FIMER

Solar Inverter
UNO-DM-1.2/2.0/3.0/3.3/3.6/4.0/ 4.6/5.0-TL-PLUS-Q
# Quick Installation Guide

In addition to what is explained in this quick installation guide, the safety and installation information provided in the product manual must be read and followed. The technical documentation for the product is available at the website.
The device must be used in the manner described in the manual. If this is not the case the safety devices guaranteed by the inverter might be ineffective.

**APPLY HERE
THE WIRELESS
IDENTIFICATION LABEL**

1. Labels and Symbols

The labels on the inverter show the markings, main technical data and the identification of the equipment and of the manufacturer.
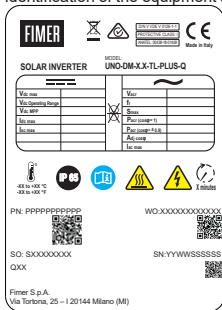
Regulatory Label
In case of a service password request, it is necessary to have the serial number available (SN: YYWWSSSSSS)

Wireless Identification Label
The label is divided in two separate parts by a dashed line; take the bottom part and apply it on the cover of this quick installation guide

⚠ **ATTENTION –** The labels placed on the equipment absolutely MUST NOT be removed, damaged, dirtied, hidden, etc.

In the manual, and/or in some cases on the equipment, the danger or attention zones are indicated by signs, labels, symbols or icons.

Symbols used in the guide and on the products

| Symbol	Description
📖	Obligation to consult the manual
⚠	General warning - Important safety information
⚡	Dangerous voltage
🔥	Hot parts
IP 65	Degree of protection of the device
🌡	Temperature interval
⊗	Without isolating transformer
=== ∼	Direct and alternating currents, respectively
⊕ ⊖	Positive and negative pole of the input voltage (DC)
🖐	Obligation to use protective clothing and/or personal protective equipment
⏚	Point of connection of the protective ground
⚡ XX minutes	Risk of electric shock.The discharge time (quantified in the figure by the number XX) of the stored energy after de-energizing of the Inverter from both DC side and AC side.

2. Models and Inverter Components

The inverter models referred to in this installation guide are available in seven power capacity systems: 1.2kW, 2.0kW, 3.0kW, 3.3 kW, 3.6 kW, 4.0 kW, 4.6 kW and 5.0 kW.For each model, the following variants are available (suffix could be combined):
- Standard models (e.g. UNO-DM-3.3-TL-PLUS-B-Q). Models equipped with Wireless communication (-B suffix).
- Models with "S" suffix (e.g. UNO-DM-3.3-TL-PLUS-SB-Q). Models equipped with DC disconnecting switch.
- Models with "X" suffix (e.g. UNO-DM-3.3-TL-PLUS-SB-X-Q). Models equipped with UNO-DM-COM KIT.
- Models with "U" suffix UNO-DM-5.0-TL-PLUS-SB-QU. Unbalanced input channels (UNO-DM-5.0-TL-PLUS model only).

Main components

01	Bracket
03	Heatsink
04	Anti-condensation valve
05	Front Cover
06	LED panel
09	DC Input Connectors
10	AC Output Connector
11	Wireless antenna connector
12	DC Input terminal block
13	Locking Screw
16	DC disconnect switch (only -S models)
18	UNO-DM-COM KIT or UNO-DM-PLUS Ethernet COM kit board (optional)
19	External ground connection
20	Service cable gland
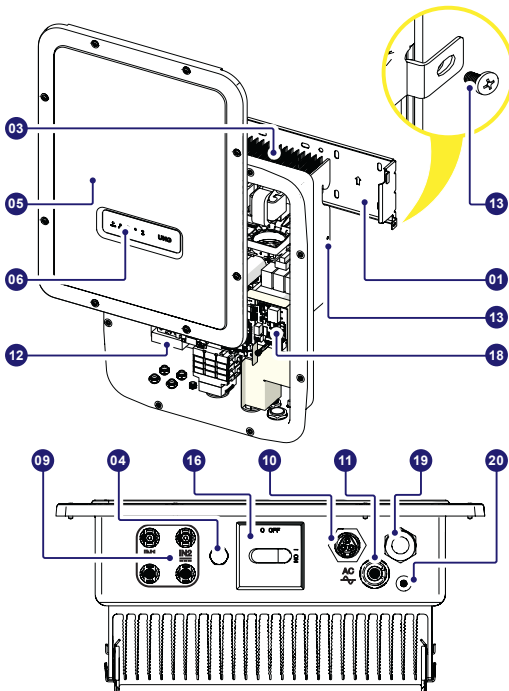
3. Lifting and transporting

Transportation and relocation
The transportation of the device, in particular via land transportation, must be made with adequate meansand ways to protect the parts from violent impacts, humidity, vibrations, etc.

Lifting
The means used for lifting must be suitable to bear the weight of the equipment.

Weight of the equipment components

Model	Weight
All models	15 kg

Unpacking and inspection
The packaging components must be removed and disposed of according to the applicable regulations of thecountry where the device is installed.
Upon opening the packaging, check the integrity of the equipment and verify that all the components are present.
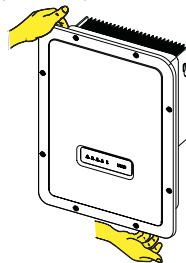
If you notice defects or deterioration, stop the operations and call the carrier, as well as inform FIMER Service immediately.

Please keep the packaging in the event it has to be returned; the use of inadequate packaging will void the warranty.

Always store the Quick Installation Guide, all the supplied accessories and the AC connector cover in a safe place

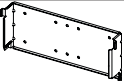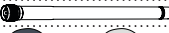# 4. Choice of the place of installation

Place and position of installation

- Refer to the technical data for the verification of the environmental conditions to be met.
- Do not install the inverter where it is exposed to direct sunlight. If necessary, use protection that minimizes the exposure, especially for ambient temperatures above 40°C/104°F.
- Do not install in small unventilated spaces where the air cannot circulate freely.
- Always ensure that the airflow around the inverter is not blocked to prevent overheating.
- Do not install near flammable substances (minimum distance 3 m/10 ft).
- Do not install on wooden walls or other flammable substances.
- Do not install inside residential premises or where a prolonged presence of people or animals is planned, due to the acoustic noise that the inverter produces during operation. The noise emission value is strongly influenced by the installation location (e.g. type of surfaces around the inverter, general properties of the room, etc.) and the quality of electricity supply.
- Install on a solid wall or structure that is suitable to support the weight of the equipment.
- Install in an upright position with a maximum inclination as shown in the figure.
- Respect the minimum distances indicated. Choose a location that allows enough space around the unit to allow easy installation and removal of the equipment from the mounting surface.
- Where possible, install at eye level for easy viewing of the LEDs.
- Install at a height that takes into account the weight of the equipment.
- When installing multiple inverters, position the inverters side by side while maintaining the minimum distances (measured from the outer edge of the inverter); if the space available does not allow this provision, position the inverters in a staggered layout, as indicated in the figure, in order to make sure that the heat dissipation is not affected by the other inverters.
- All installations at altitudes above 2,000 m/6,500' must be assessed on a case by case basis with FIMER Service to determine the proper derating of the input parameters.
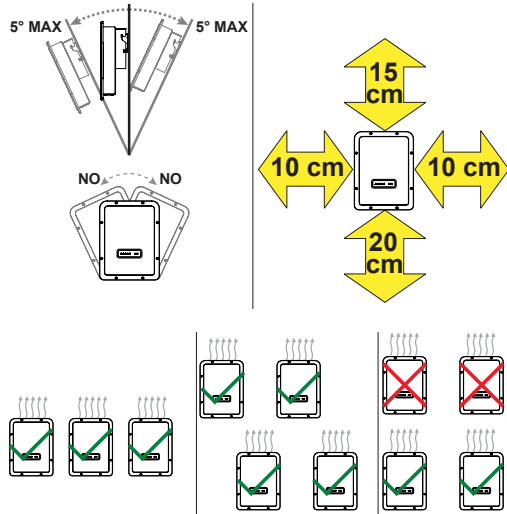
NOTE – The final installation of the inverter must not compromise the access to any disconnection devices located outside.

NOTE – Refer to the warranty conditions to evaluate the possible exclusions related to an improper installation.

5. Supplied Component list

Components supplied with the inverter	Q.ty
Bracket for wall fixing	1
Watertight connector for the AC cable connection	1
Wireless antenna	1
Cable with faston isolated for the configuration of the input channels in parallel	1 + 1
(Spare part) T20 screw for front cover	1
M5x10 screw for the external ground connection	1
M5 contact washers for the external ground connection	2
T20 Wall bracket locking screws (to be used when lock springs **02** on the bracket are missing)	2
Technical documentation	1

6. Assembly instructions

⚠ **ATTENTION –** Do not open the inverter in case of rain, snow or high humidity (>95%). During the installation, do not place the inverter with the front cover **(05)** facing the ground.

Install the inverter by following this procedure:

- Place the bracket **(01)** level on the wall and use it as a drilling template.
- The selection of the appropriate number and distribution of the anchors is the responsibility of the installer. The choice must be made according to the type of wall, frame or other type of support, and should be sized considering a total load of more than 4 times the weight of the inverter (total 4x15=60 kg total). Depending on the type of anchor chosen, drill the holes required for the fixing of the bracket (Figure **A**).
- Fix the bracket to the wall or structure.
- Carefully lift the inverter and hook it onto the bracket by inserting the two supports in the slots on the inverter (Figure **B**).
- Proceed to anchor the inverter to the bracket by installing the two (one each side) locking screws (Figure **B1**).
- Install wireless antenna **(11)** by screwing it into the dedicated connector located on the bottom part of inverter (Figure **C**).
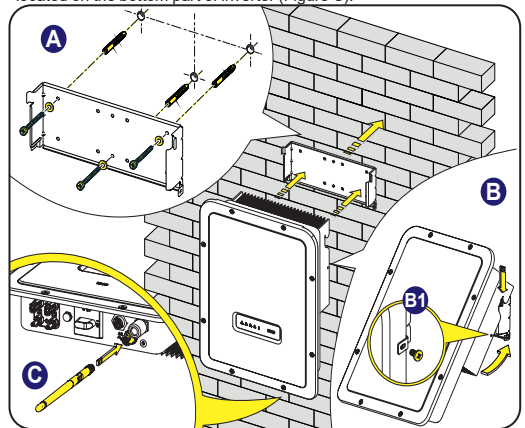
7. Opening the cover

⚠ **WARNING –** ELECTRIC SHOCK HAZARD! Hazardous voltages may be present inside the inverter. The access to the internal zones of the inverter must be carried out after a minimum waiting time of 5 minutes since the inverter was disconnected from the grid and from the photovoltaic generator.

- The main connections are made on the lower part (outside) of the inverter. To install the accessories and make the necessary connections, unscrew the 8 screws using a TORX T20 key and open the front cover **(05)**; while removing the screws, pay special attention since additional screws are not supplied.

- After making the connections, close the cover by tightening the 8 screws on the front, while respecting the sequence and tightening torque (2.5 Nm).
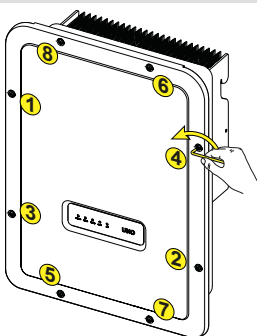
8. Input connection (DC) and input configurations

⚠ **WARNING –** Check the correct polarity of the input strings and the absence of earth leakages of the PV generator. When the PV panels are exposed to sunlight, they provide a continuous voltage (DC) to the inverter. Access to the internal inverter zones must be carried out with the equipment disconnected from the grid and from the PV generator.

⚠ **ATTENTION –** Caution! The inverters referred to in this document are WITHOUT AN ISOLATION TRANSFORMER (transformer-less). This type involves the use of PV panels of an isolated type (IEC61730 Class A Rating) and the need to maintain the PV generator floating with respect to earth; no generator pole must be connected to the ground.

⚠ **ATTENTION –** If multiple strings are connected to the same input, they must have the same type and number of panels in series. FIMER also recommend they have the same orientation and inclination. Only for the 5kW model. If the input strings are connected in channels with independent mode, keep in mind that channel 1 (IN1) supports 19A while channel 2 (IN2) supports 11.5A.

- Observe the maximum input current with respect to quick-coupling connectors. Refer to "String inverters - Product manual appendix" document available on the site www.fimer.com, to find out the make and model of the quick-coupling connector used on the inverter. Depending on the model of the connectors installed on your inverter, it will be necessary to use the same model for the corresponding counterparts (by checking the manufacturer's website or via FIMER for the compliant counterpart).
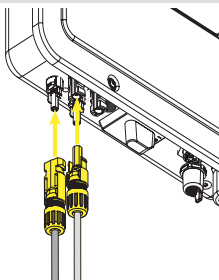
⚠ **ATTENTION –** The use of non-compliant counterparts with respect to the quick-coupling connectors models present on the inverter, may cause serious damage to the unit and result in the immediate loss of warranty

- Connect the DC input, always checking the tightness of the connectors.
- Versions of the inverter which are equipped with two independent input channels (i.e. dual maximum power point tracker, MPPT), can be configured as parallel (i.e. single MPPT).

Configuring Input Mode to Independent (default configuration)
This configuration is set at the factory and involves the use of the two input channels (MPPT) in an independent mode. This means that the jumpers (supplied) between the positive and negative poles of the two DC input channels **(12)** must not be installed, and that the independent channel mode should be set during the commissioning phase, in the dedicated section of the internal webserver "SETTINGS > SETUP DC SIDE > INPUT MODE".

Configuring Input Mode to Parallel
This configuration involves the use of the two input channels (MPPT) connected in parallel. This means that the jumpers (supplied) between the positive and negative poles of the two DC input channels **(12)** must be installed, and that the parallel channel mode should be set during the commissioning phase, in the dedicated section of the internal webserver "SETTINGS > SETUP DC SIDE > INPUT MODE".
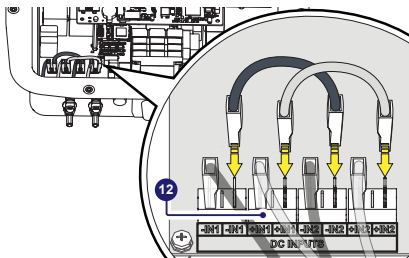
9. Line cable and protective devices

Protection switch under load (AC switch) and sizing of the line cable
To protect the AC connection line of the inverter, we recommend the installation of a protection device against overcurrent and earth leakages with the following features:

	UNO-DM-1.2	UNO-DM-2.0	UNO-DM-3.0	UNO-DM-3.3	UNO-DM-3.6	UNO-DM-4.0	UNO-DM-4.6	UNO-DM-5.0
Type	Circuit breaker with differential magnetic-thermal protection							
Nominal voltage	230 Vac							
Nominal current	10A	16A	16A	20A	20A	25A	25A	32A
Magnetic protection feature	B/C							
Number of poles	2							
Type of differential protection	A/AC							
Differential sensitivity	300 mA							

FIMER declares that the FIMER high frequency inverter without a transformer are not manufactured to inject continuous currents of ground fault, and therefore, the differential installed downstream of the inverter, type B according to IEC 60755/A 2, is not required. Characteristics and sizing of the line cable

Characteristics and sizing of the line cable

The cable should be three-pole. The section of the AC line conductor must be sized in order to avoid unwanted disconnections of the inverter from the distribution network due to high impedances of the line that connects the inverter to the point of supply of electricity.

max. 6 mm²

Ø10÷14mm
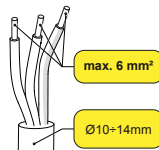
| Maximum length of the line conductor (m)								
Line conductor cross-section	UNO-DM-1.2	UNO-DM-2.0	UNO-DM-3.0	UNO-DM-3.3	UNO-DM-3.6	UNO-DM-4.0	UNO-DM-4.6	UNO-DM-5.0
1.5 mm²	18 m	10 m	6 m	6 m	5 m	5 m	4 m	- m
2.5 mm²	22 m	15 m	11 m	11 m	10 m	10 m	8 m	6 m
4 mm²	40 m	25 m	19 m	19 m	17 m	16 m	13 m	10 m
6 mm²	56 m	38 m	29 m	29 m	26 m	24 m	20 m	16 m

The values are calculated in nominal power condition considering:
1. a power loss along the line of not more than 1%.
2. copper cable used, with HEPR rubber insulation and placed in open air

10. Output connection (AC)

⚠ **ATTENTION –** Caution! Before performing the operations described below, make sure that you have properly disconnected the AC line downstream of the inverter
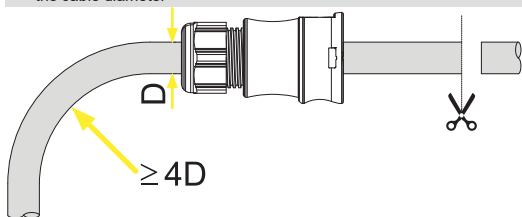
For the grid connection of the inverter, 3 connections are needed: ground, neutral and phase. The ground connection of the inverter is mandatory. The connection of the network cable to the inverter is performed by means of the dedicated AC output connector **(10)**, by doing the following:

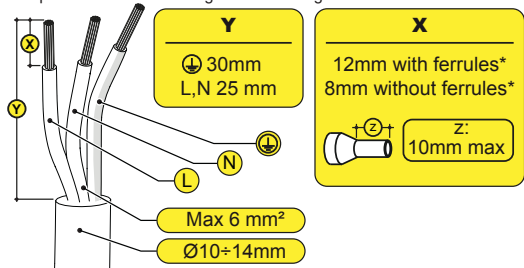• Remove the connector head by pressing on the two retaining clips and then loosen the cable gland.
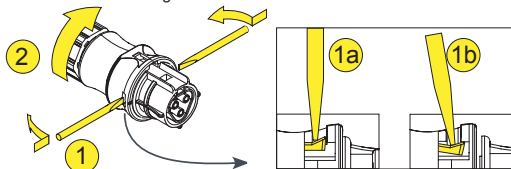
• Insert the cable into the connector and cut the cable to length

⚠ **NOTE –** Make sure that the cable bend radius is greater than 4 times the cable diameter


$\geq 4D$

• Prepare the cable according to the following measurement:

| Y	X
⊕ 30mm L,N 25 mm	12mm with ferrules* 8mm without ferrules*
	z: 10mm max

Max 6 mm²
Ø10÷14mm

(*): Use properly crimped ferrules only on stranded wire with a conductor section values between 1.5 - 4 mm².

• Install the individual wires (phase, neutral and ground) on the connector head according to the instructions printed on each of the three terminals (tightening torque 0.8...1 Nm)
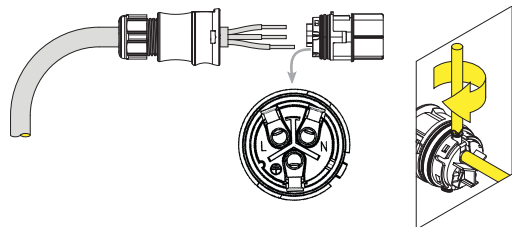
• Close the connector and tighten the cable gland respecting the tightening torque (4+1 Nm) to ensure the IP65 degree of protection

Click!
Click!
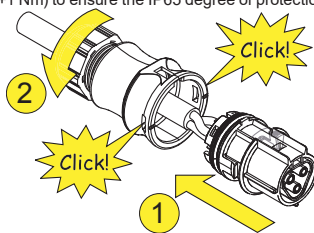
• Remove the pre-installed protective cap on the inverter.
Insert the counterpart in the AC output connector **(10)** while taking care to align the references (present in both connectors) that prevent connection errors.

Click!
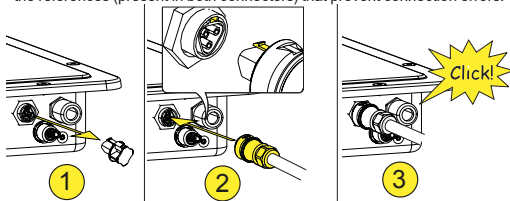
⚠ **ATTENTION –** To maintain the IP protection rating of the inverter, it is mandatory to install the counterpart with the AC cable connected or the protective cap, on the AC output connector. In addition, the connector must not be subjected to tensile forces (examples: do not connect weights to the AC cable, do not leave excess wire hanging, etc.).

11. Instruments

The LEDs allow you to view inverter status conditions to be analyzed in greater depth by consulting the manual.

LEDs (06)		
POWER	Green	Solid when the inverter is working correctly. Flashes when checking the grid or if there is insufficient sunlight.
COMM	Green	Activation status of the inverter's wireless communication
ALARM	Yellow	The inverter has detected an anomaly. The anomaly is shown on the "EVENTS" section of the internal webserver.
WLAN	Multicolor	Quality of the wireless communication signal.
GFI	Red	Ground fault on the DC side of the PV generator. The error is shown on the "EVENTS" section of the internal webserver.
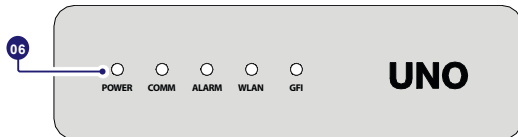
12. Commissioning

⚠ **ATTENTION –** Before proceeding with commissioning, make sure you have carried out all the following checks:
- Check the correct connection and polarity of the DC inputs, and the correct connection of the AC output and ground cables.
- Check the sealing barrier of the cable ducts and installed quick-fit connectors to prevent accidental disconnections and/or avoid compromising the IP65 environmental protection rating. Commissioning is carried out via Wi-Fi connection to the inverter web user inteface. Initial setup must therefore be carried out via a tablet, notebook or smartphone with a Wi-Fi connection.

To establish the connection and operate with the inverter, it is necessary to connect its input to the DC voltage of the photovoltaic panels.

Supply the inverter with DC input voltage from the photovoltaic generator and via AC GRID voltage.

> ⚠ **ATTENTION –** Make sure that the irradiation is stable and adequate for the inverter commissioning procedure to be completed.

12.1 Pre-commissionig phase 1 - Connection to the local Wi-Fi network

DEVICE USED: TABLET/SMARTPHONE

Once powered, launch a QR reader for mobile and SCAN the QR code marked with **1**📱 on the label on the right side of the inverter and connect to inverter network (tap connect).

The name of the Wi-Fi network created by the system, that the connection should be established with, will be: ABB-XX-XX-XX-XX-XX-XX (where the X is the MAC address) After this step wait 10 seconds to allow the WLAN connection

SN WLAN: SSSSSSSSSS
PN WLAN: PPP.PPPPP.PP
MAC: XX:XX:XX:XX:XX:XX

Remove and apply on the Quick installation guide

1📱

SN Inverter: SSSSSSSSSS
MAC: XX:XX:XX:XX:XX:XX
PK: KKKK-KKKK-KKKK-KKKK

DEVICE USED: LAPTOP

Enable the wireless on the device you are using for the commissioning and search for the network named ABB-XX-XX-XX-XX-XX-XX, where "X" is an hexadecimal number of the MAC Address (the MAC Address is indicated on the "wireless identification label" on the side of the inverter). When prompted, type the PK (product key), including the dashes. Example: 1234-1234-1234-1234 as the network password.

12.2 Pre-commissionig phase 2 - Internal web UI access

DEVICE USED: TABLET/SMARTPHONE

SCAN this QR code. An internet browser page showing the step by step procedure will be open.

> 📝 **NOTE –** The information contained in this QR code is the IP address of the web user interface of the inverter: http://192.168.117.1

> 📝 **NOTE –** Recommended browsers: Chrome from v.55, Firefox from v.50, Safari from V.10.2.1

DEVICE USED: LAPTOP

Open an internet browser page and insert http://192.168.117.1 on the address bar.

12.3 STEP BY STEP COMMISSIONING WIZARD

12.3.1 STEP 1 - Administrator/User login credentials

• Set the Administrator account user and password (minimum 8 character for password):
Administrator account can open and view the contents of photovoltaic site. Additionally, they can make changes to inverter settings. User and password are CASE SENSITIVE.
• Set the User account user and (optional) password (minimum 8 character for password):
User account can only read data. It cannot make any changes. User and password are CASE SENSITIVE.
• Click on "Next" button to proceed to the next stage of the configuration wizard.

12.3.2 STEP 2 (Optional) - Residential wireless network connection.

The parameters relating to the home wireless network (set on the router) that must be known and set during this step are:
IP Settings: DHCP or Static.
If you select the DHCP function (default setup) the router will automatically assign a dynamic IP address to the inverter whenever it tries to connect to the user network.

With Static, the user can assign a fixed IP address to the system. The data which has to be entered in order for IP static address assigning to take place will appear. Complete the additional fields at the bottom of the screen (all the fields are mandatory with the exception of the secondary DNS server).

Available networks (SSID):
Identify and select your own (home) wireless network from all those shown in the SSID field (you can carry out a new search of the networks that can be detected with the Update button 🔄). Once the network has been selected, confirm.

Password: Wireless network password.
Enter the password for the destination network (if necessary) and start the connection attempt (it will take a few seconds).
• Click on "Connect" button to connect the inverter to the home wireless network.
• A message will ask for confirmation. Click "Next" to connect the inverter to the home wireless network.
• Once the inverter is connected to the domestic wireless network, a new message will confirm that.
The message provides the IP Address assigned by the home wireless network router to the inverter that can be used each time you want to access the internal webserver, with the inverter connected to the home wireless network. Take note of it.
• Click on "Next" button to proceed to the next stage of the configuration wizard.

> 📝 **NOTE –** The IP address assigned may vary for reasons connected to the wireless home router setup (for example, a very brief DHCP lease time). If verification of the address is required, it is usually possible to obtain the client list (and the corresponding IP addresses) from the wireless router administration panel.

If the inverter loses the connection with the home wireless network, it is available accessing the Wi-Fi network ABB-XX-XX-XX-XX-XX-XX, where "X" is an hexadecimal number of the MAC Address.

> 📝 **NOTE –** The most common causes of losing connectivity might be: different wireless network password, faulty or unreachable router, replacement of router (different SSID) without the necessary setting updates.

12.3.3 STEP 3 - Date, Time and Time zone

• Set the Date, Time and Time zone (The inverter will propose these fields when available).
When it's not possible for the inverter to detect the time protocol, these fields have to be manually entered.
• Click on "Next" button to proceed to the next stage of the configuration wizard.

12.3.4 STEP 4 - Inverter country standard, Input mode, Meter and Energy policy.

Country standard
Set the grid standard of the country in which the inverter is installed. From the moment that the grid standard is set, you have 24 hours to make any changes to the value, after which the "Country Select > Set Std." functionality is blocked, and the remaining time will have to be reset in order to have the 24 hours of operation available again in which to select a new grid standard (follow the procedure "Resetting the remaining time for grid standard variation" described in the relevant section).

Input mode
- Indipendent
- Parallel

> 📝 **NOTE –** See the relevant section of this guide to know how to physically set the input mode

Meter
- None (installation without meter)
- REACT-MTR-1PH (single-phase)
- ABB 3PH (three-phase)
- ABB 1PH (single-phase)
- EASTRON 3PH (three-phase)
- EASTRON 1PH (single-phase)

If the selected meter is three-phase additional requested fields will appear:
- Meter Phase: select the phase to which the inverter is connected.
When a meter type is selected is possible to set also the Energy Policy fields that allows to manage the energy produced by the PV plant.

Energy Policy

- Zero injection: The system automatically manages power flows in order to avoid the injection of energy to the grid.
- Self consumption: The system automatically manages power flows in order to maximise self-consumption.
- Custom: The system automatically manages power flows in order to avoid feeding the grid with power greater than: PDC x Plim where PDC is the power of the photovoltaic generator ("PV GENERATOR POWER" parameter) and Plim is the output power limit with respect to PDC(%) ("FEED-IN POWER" parameter)

• Confirm the settings by clicking "DONE"; the inverter will reboot at the finish of the meter test phase (if installed).

• After the wizard is completed, the system will power-on. The inverter checks the grid voltage, measures the insulation resistance of the photovoltaic field with respect to ground and performs other auto-diagnostic checks. During the preliminary checks on the parallel connection with the grid, the "Power" LED keeps flashing, the "Alarm" and "GFI" LEDs are off. If the outcome of the preliminary checks on the grid parallel is positive, the inverter connects to the grid and starts to export power to the grid. The "Power" LED remains fixed on while the "Alarm" and "GFI" LEDs are off.

> **NOTE –** To address any problems that may occur during the initial stages of operation of the system and to ensure the inverter remains fully functional, you are advised to check for any firmware updates in the download area of the website www.fimer.com or at https://registration.solar.fimer.com (instructions for registering on the website and updating the firmware are given in this manual).

13. Features and Technical Data

	UNO-DM-1.2	UNO-DM-2.0	UNO-DM-3.0	UNO-DM-3.3	UNO-DM-3.6	UNO-DM-4.0	UNO-DM-4.6	UNO-DM-5.0
Input								
Absolute maximum input voltage ($V_{max,abs}$)				600 V				
Input activation voltage (V_{start})	120 V (adj. 100...150V)	150 V (adj. 100...250V)	150 V (adj. 120...250V)	200 V (adj. 120...350 V)	200 V (adj. 120...350 V)	200 V (adj. 120...350 V)	200 V (adj. 120...350 V)	200 V (adj. 120...350 V)
DC input voltage operating range ($V_{dcmin}...V_{dcmax}$)				$0.7 \times V_{start}$...580 V (min 90 V)				
Rated input DC voltage (V_{dcr})	185 V	300 V	300 V	360 V	360 V	360 V	360 V	360 V
Rated input DC power (P_{dcr})	1500 W	2500 W	3300 W	3500 W	3910 W	4250 W	4750 W	5150 W
Number of independent MPPTs	1	1	1	2	2	2	2	2
Maximum Input power for each MPPT ($P_{MPPTmax}$)	1500 W	2500 W	3300 W	2000 W	3000 W	3000 W	3000 W	3500 W
DC input voltage range ($V_{MPPT\ min}$ ... $V_{MPPT\ max}$) with parallel configuration of MPPT at P_{acr}	100...530 V	210...530 V	320...530 V	170...530 V	130...530 V	130...530 V	150...530 V	170...480 V
DC power limitation with parallel configuration of MPPT	N/A	N/A	N/A	Linear derating from Max to Null [530≤VMPPT≤580V] [10]				
DC power limitation for each MPPT with independent configuration of MPPT at P_{acr}, max unbalance example	N/A	N/A	N/A	MPPT1:2000 W [200V≤VMPPT≤530V] MPPT2:Pdcr-2000W [112V ≤ VMPPT ≤ 530V]	MPPT1: 3000W [190V≤VMPPT≤530V] MPPT2: Pdcr-3000W [90V≤VMPPT≤530V]	MPPT1: 3000W [190V≤VMPPT≤530V] MPPT2: Pdcr-3000W [90V≤VMPPT≤530V]	MPPT1: 3000W [190V≤VMPPT≤530V] MPPT2: Pdcr-3000W [90V≤VMPPT≤530V]	MPPT1: 3500W [185V≤VMPPT≤480V] MPPT2: Pdcr-3500W [145V≤VMPPT≤480V] or 3500W [305V≤VMPPT≤480V] with no power on MPPT1 [6]
Max DC input current ($I_{dc\ max}$) / for each MPPT ($I_{MPPTmax}$)	10 A	10 A	10 A	20A / 10A	32A / 16A	32A / 16A	32A/16A	30.5A/19-11.5A
Maximum return current (AC side vs DC side)				< 5 mA (In the event of a fault, limited by the external protection on the AC circuit)				
Maximum short circuit current for each MPPT	12.5 A	12.5 A	12.5 A	20.0A	20.0A	20.0A	20.0A	22.0A
Number of input DC connection pairs for each MPPT				1				
DC connection type				Quick fit PV connector [1]				
Type of PV panels connected in input in accordance with Standard IEC 61730				Class A				
Input protection								
Reverse polarity protection				Yes, from a current limited source				
Input overvoltage protection for each MPPT-Varistors				Yes				
Photovoltaic array insulation control				According to local standard				
DC disconnect switch characteristics (version with DC disconnect switch)				600 V/25 A				
Output								
AC connection type				Single phase				
Nominal output AC power ($P_{acr@cosφ=1}$)	1200 W	2000 W	3000 W	3300 W	3680 W	4000 W	4600 W	5000 W
Maximum output AC power ($P_{ac\ max@cosφ=1}$)	1200 W	2000 W	3000 W	3300 W	3680 W	4000 W [2]	4600 W	5000 W
Maximum apparent power (S_{max})	1200 VA	2000 VA	3000 VA	3300 VA	3680 VA	4000 VA [2]	4600 VA	5000 VA
Nominal output AC voltage (V_{acr})				230 V				
Output AC voltage range ($V_{ac\ min}...V_{ac\ max}$)				180...264 Vac [3]				
Maximum AC output current ($I_{ac\ max}$)	5.5 A	10.0 A	14.5 A	14.5 A	16.0 A	17.2 A [2]	20.0 A	22.0 A
Maximum fault current				<25 A rms (100 ms)				
Short circuit current contribution	10.0 A	12.0 A	16.0 A	16.0 A	19.0 A	19.0 A	22.0 A	24.0 A
Inrush current				Negligible				
Nominal output frequency (f_r)				50 / 60 Hz [4]				
Output frequency range ($f_{min}...f_{max}$)				47...53 / 57...63 Hz [4]				
Nominal power factor and adj. interval				> 0.995; 0.1 – 1 Over/Under excited				
Total harmonic distortion				< 3.5%				
AC connections type				Panel female connector				

	UNO-DM-1.2	UNO-DM-2.0	UNO-DM-3.0	UNO-DM-3.3	UNO-DM-3.6	UNO-DM-4.0	UNO-DM-4.6	UNO-DM-5.0
Output Protection								
Anti-islanding protection				According to local standard				
Maximum external AC overcurrent protection	10.0 A	16.0 A	16.0 A	20.0 A	25.0 A	25.0 A	25.0 A	32.0 A
Output overvoltage protection - Varistor				2 (L - N / L - PE)				
Operational Performances								
Maximum efficiency (η_{max})	94.8%	96.7%	96.7%	97.0%	97.0%	97.0%	97.0%	97.4%
Weighted efficiency (EURO/CEC)	92.0% /	95.0%/-	95.0%	96.5%/-	96.5%/-	96.5%/-	96.5%/-	97.0%/-
Power threshold of the power				8.0 W				
Nighttime consumption				< 0.4 W				
Communication								
Embedded Communication Interface				Wireless [6]				
Embedded Communication Protocol				ModBus TCP (SunSpec)				
Commissioning tool				Web user interface, Aurora Manager Lite				
Firmware Update Capabilities				Locally and remotely				
Monitoring				Plant Portfolio Manager, Plant Viewer, Plant Viewer for Mobile [7]				
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				
Ambient temperature derating	above 50°C/122°F	above 50°C/122°F	above 50°C/122°F	above 50°C/122°F	above 50°C/122°F	above 50°C/122°F	above 40°C/104°F [8]	above 45°C/113°F
Relative humidity				0...100% condensing				
Typical noise emission pressure				< 50 dB(A) @ 1 m [9]				
Maximum operating altitude without derating				2000 m/6560 ft				
Classification of environmental pollution degree for the external environment				3				
Environmental category				Outdoor				
Physical								
Environmental protection degree				IP 65				
Cooling system				Natural				
Dimensions (H x W x D)				553 mm x 418 mm x 175 mm/21.8" x 16.5" x 6.9"				
Weight				15 kg/33 lb				
Mounting system				Wall brackets				
Overvoltage category in conformity with IEC 62109-1				II (DC input) III (AC output)				
Safety								
Isolation level				Transformerless (TL)				
Certifications	CE [11], RCM	CE [11], RCM	CE [11], RCM	CE [11], RCM	CE [11]	CE [11], RCM	CE [11], RCM	CE [11], RCM
Safety class				I				
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				IEC/EN 62109-1, IEC/EN 62109-2, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	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				Refer to "Update your inverter for new features" page on the FIMER Solar website to know which country standard are available for your inverter model.				

1. Refer to the document "String inverter – Product Manual appendix" available at www.fimer.com to know the brand and the model of the quick fit connector.
2. For UK G83/2 grid standard, maximum output current limited to 16A up to a maximum output power of 3600W and maximum apparent power of 3600 VA.
3. The AC voltage range may vary depending on specific country grid standard.
4. The Frequency range may vary depending on specific country grid standard. CE, 50Hz only.
5. As per IEEE 802.11 b/g/n standard.
6. Functionality with unbalanced channels
7. Plant Viewer per Mobile availble remotely only, not for local commissioning.
8. Pacr = 4200 W @ 45°C/113°F.
9. @ Pure sine wave condition.
10. For UNO-DM-5.0 model: Linear power reduction from Max to zero [480V≤VMPPT≤580V]
11. Hereby, Fimer S.p.A. declares that the radio equipments (radio module combined with the inverter), to which this user manual refers, are in compliance with the Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at the following internet address: www.fimer.com

Note. The features that are not specifically mentioned in this data sheet are not included in the product