

SOLAR INVERTERS

ABB string inverters

UNO-DM-3.3/3.8/4.6/5.0-TL-PLUS-US

3.3 to 5 kW



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01 UNO-DM-3.3/3.8/4.6/5.0-TL-PLUS-US outdoor string inverter

One size fits all

The new design wraps ABB's quality and engineering into a lightweight and compact package thanks to technological choices optimized for installations with different orientation.

All power ratings share the same overall volume, allowing higher performance in a minimum space, and have a dual Maximum Power Point Tracker (2 MPPT).

Easy to install, fast to commission

The wireless communication, enables a simple, fast and safe installation without the need of opening the front cover of the inverter.

The featured easy commissioning routine removes the need for a long configuration process, resulting in lower installation time and costs.

Improved user experience thanks to a built in User Interface (UI), which enables access to features such as advanced inverter configuration settings, dynamic feed-in control and load manager, from any WLAN enabled devices (smartphone, tablet or PC).

Smart capabilities

The embedded logging capabilities and direct transferring of the data to Internet (via Ethernet or WLAN) allow customers to enjoy the whole Aurora Vision® remote monitoring experience.

The new UNO-DM-PLUS single-phase inverter family, with power ratings from 3.3 to 5.0 kW, is the optimal solution for residential installations.

The advanced communication interfaces (WLAN, Ethernet, RS485) combined with an efficient Modbus (RTU/TCP) communication protocol, Sunspec compliance, allow the inverter to be easily integrated within any smart environment and with third party monitoring and control systems.

A complete set of control functions with the embedded efficient algorithm, enabling dynamic control of the feed-in (i.e. Zero Injection), make the inverter suitable for worldwide applications in compliance with regulatory norms and needs of the utilities.

The future-proof and flexible design enables integration with current and future devices for smart building automation.

Highlights

- Wireless access to the embedded Web User Interface
- Easy commissioning capability
- UL 1741 SA compliant
- Future-proof with embedded connectivity for smart building and smart grid integration
- Dynamic feed-in control (for instance "zero injection")
- Remote Over The Air (OTA) firmware upgrade for inverter and components
- Modbus TCP/RTU Sunspec compliant
- Remote monitoring via Aurora Vision® cloud
- Dual input section with independent MPPT
- Integrated rapid shutdown power supplier

ABB string inverters

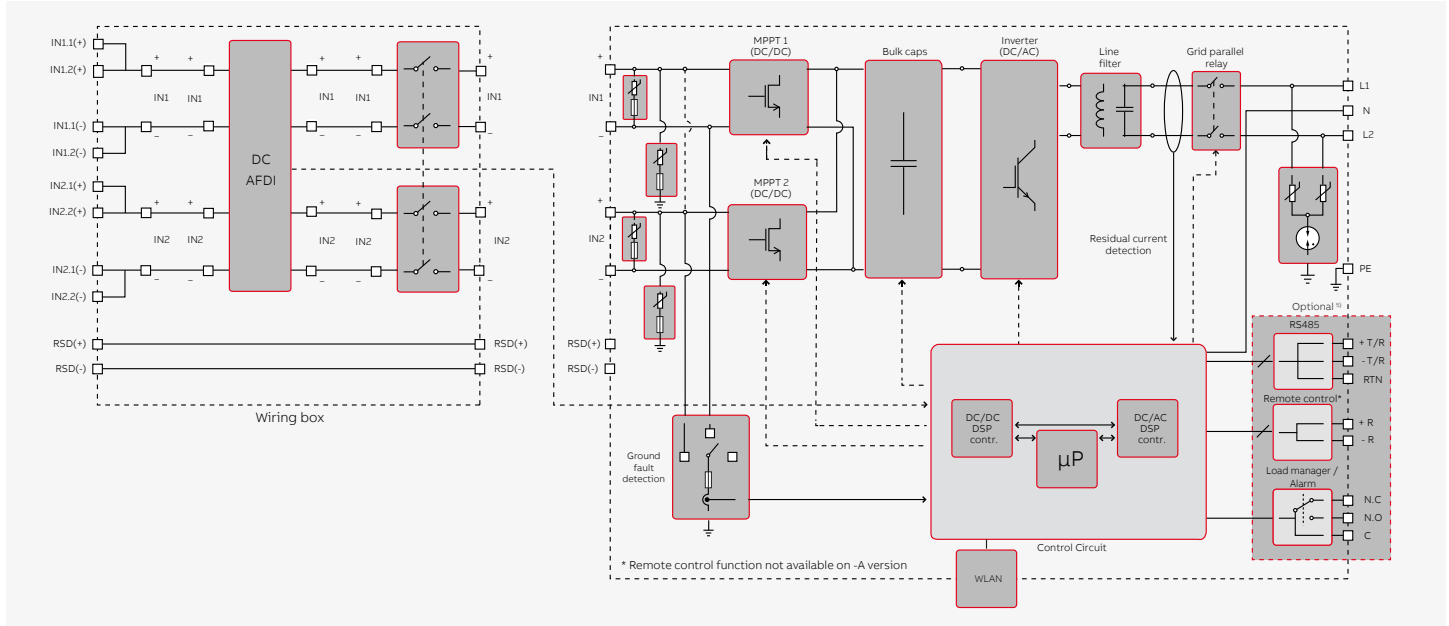
UNO-DM-3.3/3.8/4.6/5.0-TL-PLUS-US 3.3 to 5.0 kW



Technical data and types

Type code	UNO-DM-3.3-TL-PLUS-US		UNO-DM-3.8-TL-PLUS-US		UNO-DM-4.6-TL-PLUS-US		UNO-DM-5.0-TL-PLUS-US	
General specifications								
Rated grid AC voltage (V_{acr})	208 V	240 V	208 V	240 V	208 V	240 V	208 V	240 V
Nameplate Apparent Power (S_{max})	3300 VA	3300 VA	4200 VA	4200 VA	4600 VA	4600 VA	5000 VA	5000 VA
Nameplate Output Active Power (P_{max} @ $\cos\phi=1$)	3300 W	3300 W	4200 W	4200 W	4600 W	4600 W	5000 W	5000 W
PRATED: Output Active Power @VACr and $\cos\phi=\pm 0,9$	2700 W	3000 W	3000 W	3450 W	3780 W	4140 W	4118 W	4500 W
Input side (DC)								
Number of independent MPPT channels	2		2		2		2	
Maximum usable power for each channel	2000 W		3000 W		3000 W		3500 W	
Absolute maximum voltage (V_{max})	600 V		600 V		600 V		600 V	
Start-up voltage (V_{start})	200 V (Adj. 120-350)		200 V (Adj. 120-350)		200 V (Adj. 120-350)		200 V (Adj. 120-350)	
Full power MPPT voltage range with parallel MPPT configuration at P_{acr}	160-530 V	170-530 V	120-530 V	140-530 V	140-530 V	150 - 530 V	130-530 V	145-530 V
Operating MPPT voltage range	0.7* V_{start} - 580 V (≥ 90)		0.7* V_{start} - 580 V (≥ 90)		0.7* V_{start} - 580 V (≥ 90)		0.7* V_{start} - 580 V (≥ 90)	
Maximum usable current per channel	10 A		16 A		16 A		19 A	
Maximum current ($I_{dc,max}$)	20 A		32 A		32 A		38 A	
Maximum short circuit current per channel	12,5 A		25 A		25 A		25 A	
Number of wire landing terminals	2 pairs, capable of connecting two parallel strings							
Array wiring termination	Terminal block, pressure clamp, AWG20-8							
Output side (AC)								
Grid connection type	1 Φ /2W	Split- Φ /3W	1 Φ /2W	Split- Φ /3W	1 Φ /2W	Split- Φ /3W	1 Φ /2W	Split- Φ /3W
Adjustable voltage range (V_{min} - V_{max})	183-228 V	211-264 V	183-228 V	211-264 V	183-228 V	211-264 V	183-228 V	211-264 V
Grid frequency	60 Hz		60 Hz		60 Hz		60 Hz	
Adjustable grid frequency range	50-64 Hz		50-64 Hz		50-64 Hz		50-64 Hz	
Maximum current ($I_{ac,max}$)	14,5 A		16 A		20 A		22 A	
Power factor	>0.995, adj. +/-0.8		>0.995, adj. +/-0.8		>0.995, adj. +/-0.8		>0.995, adj. +/-0.8	
Total harmonic distortion at rated power	<2%		<2%		<2%		<2%	
Contributory fault current	16 A		19 A		22 A		24 A	
Grid wiring termination type	Terminal block, pressure clamp, AWG20-6							
Input protections								
Reverse polarity protection	Yes, from limited current source							
Over-voltage protection type	Varistor							
PV array ground fault detection	Pre start-up RISO and dynamic GFDI							
Output protections								
Anti-islanding protection	Meets UL1741 / IEEE1547 requirements							
Over-voltage protection type	Varistor, 2 (L1 - L2 / L1 - G)							
Maximum AC OCPD rating	20 A		20 A		25 A		30 A	
Efficiency								
Maximum efficiency	97%		97%		97%		97.4%	
CEC efficiency	96.5%	96.5%	96%	96.5%	96%	96.5%	96.5%	97%
Operating performance								
Stand-by consumption	<8 W _{RMS}							
Nighttime consumption	<0.6 W _{RMS}							
Auxiliary Output								
Isolated Auxiliary Power Supply ¹⁾	24 Vdc, 0.4 A max							

ABB UNO-DM-3.3/3.8/4.6/5.0-TL-PLUS-US string inverter block diagram



Technical data and types

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Embedded Communication				
Embedded Communication Interface				Wireless ²⁾
Embedded Communication Protocol	ModBus TCP (SunSpec)			
Commissioning Tool	Web User Interface, Display, Aurora Manger Lite			
Monitoring	Aurora Vision® cloud (Plant Portfolio Manager , Plant Viewer , Plant Viewer for Mobile)			
Optional board UNO-DM-COM kit				
Optional Communication Interface	RS485 (use with meter for dynamic feed-in control), Alarm/Load manager relay, Remote ON/OFF			
Optional Communication Protocol	ModBus RTU (SunSpec), Aurora Protocol			
Advanced functionalities provided	Dynamic feed-in control, Load manager relay			
Optional board UNO-DM-PLUS Ethernet COM kit				
Optional Communication Interface	Ethernet, RS485 (use with meter for dynamic feed-in control), Alarm/Load manager relay, Remote ON/OFF			
Optional Communication Protocol	ModBus TCP (SunSpec), ModBus RTU (SunSpec), Aurora Protocol			
Advanced functionalities provided	Dynamic feed-in control, Load manager relay			
Environmental				
Ambient air operating temperature range	-25...+60°C /-13...140°F (derating above 50°C/122°F)		-25...+60°C /-13...140°F (derating above 45°C/113°F)	
Relative humidity	0-100% RH condensing			
Acoustic noise emission level	< 50 db (A) @1m			
Maximum operating altitude without derating	6560ft (2000m)			
Mechanical specifications				
Enclosure rating	Type 4X			
Cooling	Natural convection			
Dimensions H x W x D	34.0 x 16.4 x 6.9in (863 x 418 x 175mm) ³⁾			
Weight	33lb (15kg) ³⁾			
Shipping weight	46lb (20,7kg) ³⁾			
Mounting system	Wall bracket			
Conduit connections	Bottom: Markings for (2) Concentric KOs 1", 3/4" and (2) KOs 1/2" Sides: Markings for Concentric KOs 1", 3/4" ³⁾			
DC switch rating	600 V 23 A @ 600 V, 38 A @ 500 V and 45 A @ 350 V			
Safety				
Isolation level	Transformerless (floating array)			
Safety and EMC standard	UL1741, IEEE1547.1, CSA-C22.2 N. 107.1-01, UL1998 UL 1699B, FCC Part 15 Class B			
Grid standard	UL 1741 SA, IEEE 1547, Rule 21, Rule 14 (HI)			
Safety approval	CTUVUS			
Available models				
Model with DC switch, wiring box, AFD, RSD supply output	UNO-DM-3.3-TL-PLUS-US-SB-RA	UNO-DM-3.8-TL-PLUS-US-SB-RA	UNO-DM-4.6-TL-PLUS-US-SB-RA	UNO-DM-5.0-TL-PLUS-US-SB-RA
Model with DC switch, wiring box, AFD, RSD supply output	UNO-DM-3.3-TL-PLUS-US-SZ-RA	UNO-DM-3.8-TL-PLUS-US-SZ-RA	UNO-DM-4.6-TL-PLUS-US-SZ-RA	UNO-DM-5.0-TL-PLUS-US-SZ-RA

¹⁾ The auxiliary output is used to supply the RSD contactors when required

²⁾ WLAN IEEE 802.11 b/g/n @2,4GHz

³⁾ When equipped with DC switch and wiring box

All data is subject to change without notice

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