ABB

# ABB string inverters
# UNO-DM-1.2/2.0/3.0-TL-PLUS-Q
# 1.2 to 3.0 kW

The UNO-DM-TL-PLUS-Q
single-phase inverter family, with
power ratings from 1.2 to 3.0 kW, is
the optimal solution for residential
installations.

—
UNO-DM-TL-PLUS-Q
outdoor string inverter

**One size fits all**
The design wraps ABB's quality and engineering into a
lightweight and compact package thanks to
technological choices optimized for installations with
a uniform orientation.

All power ratings share the same overall volume,
allowing higher performance in a minimum space,
and are available with single Maximum Power Point
Trackers.

**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 the build in
User Interface (UI) or the Installer for Solar Inverters
app which enable access to features such as advanced
inverter configuration settings, dynamic feed-in
control and load manager, from any WLAN enabled
device (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 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.

**ABB Ability™ Energy Viewer for solar plants**
This new tool allows residential customers to
remotely monitor the performance of their own
solar plant and provides all information necessary to
increase energy self-reliance and self-sufficiency.

**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 firmware upgrade for inverter and
  components
• Modbus TCP/RTU Sunspec compliant
• Lifetime free of charge access to Aurora Vision

# ABB string inverters
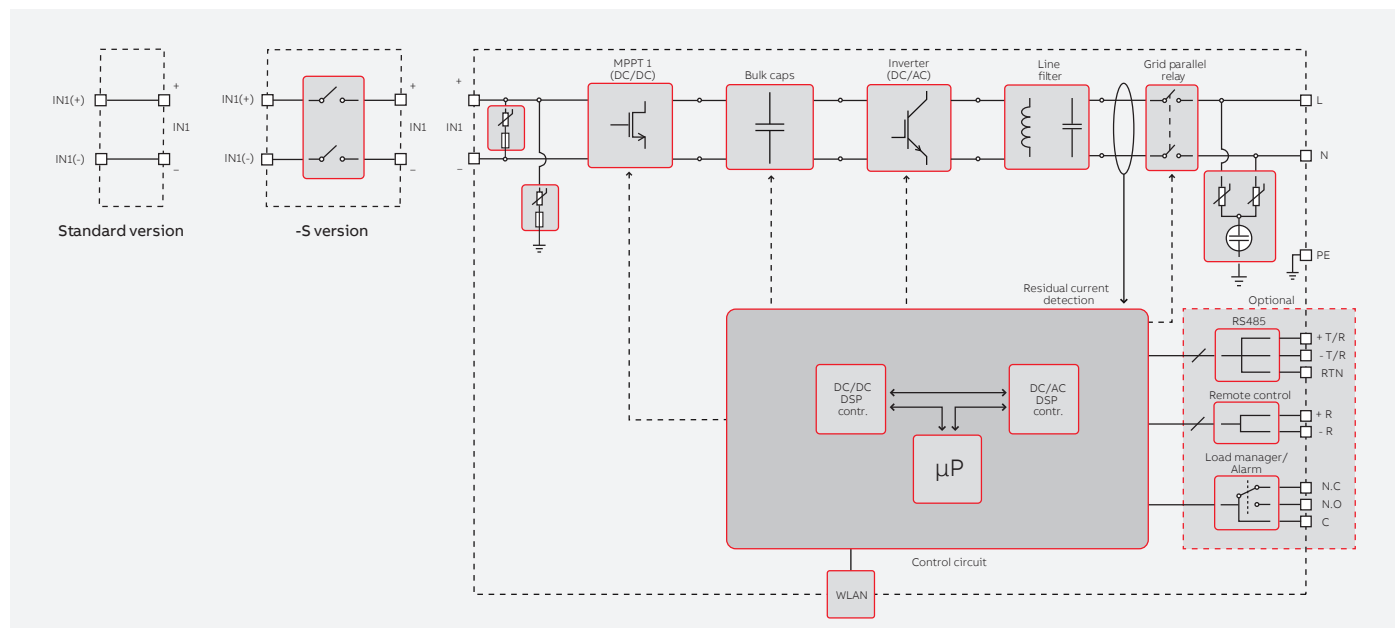## UNO-DM-1.2/2.0/3.0-TL-PLUS-Q
## 1.2 to 3.0 kW

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## Technical data and types

| Type code | UNO-DM-1.2-TL-PLUS-Q | UNO-DM-2.0-TL-PLUS-Q | UNO-DM-3.0-TL-PLUS-Q |
|---|---|---|---|
| **Input side** | | | |
| Absolute maximum DC input voltage ($V_{max,abs}$) | 600 V | | |
| Start-up DC input voltage ($V_{start}$) | 120 V (adj. 100…150 V) | 150 V (adj. 100…250 V) | 150 V (adj. 100…250 V) |
| Operating DC input voltage range ($V_{dcmin}...V_{dcmax}$) | 0.7 x $V_{start}$...580 V (min 90 V) | | |
| Rated DC input voltage ($V_{dcr}$) | 185 V | 300 V | 300 V |
| Rated DC input power ($P_{dcr}$) | 1500 W | 2500 W | 3300 W |
| Number of independent MPPT | 1 | 1 | 1 |
| Maximum DC input power for each MPPT ($P_{MPPTmax}$) | 1500 W | 2500 W | 3300 W |
| DC input voltage range with parallel configuration of MPPT at $P_{acr}$ | 100…530 V | 210...530 V | 320...530 V |
| DC power limitation with parallel configuration of MPPT | N/A | N/A | N/A |
| DC power limitation for each MPPT with independent configuration of MPPT at $P_{acr}$, max unbalance example | N/A | N/A | N/A |
| Maximum DC input current ($I_{dcmax}$) / for each MPPT ($I_{MPPTmax}$) | 10.0 A | 10.0 A | 10.0 A |
| Maximum input short circuit current for each MPPT | 12.5 A | 12.5 A | 12.5 A |
| 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 switch rating for each MPPT (version with DC switch) | 25 A / 600 V | | |
| **Output side** | | | |
| AC grid connection type | Single-phase | | |
| Rated AC power ($P_{acr}$ @cos$\phi$=1 ) | 1200 W | 2000 W | 3000 W |
| Maximum AC output power ($P_{acmax}$ @cos$\phi$=1) | 1200 W | 2000 W | 3000 W |
| Maximum apparent power ($S_{max}$) | 1200 VA | 2000 VA | 3000 VA |
| Rated AC grid voltage ($V_{ac,r}$) | 230 V | | |
| AC voltage range [2] | 180...264 V | | |
| Maximum AC output current ($I_{ac,max}$) | 5.5 A | 10.0 A | 14.5 A |
| Contributory fault current | 10.0 A | 12.0 A | 16.0 A |
| Rated output frequency ($f_r$) [3] | 50/60 Hz | | |
| Output frequency range ($f_{min}...f_{max}$) [3] | 47...53/57...63 Hz | | |
| Nominal 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 | 10.0 A | 16.0 A | 16.0 A |
| Output overvoltage protection - varistor | 2 (L - N / L - PE) | | |

**ABB UNO-DM-1.2/2.0/3.0-TL-PLUS-Q string inverter block diagram**



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**Technical data and types**

| Type code | UNO-DM-1.2-TL-PLUS-Q | UNO-DM-2.0-TL-PLUS-Q | UNO-DM-3.0-TL-PLUS-Q |
|---|---|---|---|
| **Operating performance** | | | |
| Maximum efficiency ($\eta_{max}$) | 94.8% | 96.7% | 96.7% |
| Weighted efficiency (EURO/CEC) | 92.0%/- | 95.0%/- | 90.0%/- |
| Feed in power threshold | 8 W | | |
| Night consumption | <0.4 W | | |
| **Embedded communication** | | | |
| Embedded communication interface [4] | Wireless | | |
| Embedded communication protocol | ModBus TCP (SunSpec) | | |
| Commissioning tool | Web User Interface, Aurora Manager Lite | | |
| Monitoring | Plant Portfolio Manager, Plant Viewer, Plant Viewer for Mobile, ABB Ability™ Energy Viewer for solar plants | | |
| 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 | | |
| 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 | | |
| **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 50°C/122°F |
| Relative humidity | 0...100 % condensing | | |
| Acoustic noise emission level | 50 dBA @ 1 m | | |
| 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 , RCM | | |
| 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 61000-3-2, EN 61000-3-3 | | |
| Grid standard (check your sales channel for availability) [5] | CEI 0-21, DIN V VDE V 0126-1-1, VDE-AR-N 4105, G83/2, G59/3, RD 413, ITC-BT-40, AS/NZS 4777.2, IEC 61727, IEC 62116 | | |
| **Available products variants** | | | |
| Standard | UNO-DM-1.2-TL-PLUS-B-Q | UNO-DM-2.0-TL-PLUS-B-Q | UNO-DM-3.0-TL-PLUS-B-Q |
| With DC switch | UNO-DM-1.2-TL-PLUS-SB-Q | UNO-DM-2.0-TL-PLUS-SB-Q | UNO-DM-3.0-TL-PLUS-SB-Q |

[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] The AC voltage range may vary depending on specific country grid standard

[3] The Frequency range may vary depending on specific country grid standard; CE is valid for 50Hz only

[4] As per IEEE 802.11 b/g/n standard

[5] 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

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