

SOLAR INVERTERS

ABB string inverters

UNO-DM-3.3/4.0/4.6/5.0-TL-PLUS
3.3 to 5.0 kW



UNO-DM-3.3/4.0/4.6/5.0-TL-PLUS 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 presence of plug and play connectors, both on the DC and AC side, as well as the wireless communication, enable 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

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.

Vision® remote monitoring experience.

The advanced communication interfaces (WLAN, Ethernet, RS485) combined with an efficient Modbus (RTU/TCP) communication protocol, Sunspec compliant, 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
- 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

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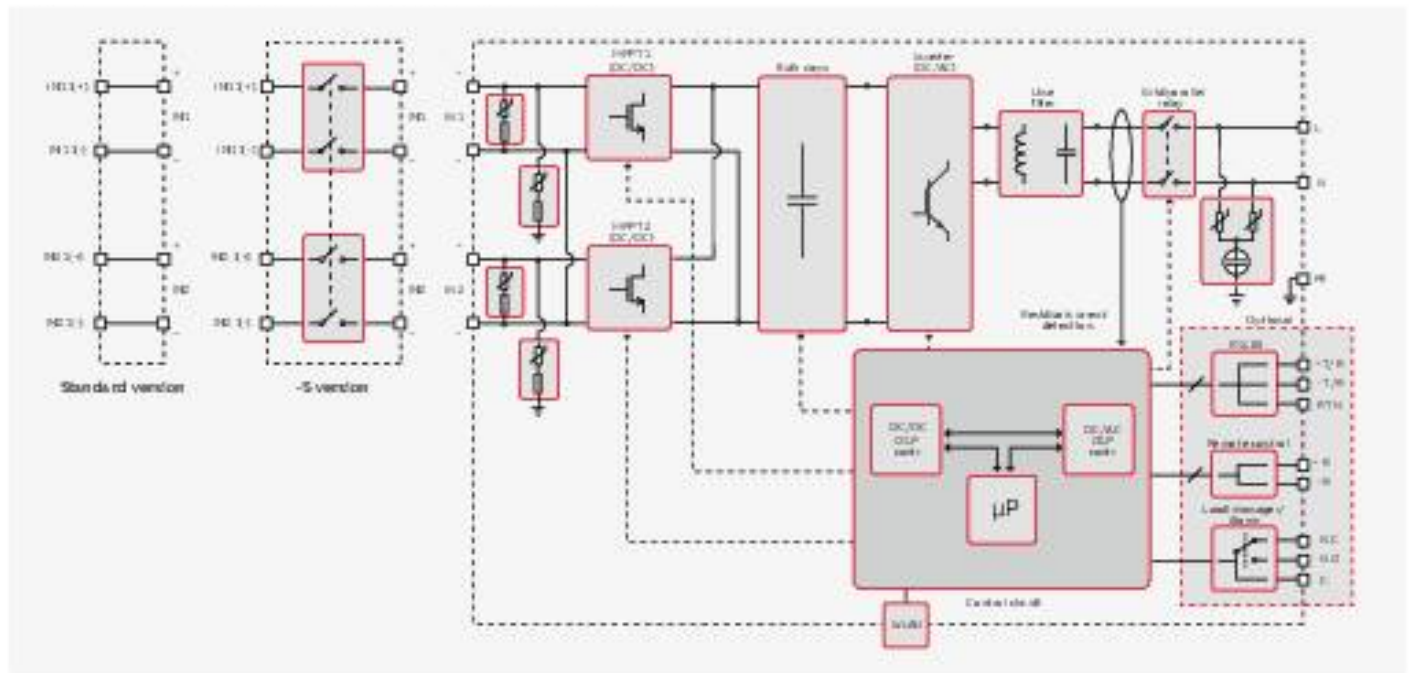
3.3 to 5.0 kW



Technical data and types

| Type code | UNO-DM-3.3-TL-PLUS | UNO-DM-4.0-TL-PLUS | UNO-DM-4.6-TL-PLUS | UNO-DM-5.0-TL-PLUS |
|--|--|---|---|---|
| Input side | | | | |
| Absolute maximum DC input voltage (V_{max}) | 600 V | | | |
| Start-up DC input voltage (V_{start}) | 200 V (adj. 120...350 V) | | | |
| Operating DC input voltage range ($V_{min}...V_{max}$) | 0.7 x V_{max} ...580 V (min 90 V) | | | |
| Rated DC input voltage (V_{in}) | 360 V | | | |
| Rated DC input power (P_{in}) | 3500 W | 4250 W | 4750 W | 5150 W |
| Number of independent MPPT | 2 | | | |
| Maximum DC input power for each MPPT (P_{MPPT}) | 2000 W | 3000 W | 3000 W | 3500 W |
| DC input voltage range with parallel configuration of MPPT at P_{in} | 170...530 V | 130...530 V | 150...530 V | 145...530 V |
| DC power limitation with parallel configuration of MPPT | Linear derating from Max to Null [530Vs V_{in} ≤ 580V] | | | |
| DC power limitation for each MPPT with independent configuration of MPPT at P_{in} , max unbalance example | 2000 W [200 Vs V_{in} ≤ 530 V] the other channel: P_{in} - 2000 W [112 Vs V_{in} ≤ 530 V] | 3000 W [190 Vs V_{in} ≤ 530 V] the other channel: P_{in} - 3000 W [90 Vs V_{in} ≤ 530 V] | 3000 W [190 Vs V_{in} ≤ 530 V] the other channel: P_{in} - 3000 W [90 Vs V_{in} ≤ 530 V] | 3500 W [200 Vs V_{in} ≤ 530 V] the other channel: P_{in} - 3500 W [90 Vs V_{in} ≤ 530 V] |
| Maximum DC input current ($I_{in,max}$) / for each MPPT ($I_{MPPT,max}$) | 20.0 / 10.0 | 32.0 / 16.0 A | 32.0 / 16.0 A | 38.0 / 19.0 A |
| Maximum input short circuit current for each MPPT | 12.5 | 20.0 | 20.0 | 22.0 |
| Number of DC input pairs for each MPPT | 1 | | | |
| DC connection type ¹⁾ | Quick Fit PV Connector | | | |
| Input protection | | | | |
| Reverse polarity protection | Yes, from limited current source | | | |
| Input over voltage protection for each MPPT-varistor | Yes | | | |
| Photovoltaic array isolation control | According to local standard | | | |
| DC switching for each MPPT (version with DC switch) | 25 A / 600 V | | | |
| Output side | | | | |
| AC grid connection type | Single-phase | | | |
| Rated AC power ($P_{out}@cos\phi=1$) | 3300 W | 4000 W | 4600 W | 5000 W |
| Maximum AC output power ($P_{out,max}@cos\phi=1$) | 3300 W | 4000 W ²⁾ | 4600 W | 5000 W |
| Maximum apparent power (S_{out}) | 3300 VA | 4000 VA ²⁾ | 4600 VA | 5000 VA |
| Rated AC grid voltage (V_{out}) | 230 V | | | |
| AC voltage range ³⁾ | 180...264 V | | | |
| Maximum AC output current ($I_{out,max}$) | 14.5 A | 17.2 A | 20.0 A | 22.0 A |
| Contributory fault current | 16.0 A | 19.0 A | 22.0 A | 24.0 A |
| Rated output frequency (f_o) ⁴⁾ | 50/60 Hz | | | |
| Output frequency range ($f_{min}...f_{max}$) ⁴⁾ | 47...53/57...63 Hz | | | |
| Minimal power factor and adjustable range | > 0.995, adj. ± 0.1 - 1 (over/under excited) | | | |
| Total current harmonic distortion | < 3.5 | | | |
| AC connection type | Female connector from panel | | | |
| Output protection | | | | |
| Anti-islanding protection | According to local standard | | | |
| Maximum external AC overcurrent protection | 20.0 A | 25.0 A | 25.0 A | 32.0 A |
| Output overvoltage protection - varistor | 2 (L - N / L - PE) | | | |

ABB UNO-DM-3.3/4.0/4.6/5.0-TL-PLUS string inverter block diagram



Technical data and types

| Type code | UNO-DM-3.3-TL-PLUS | UNO-DM-4.0-TL-PLUS | UNO-DM-4.6-TL-PLUS | UNO-DM-5.0-TL-PLUS |
|--|---|---|---|---|
| Operating performance | | | | |
| Maximum efficiency (η_{max}) | 97.0% | 97.0% | 97.0% | 97.4% |
| Weighted efficiency (EURO/CEC) | 96.5% / - | 96.5% / - | 96.5% / - | 97.0% / - |
| Feed in power threshold | | | 8 W | |
| Night consumption | | | <0.4 W | |
| Embedded communication | | | | |
| Embedded communication interface ¹⁾ | | | Wireless | |
| Embedded communication protocol | | | Mod Bus TCP (SunSpec) | |
| Commissioning tool | | | Web User Interface, Display, Aurora Manager Lite | |
| Monitoring | | | 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 | | Mod Bus RTU (SunSpec), Aurora Protocol | | |
| 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 | | Mod Bus TCP (SunSpec), Mod Bus RTU (SunSpec), Aurora Protocol | | |
| Environmental | | | | |
| Ambient temperature range | -25...+60°C / -13...140°F with derating above 50°C / 122°F | -25...+60°C / -13...140°F with derating above 50°C / 122°F | -25...+60°C / -13...140°F with derating above 45°C / 113°F ²⁾ | -25...+60°C / -13...140°F with derating above 45°C / 113°F |
| Relative humidity | | | 0...100 % condensing | |
| Maximum operating altitude without derating | | | 2000 m / 6560 ft | |
| Physical | | | | |
| Environmental protection rating | | | IP 65 | |
| Cooling | | | Natural | |
| Dimension (H x W x D) | | | 553 x 418 x 175 mm / 21.8" x 16.5" x 6.9" | |
| Weight | | | 15 kg / 33 lbs | |
| Mounting system | | | Wall bracket | |
| Safety | | | | |
| Isolation level | | | Transformerless | |
| Marking | | | CE, RoHS | |
| Safety and EMC standard | | | IEC/EN 62109-1, IEC/EN 62109-2, AS/NZS 4777.2, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12 | |
| Grid standard (check your sales channel for availability) ³⁾ | | | CE10-Z1, DIN V VDE V 0126-1-1, VDE-AR-N 4105, CB3/2, CS9/3, RD 41.3, ITC-BT-4.0, AS/NZS 4777.2, C10/11, IEC 61727, IEC 62116 | |
| Available products variants | | | | |
| Standard | UNO-DM-3.3-TL-PLUS-S | UNO-DM-4.0-TL-PLUS-S | UNO-DM-4.6-TL-PLUS-S | UNO-DM-5.0-TL-PLUS-S |
| With DC switch | UNO-DM-3.3-TL-PLUS-5S | UNO-DM-4.0-TL-PLUS-5S | UNO-DM-4.6-TL-PLUS-5S | UNO-DM-5.0-TL-PLUS-5S |

¹⁾ Refer to the document "String Inverter - Product Manual appendix" available at www.abb.com/solarinverters to know the brand and the model of the quick fit connector

²⁾ For UK G83/2 setting, maximum output current limited to 16A up to a maximum output power of 3600 W and a maximum apparent power of 3600 VA

³⁾ The AC voltage range may vary depending on specific country grid standards

⁴⁾ The frequency range may vary depending on specific country grid standard

CE is valid for 50Hz only

⁵⁾ As per IEEE 802.11 b/g/n standard

⁶⁾ Pnc= 4200 W @ 49°C/113°F

⁷⁾ Further grid standard will be added, please refer to ABB Solar page for further details. 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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