

ABB string inverters

UNO-2.0/3.0/3.6/4.2-TL-OUTD

2 to 4.2 kW



This new line of transformerless single-phase inverters completes the UNO family as an optimal solution to maximize the return on investment (ROI) for residential systems.

The new design wraps ABB's quality and engineering into just 12 kgs thanks to technological choices optimized for installations with a uniform orientation.

Easy to install

The presence of Plug and Play connectors, both on the DC and AC side as well as on the RS485 communication port, enable a simple, fast and safe installation of the unit even in harsh weather conditions without the need of opening the front cover of the inverter.

Flexibility

- The compatibility with the VSN300 Wifi Logger Card (optional) within the integrated expansion slot, assures an advanced and cost effective solution for the control and monitoring of the plant, without the need of further components
- Integrated load manager for control of energy consumption

Highlights

- Single-phase output
- Transformerless topology
- Each inverter is set to specific grid codes which can be selected in the field
- Wide input range and high efficiency values
- High speed and precise MPPT algorithm enables real-time power tracking and improved energy harvesting
- Plug and Play connection for DC, AC and communication side

Additional highlights

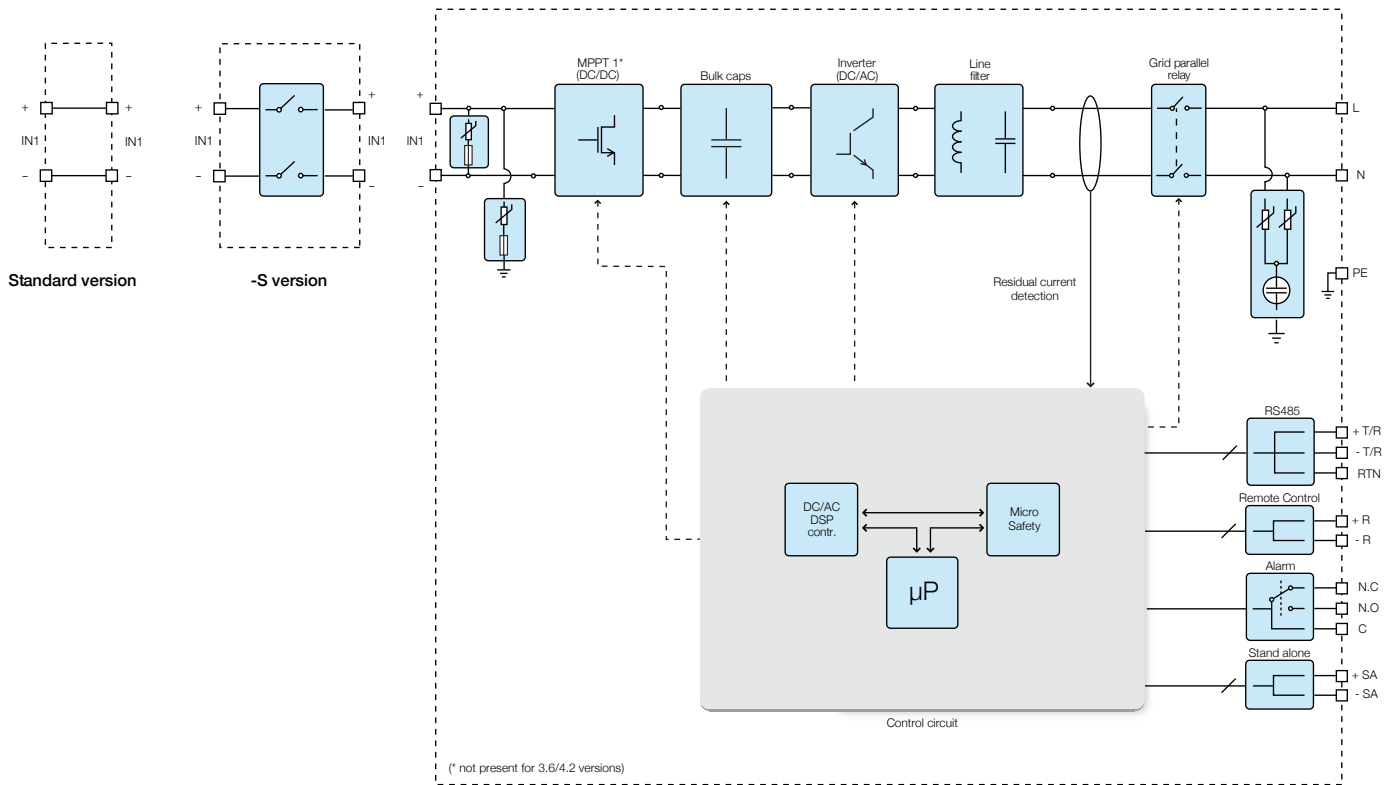
- Integrated DC switch, in compliance with international standards (-S version)
- Natural convection cooling for maximum reliability
- Outdoor enclosure for unrestricted use under any environmental conditions



Technical data and types

Type code	UNO-2.0-TL-OUTD	UNO-3.0-TL-OUTD	UNO-3.6-TL-OUTD	UNO-4.2-TL-OUTD
Input side				
Absolute maximum DC input voltage ($V_{max,abs}$)	600 V		850 V	
Start-up DC input voltage (V_{start})	100...300 V (default 150 V)		380 V	
Operating DC input voltage range ($V_{demin}...V_{dcmax}$)	0.7x V_{start} ...580 V (min 80 V)		350...820 V	
Rated DC input voltage (V_{dc})	400 V		500 V	600 V
Rated DC input power (P_{dc})	2200 W	3200 W	3900 W	4500 W
Number of independent MPPT			1	
MPPT input DC voltage range ($V_{MPPTmin}...V_{MPPTmax}$) at P_{acr}	180...500 V	200...500 V	380...700 V	
Maximum DC input current (I_{dcmax})	12.5 A	16 A	12.5 A	
Number of DC inputs pairs			1	
DC connection type	PV quick fit connector ³⁾			
Input protection				
Reverse polarity protection	Yes, from limited current source			
Input over voltage protection - varistor	Yes			
Photovoltaic array isolation control	According to local standard			
DC switch rating (version with DC switch)	600 V, 25 A		1000 V, 16 A	
Output side				
AC Grid connection type	Single-phase			
Rated AC power (P_{acr} @ $\cos\phi=1$)	2000 W	3000 W	3600 W	4200 W
Maximum AC output power (P_{acmax} @ $\cos\phi=1$)	2000 W	3000 W	3600 W	4200 W
Maximum apparent power (S_{max})	2000 VA	3000 VA	3600 VA	4200 VA
Rated AC grid voltage ($V_{ac,r}$)	230 V			
AC voltage range	180...264 V ¹⁾			
Maximum AC output current ($I_{ac,max}$)	10 A	15 A	16 A	20 A
Contributory fault current	12 A	17 A	18 A	22 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, adj. \pm 0.8 with max S_{max}			
Total current harmonic distortion	< 3%			
AC connection type	Panel female connector			
Output protection				
Anti-islanding protection	According to local standard			
Maximum external AC overcurrent protection	16 A	20 A	20 A	25 A
Output overvoltage protection - varistor	2 (L - N / L - PE)			

Block diagram of UNO-2.0/3.0/3.6/4.2-TL-OUTD



Technical data and types

Type code	UNO-2.0-TL-OUTD	UNO-3.0-TL-OUTD	UNO-3.6-TL-OUTD	UNO-4.2-TL-OUTD
Operating performance				
Maximum efficiency (η_{max})	97.30%		98.40%	
Weighted efficiency (EURO/CEC)	96.00% / -		97.5% / -	
Feed in power threshold	10 W		8 W	
Night consumption	< 0.1 W			
Communication				
Remote monitoring	VSN300 Wifi Logger Card (opt.)			
Wireless local monitoring	VSN300 Wifi Logger Card (opt.)			
User interface	Display (2x16 line LCD)			
Environmental				
Ambient temperature range	-20...+60°C, with derating > 45°C			
Relative humidity	0...100% condensing			
Maximum operating altitude without derating	2000 m / 6560 ft			
Physical				
Environmental protection rating	IP65			
Cooling	Natural			
Dimension (H x W x D)	553 x 418 x 175 mm / 21.8" x 16.5" x 6.9"			
Weight	12 kg / 26.45 lb			
Mounting system	Wall bracket			
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 61000-3-2, EN 61000-3-3 C10/11, EN 50438, CEI 0-21, DIN V VDE V 0126-1-1, VDE-AR-N 4105, G83/2, G59/3, VFR 2014, IEC 61727, IEC 62116, NRS-097-2-1, RD 413, AS 4777, MEA, ABNT NBR16149/16150			
Grid standard (check your sales channel for availability)				
Available products variants				
Standard	UNO-2.0-TL-OUTD	UNO-3.0-TL-OUTD	UNO-3.6-TL-OUTD	UNO-4.2-TL-OUTD
With DC switch	UNO-2.0-TL-OUTD-S	UNO-3.0-TL-OUTD-S	UNO-3.6-TL-OUTD-S	UNO-4.2-TL-OUTD-S

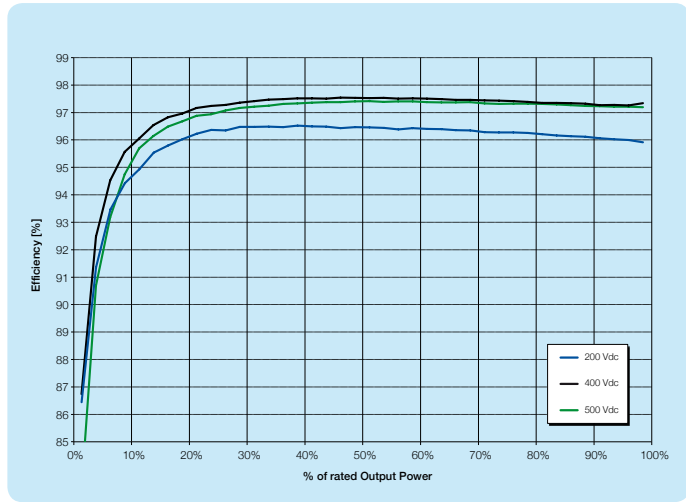
¹⁾ The AC voltage range may vary depending on specific country grid standard

²⁾ The Frequency range may vary depending on specific country grid standard

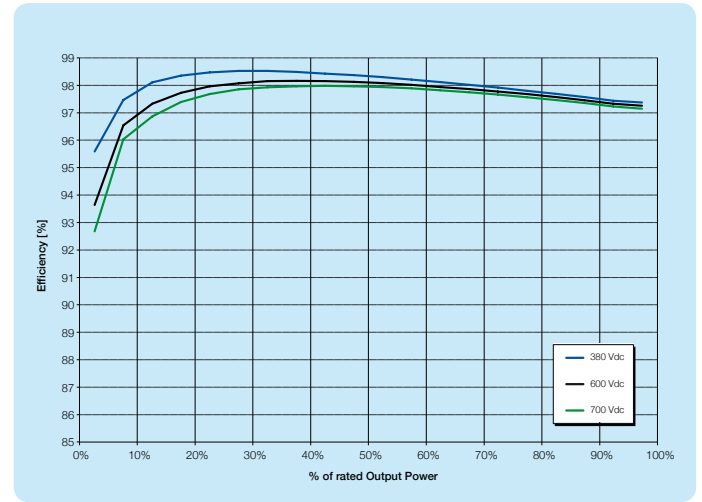
³⁾ Please refer to the document "String inverters – Product manual appendix" available at www.abb.com/solarinverters for information on the quick-fit connector brand and model used in the inverter

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

Efficiency curves of UNO-3.0-TL-OUTD



Efficiency curves of UNO-4.2-TL-OUTD



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