT input DC voltage range ($V_{MPPTmin}$ … $V_{MPPTmax}$) at P_{acr}	480-800 Vdc
Maximum DC input current (I_{dcmax}) / for each MPPT ($I_{MPPTmax}$)	110 A
Maximum input short circuit current	160 A
Number of DC inputs pairs	16 (-SX version)
DC connection type	Tool Free PV connector WM / MC4 (-SX version)
Input protection	
Reverse polarity protection	Yes, from limited current source
Input over voltage protection for each MPPT - varistor	Yes
Input over voltage protection for each MPPT - plug In modular surge arrester (-SX version)	Type 2
Photovoltaic array isolation control	According to local standard
DC switch rating for each MPPT (version with DC switch)	200 A / 1000 V
Uscita	
AC Grid connection type	Three-phase
Rated AC power (P_{acr} @cosϕ=1)	50000 W
Maximum AC output power (P_{acmax} @cosϕ=1)	50000 W
Maximum apparent power (S_{max})	50000 VA
Rated AC grid voltage ($V_{ac,r}$)	400 V
AC voltage range	320...480 V [1]
Maximum AC output current ($I_{ac,max}$)	90 A
Contributory fault current	92 A
Rated output frequency (f_r)	50 Hz / 60 Hz
Output frequency range (f_{min}…f_{max})	47…53 Hz / 57…63 Hz [2]
Nominal power factor and adjustable range	> 0.995, 0..± 1 with max S_{max}
AC connection type	Screw terminal block
Output protection	
Anti-islanding protection	According to local standard
Maximum external AC overcurrent protection	100 A
Output overvoltage protection - varistor	Yes

Block diagram of TRIO-50.0-TL-OUTD



Technical data and types (preliminary)

Type code	TRIO-50.0-TL-OUTD
Operating performance	
Maximum efficiency (ηmax)	98.30%
Weighted efficiency (EURO/CEC)	98.0% / -
Communication	
Remote monitoring	VSN300 Wifi Logger Card (opt.), PVI-AEC-EVO (opt.), VSN700 Data Logger (opt.)
Wireless local monitoring	VSN300 Wifi Logger Card (opt.)
User interface	Leds
Available port	2 RS485
Environmental	
Ambient temperature range	-20…+60°C, with derating >50°C
Relative humidity	0…100 % con condensing
Maximum operating altitude without derating	2000 m / 6560 ft
Physical	
Environmental protection rating	IP 65 (IP54 for each cooling section)
Cooling	Forced air
Dimension (H x W x D)	1460 x 730 x 300 mm
Weight	120 kg overall, 70 kg electronic compartment 25 kg each wiring box (full optional)
Mounting system	Wall bracket, horizontal support
Safety	
Isolation level	Transformerless
Marking	CE
Safety and EMC standard	IEC/EN 62109-1, IEC/EN 62109-2, EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12
Grid standard (check your sales channel for availability)	CEI 0-21, CEI 0-16, DIN V VDE V 0126-1-1, VDE-AR-N 4105, G59/3, BDEW

[1] The AC voltage range may vary depending on specific country grid standard
[2] The Frequency range may vary depending on specific country grid standard
Remark. Features not specifically listed in the present data sheet are not included in the product

BCD.00611 EN Rev. A 25.03.2015

Support and service

ABB supports its customers with dedicated, global service organization in more than 60 countries and strong regional and national technical partner networks providing complete range of life cycle services.

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

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