USER GUIDE

The craftstrom plug in
solar kit with power meter

01
POWER METER

Table of Contents

1.1. Safety instructions

Installation of the power meter must be carried out by a qualified electrician.

The symbols below are used throughout this manual to indicate different levels of potential risk and to draw attention to the severity and likelihood of hazards in each section.

Caution

Indicates a situation or action that may result in property damage or loss of data.

Warning

Indicates a hazardous situation that may result in serious injury or death.

Notice

Indicates important information, policies, or instructions that are not related to personal injury.

Safety notices indicate the level of danger. Safety instructions further describe the nature and cause of the hazard, the possible consequences, and the measures required to prevent or avoid it.

Responsibilities

CraftStrom does not perform installations at the customer’s premises.
The customer is responsible for reading and complying with all safety instructions contained in this user manual and for ensuring that installation is carried out by a qualified and certified electrician.

CraftStrom assumes no liability for the installation of this power meter.

Safety Regulations

The following safety regulations must be strictly observed during installation, removal, or servicing of the Power Meter:

- All connections must be fully disconnected from any voltage source before installation or opening of the device.
- Contact with live electrical components is life-threatening. Always remove the main fuses before starting work and store them securely to prevent unintentional reconnection.
- All applicable local safety regulations and electrical codes must be observed. Installation may only be carried out by technically qualified and properly trained personnel.
- Only suitable and properly insulated tools may be used. Ensure that tools are of the correct size and intended for electrical work.
- The Power Meter must be securely held during installation to prevent mechanical damage.
- Devices that have been dropped must not be installed, even if no external damage is visible. Such devices must be returned to CraftStrom for inspection, as internal damage may result in malfunction or short circuits.
- The Power Meter must never be cleaned with running water or compressed air. Ingress of water may cause short circuits or permanent damage.

1.2. Safety & Installation Requirements

Hazard of Live Electrical Parts

The Power Meter is connected to live electrical systems. Contact with live components is life-threatening.
All safety instructions must be strictly observed at all times during installation and operation.

Environmental Conditions for Installation

- The Power Meter may only be operated in a mechanical environment class M1, with negligible vibration and shock, in accordance with Directive 2014/32/EU.
- The device is designed for installation in an electromagnetic environment class E2, in accordance with Directive 2014/32/EU.
- The Power Meter is intended for indoor installation only, under non-condensing environmental conditions.
- If current transformer (CT) clamps are used outside of a standard DIN-rail meter enclosure, it must be ensured that all conductors remain freely accessible.

This power meter is for indoor use only

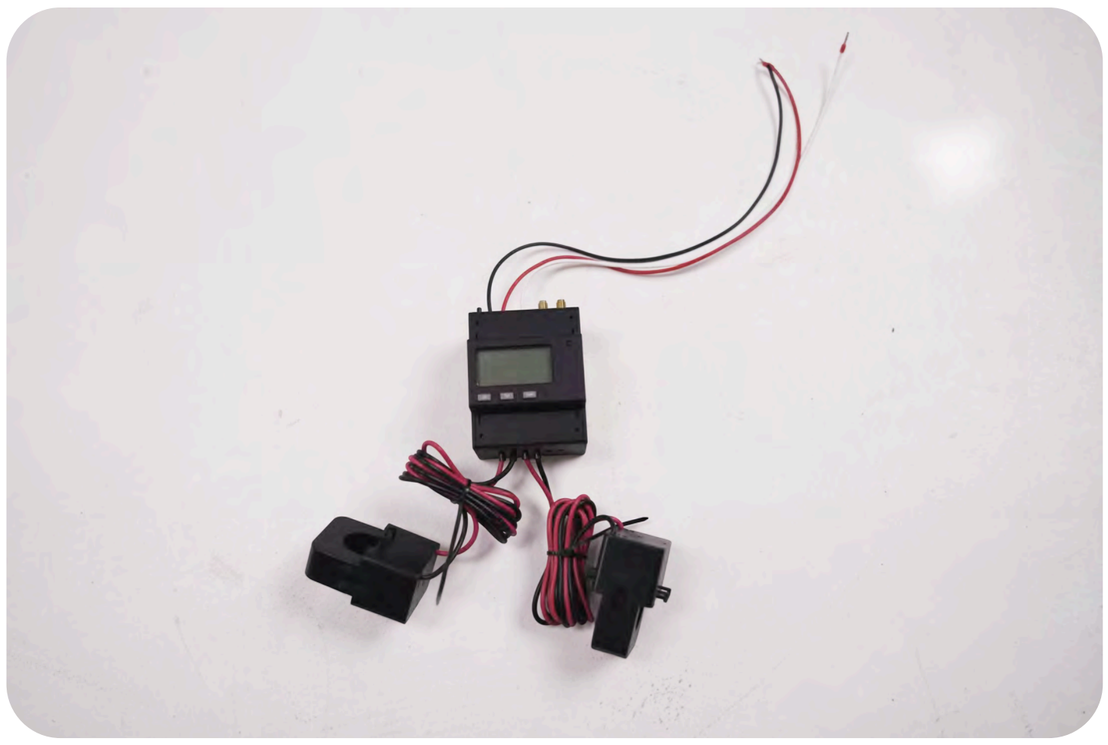
Outdoor installation is not permitted unless unavoidable. In such cases, the Power Meter must be installed inside a suitable protective enclosure that maintains the specified operating conditions.
The enclosure must be properly sealed to protect the device from environmental influences, including extreme temperatures, humidity, and insect intrusion.

Who is allowed to install?

Installation and operation of the Power Meter are permitted only under the following conditions:

- All work must be performed exclusively by qualified and appropriately trained personnel
- The installer must be familiar with and comply with all applicable local safety regulations and electrical codes
- Strict compliance with the instructions in the Safety Instructions section is mandatory, particularly those relating to safe operation
- Prior to installation, ensure that all required tools and materials are available

1.3. Product Overview



Function

Bi-Directional Power Measurement

The Power Meter measures active power within the electrical circuit. Reactive power flows between the source and the load and may change direction depending on operating conditions.

Through bi-directional measurement, the Power Meter clearly distinguishes between electricity production and electricity consumption, enabling accurate monitoring of energy flow.

Measured Parameters

- Voltage [U]
- Current [I]
- Active power [P]
- Reactive power [Q]
- Apparent power [S]
- Frequency [f]
- Power factor / phase shift [PF]

Communication

The Power Meter is equipped with an integrated CraftStrom communication module for secure data transmission via:

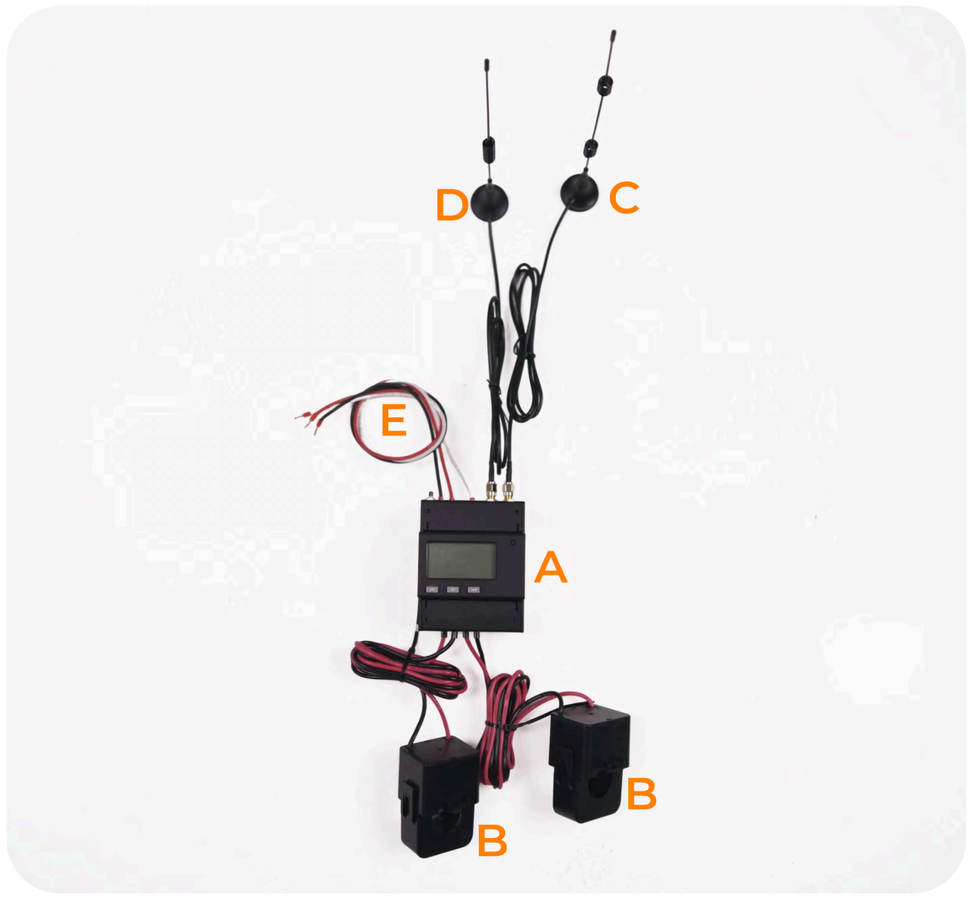
- WiFi (2.4 GHz)
- Sub-GHz communication (433 MHz)

1.4. Technical Specifications

Measurements – Voltage	Reference voltage	3×100V, 3×380V, 3×57.7/100V, 3×220/380V
	Consumption	<10VA (Single phase)
	Impedance	>2MΩ
	Accuracy	±0.2%
Measurements – Current	Input current	3×1(6)A; 3×10(80)A
	Consumption	<1VA (Single circuit rated current)
	Accuracy	±0.2%
Power	Accuracy	±0.5%
Mains frequency	Range / accuracy	45~65Hz, ±0.2%
Energy measurement	Electrical energy	Active power (accuracy level 0.5S); Reactive power (accuracy level 2)
	Time measurement	≤0.5s/T
Digital signal	Electricity pulse output	1 channel octocoupler
Pulse	Pulse width	80±20ms
	Pulse constant	400imp/kWh, 10000imp/kW
Communication	Internal	RS485% Modbus RTU, DL/T645
	External	2.4 GHz (WiFi), 433 MHz
	Baudrate	1200bps~19200bps
Environmental conditions	Operating temperature range	-25°C ~ +55°C
	Humidity	≤95%

1.5. Package Contents

The CraftStrom Power Meter package contains:



A - Power Meter (Main Unit)

The main measuring device used for:

- bi-directional measurement of electricity consumption and production
- communication with CraftStrom inverters, batteries, and the CraftStrom app

The unit is designed for DIN-rail mounting inside the breaker box and includes:

- phase and neutral terminal connections
- current transformer (CT clamp) inputs
- a reset button
- antenna connectors

B - Current Transformer Clamps (CT Clamps) – 2 pcs

Current Transformer Clamps (CT Clamps) – 2 pcs

Used to measure current on the main supply lines:

- L1 Clamp
- L2 Clamp

Each clamp includes:

- one red wire
- one black wire

C - WiFi Antenna (2.4 GHz) – 1 pc

- Enables connection to the home WiFi network
- Identified by two coils
- Magnetic base for easy mounting inside the breaker box

D - MHz Antenna (433 MHz) – 1 pc

- Enables sub-GHz communication between CraftStrom devices
- Identified by one coil
- Magnetic base for internal mounting

E - Power cords

- These conductors are used to connect the Power Meter to the circuit breakers.

1.5. Package Contents

F - RESET Button

The RESET button provides two different reset functions, depending on how long it is pressed.

1. WiFi Reset (Short Press)

Press and release the RESET button for approximately **1 second**.

This action resets the WiFi module to AP (Access Point) mode.

After about 1 minute, the WiFi network named “**CS-WIFI**” will become available again.

> ***Note**: After performing a WiFi reset, the Power Meter must be set up again in the CraftStrom App.*

2. Power Reset (Long Press)

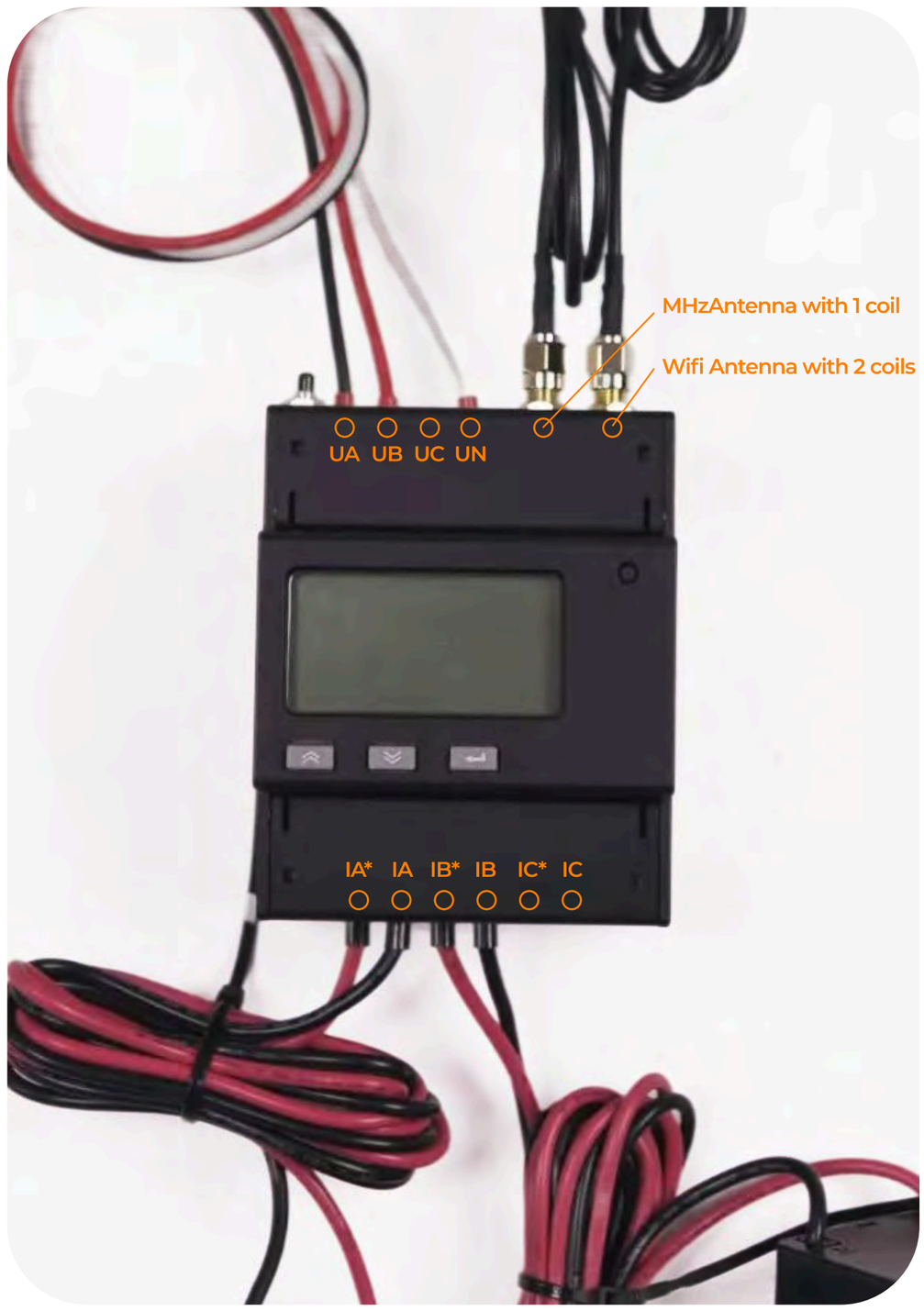
Press and hold the RESET button for approximately **15 seconds**.

This action performs a **complete restart of the Power Meter**.

If the device is not responding or behaves unexpectedly, performing a power reset is recommended as the first troubleshooting step. This reset allows the device to restart without removing the main fuses.

1.6. Assembly

Currently, our products require a dedicated 2.4 GHz Wi-Fi network and are not compatible with dual-band networks.
Note: Many modern routers broadcast a combined 2.4 GHz and 5 GHz network under the same Wi-Fi name (SSID). If your router uses a dual-band setup, please ensure that the 2.4 GHz network is enabled and selectable separately during setup.



Wiring the Power Meter

Please flip open the 2 cover on the power meter to expose the screws and markings!

1. Connect the **black wire** to terminal **UA**
2. Connect the **red wire** to terminal **UB**
3. Connect the **white wire** to terminal **UN**

Installing the Current Transformer (CT) Clamps

1. Connect the **red wire** of the first CT clamp to terminal **IA***
2. Connect the **black wire** of the same clamp to terminal **IA**
3. Connect the **red wire** of the second CT clamp to terminal **IB***
4. Connect the **black wire** of the same clamp to terminal **IB**

Installing Antennas

Identify the antennas:

- WiFi antenna (2.4 GHz) – antenna with two coils
- MHz antenna (433 MHz) – antenna with one coil

1.7. Installation – General Setup

This page describes the general installation of the Power Meter.
CT clamps and detailed wiring examples are described on the following page.

Safety Requirements

Before starting installation, ensure that all electrical conductors are de-energized. Contact with live electrical parts is life-threatening.

- Remove the main fuses before starting any work
- Store the fuses securely to prevent accidental reconnection
- Never work on the Power Meter while voltage is present

Installation Preconditions

Before mounting the Power Meter, verify the following:

- Approximately four fuse positions are available in the breaker box
- The installation location allows short and direct cable routes to all phases
- The bottom side of the Power Meter (including: two antenna connectors and RESET button) remains accessible after installation

If required, create an opening of approximately 30 × 10 mm in the panel cover to ensure access to these components.

Test Fit

1. Mount the Power Meter onto the DIN rail without connecting any cables.
2. Check that all conductors reach their intended terminals without tension.
3. Remove the Power Meter from the DIN rail again before proceeding.

Electrical Connection

1. Connect terminals 1–3 as follows:
   - Supply conductors from the main fuse or service connection to the input (top)
   - Load conductors to the output (bottom)
2. Connect the neutral conductor to terminal 4 at both the input and output.
3. Tighten all terminal screws for phase and neutral conductors securely.

Final Mounting

1. After all eight conductors are connected, mount the Power Meter onto the DIN rail.
2. Lock the DIN rail clip on the rear of the device to ensure a secure fit.

Power-Up

1. Reinstall the main fuses removed earlier.
2. The Power Meter will power on and begin measuring electrical parameters.
3. Continue with device registration and setup in the CraftStrom App.

1.7. Installation – general setup

Important Notice

The Power Meter does not include internal overcurrent protection or mains isolation. Appropriate protective devices must be provided as part of the final electrical installation.

Standard reference: E VDE-AR-N 4101:2014-03 – Requirements for metering points in low-voltage electrical installations.

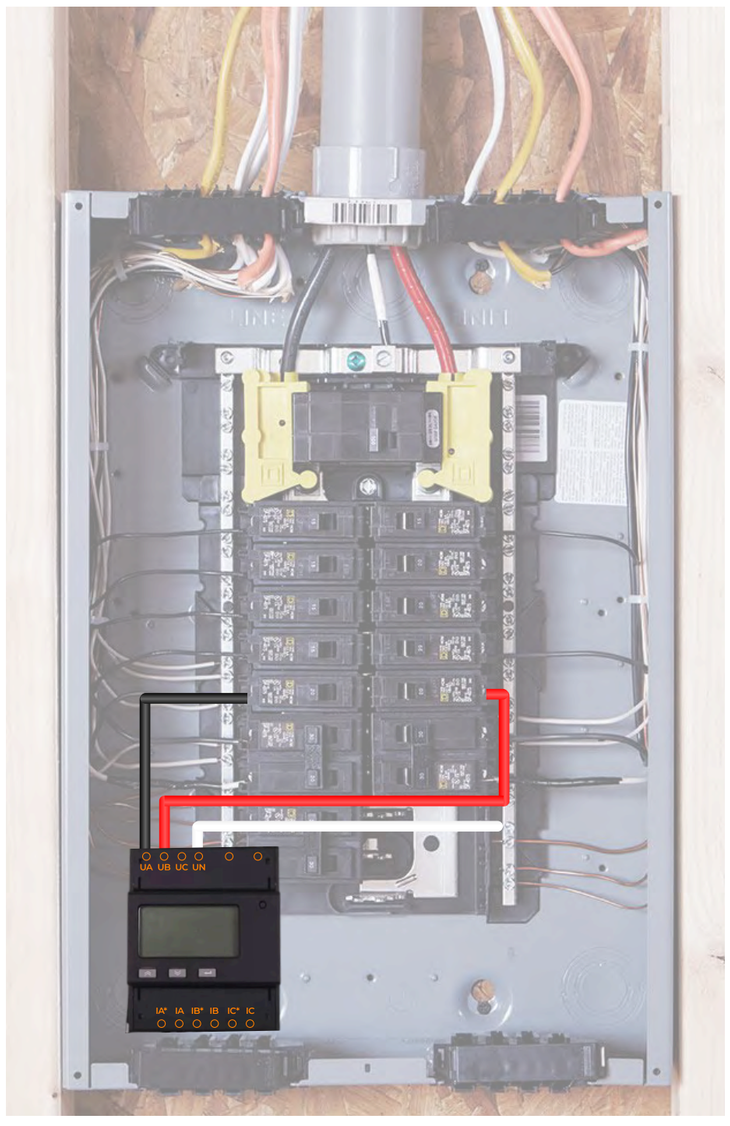
Final Mounting

1. After all eight conductors are connected, mount the Power Meter onto the DIN rail.
2. Lock the DIN rail clip on the rear of the device to ensure a secure fit.

1.8. Installation – Breaker Box

This page provides a visual installation example for reference only.
It illustrates the typical placement of the Power Meter, CT clamps, and antennas inside a breaker box.

> ***Note:*** Electrical wiring of the Power Meter terminals is described on the previous pages. This page does not replace the **Power Meter - Assembly** instructions.

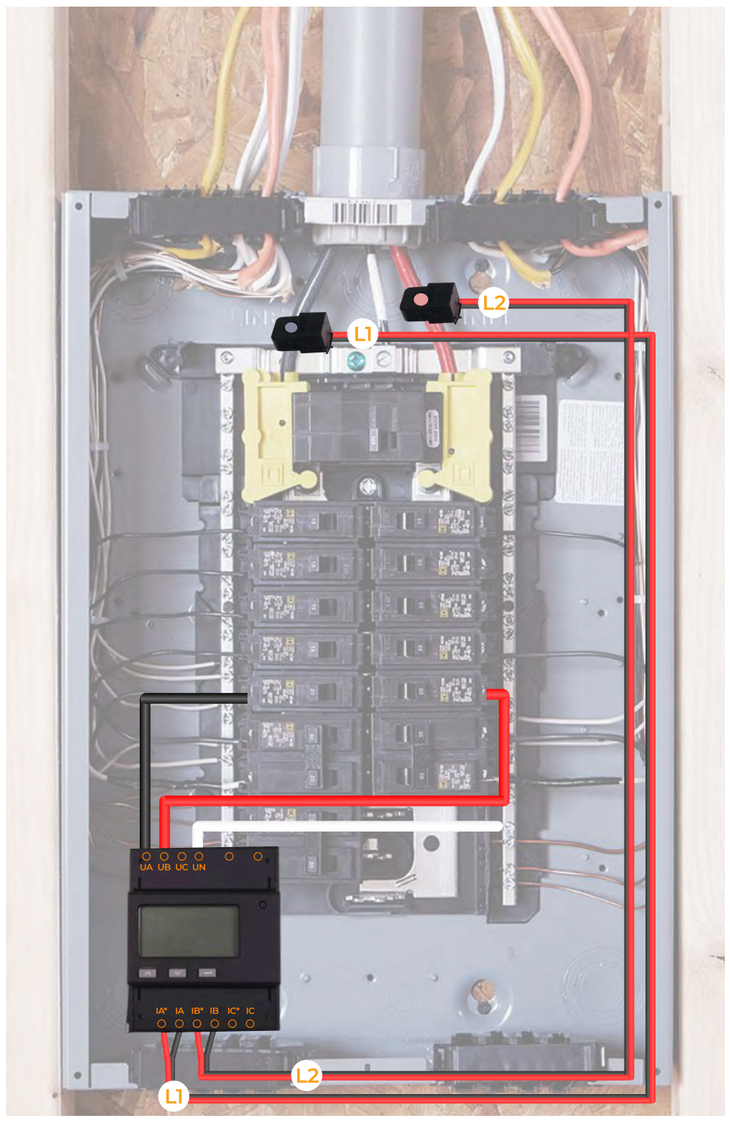


Step 1

Mount the Power Meter inside the breaker box and connect the conductors as follows:

- L1 (black) → connect to the left phase in the breaker box
- L2 (red) → connect to the right phase in the breaker box
- N (white) → connect to the neutral bar in the breaker box

The L1 and L2 conductors may be connected to an existing 15 A or 20 A circuit breaker, provided it complies with local electrical regulations.

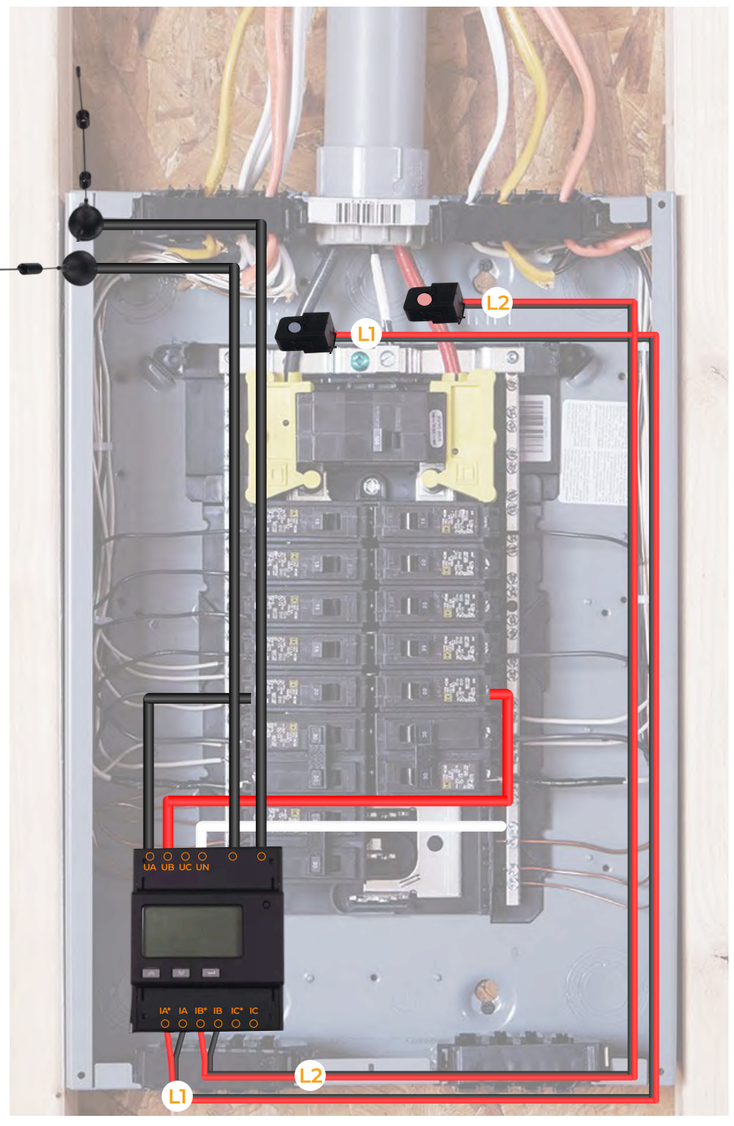


Step 2

Install the current transformer (CT) clamps:

- Place one CT clamp around the left main supply conductor (L1)
- Place the second CT clamp around the right main supply conductor (L2)
- Ensure that each CT clamp surrounds only one conductor
- Install both clamps so that they face the same direction, as shown in the image

Note:If the Power Meter displays negative values, reverse the orientation of the CT clamp or swap the red and black CT wires at the Power Meter.



Step 3

Place the antennas inside the breaker box, preferably in the upper area. Use the magnetic base to attach the antennas to the metal frame of the breaker box.

Antenna Orientation

The Wi-Fi antenna (2.4 GHz), identified by two coils, must be mounted in a vertical (upright) position, pointing upward.

The MHz antenna (433 MHz), identified by one coil, must be mounted in a horizontal position.

Ensure that both antennas are securely attached and not bent, pinched, or obstructed by other components inside the breaker box.

1.9. Installation – CraftStrom App

The CraftStrom Power Meter operates in conjunction with CraftStrom solar inverters and energy storage systems(batteries) to manage data communication between all CraftStrom devices and the CraftStrom App.

To enable system communication and monitoring, the Power Meter must be registered in the CraftStrom App. Once all devices are successfully registered, they establish an **independent internal communication network operating at 433 MHz**.

For remote monitoring and system control, essential operating data is transmitted to the CraftStrom server via **Wi-Fi (2.4 GHz)**.

> ***Note**: During device registration, only a dedicated 2.4 GHz Wi-Fi network may be used.*

The CraftStrom App is provided free of charge and enables comprehensive monitoring and management of your solar energy system.

Key features includes

- real-time monitoring of connected CraftStrom devices
- management of solar energy production, consumption, and battery storage
- performance tracking and system status overview

The app also allows users to:

- review accumulated energy data in kilowatt-hours (kWh)
- compare measured values with monthly electricity bills

Energy values displayed in **kWh** correspond directly to the units shown on standard electricity invoices.

Dashboard

Get your home energy balance overview

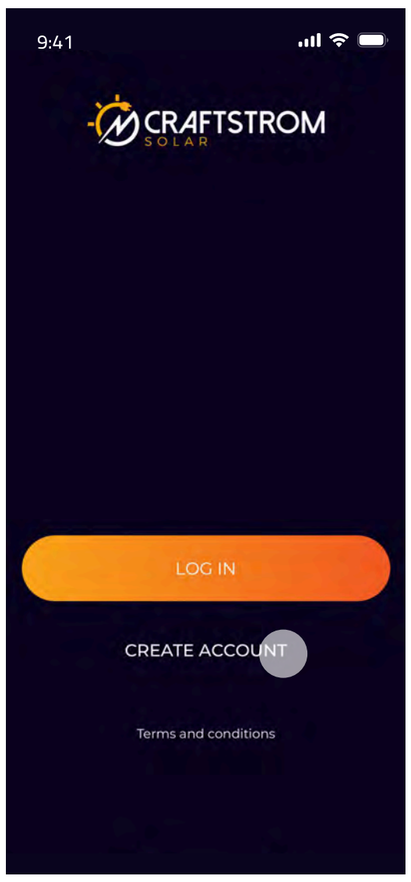
Usage

Check power usage of your home/appliances

Production

Check production of your solar kit

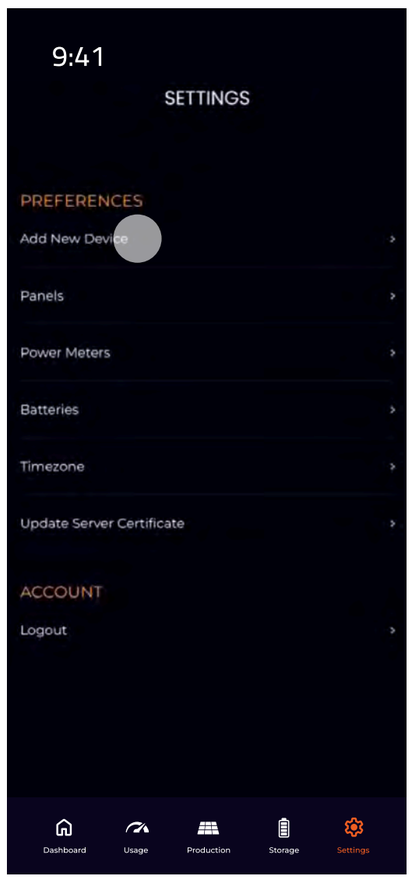
1.9. Installation – CraftStrom App



Step 1

Create an Account

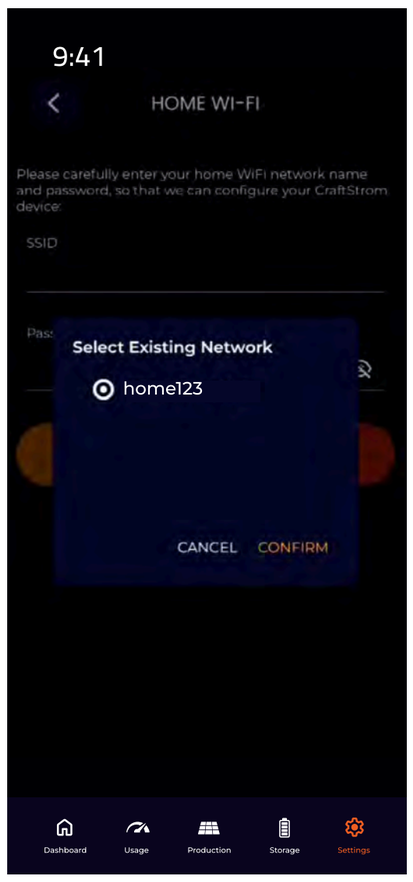
Open the CraftStrom App and create a user account by entering a username and password.



Step 2

Add a New Device

In the settings menu, select Add New Device to begin the device setup process.



Step 3

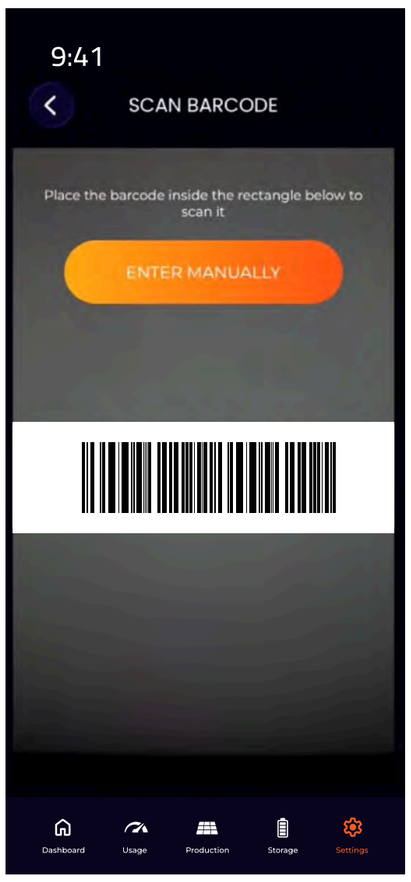
Select Wi-Fi Network

Select your home Wi-Fi network (2.4 GHz) and enter the network password.

Step 4

Select Device Type

Choose Add Power Meter from the list of available devices.



Step 5

Device Identification

Scan the barcode on the Power Meter or manually enter the device ID.

Step 6

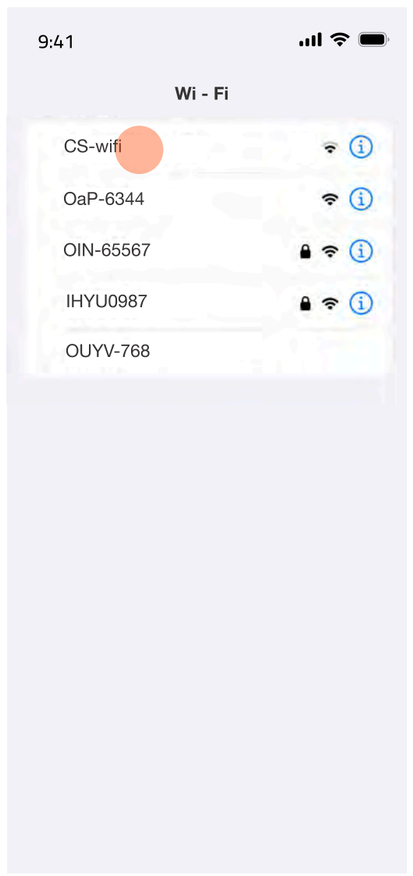
Confirm Device ID

Verify and confirm the entered device ID to continue.

Step 7

Open Network Settings

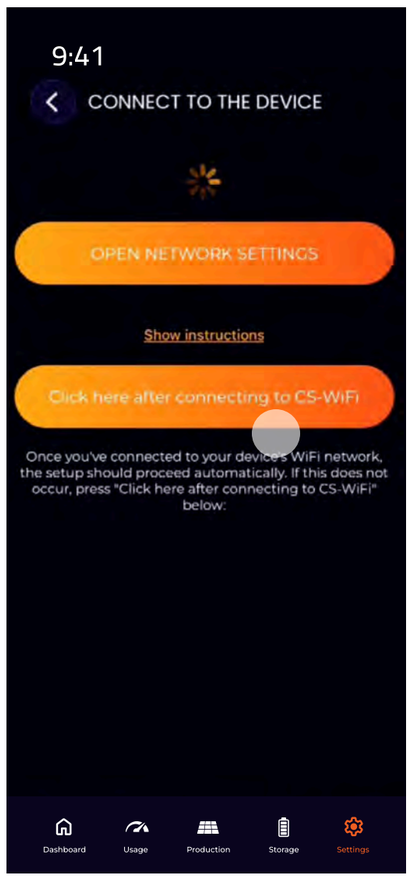
Open the network settings on your mobile device using the provided button.



Step 8

Connect to Power Meter Wi-Fi

Select the Wi-Fi network named CS-WIFI to establish a temporary connection to the Power Meter.



Step 9

After selecting CS-WiFi, Return to the CraftStrom App and tap the second button.

The app will then complete the setup and display the success screen.

After the device is added, press and hold the RESET button for approximately 6 seconds to allow the Power Meter to fully initialize and populate operational data.

> ***Note**: If the Power Meter does not appear on the Usage page within 10 minutes, go to Settings → Devices, delete the device ID, then press and hold the RESET button next to the antenna connectors for 15 seconds.*
> *Restart the installation process.*

02
SOLAR KIT

2.1. Safety instructions

This section describes the safe use, installation, operation, and handling of the CraftStrom HEDY microinverter.

Caution – High Voltage & Hot Surface

- The microinverter operates with high voltages during normal operation.
- The enclosure may become hot during operation. Avoid contact with metal surfaces while the device is operating.

Do not open or remove the inverter housing. The inverter contains no user-serviceable parts. For servicing, the unit must be returned to CraftStrom.

Warning – Electrical Safety

- The DC cable length between the solar panel and the inverter must not exceed 3 meters.
- When exposed to light, photovoltaic modules generate DC voltage, even when disconnected.
- The inverter must be connected only to a dedicated electrical circuit.
- Maximum branch circuit overcurrent protection: 20 A.

Important Safety Instructions

HEDY microinverters are designed and tested in accordance with international safety standards.
However, strict precautions must be followed during installation and operation.

- The installer must read and follow all instructions, warnings, and precautions in this manual.
- All work, including transport, installation, commissioning, and maintenance, must be carried out by qualified and trained personnel only.
- Inspect the inverter before installation for shipping or handling damage that may compromise insulation or safety clearances.
- Select the installation location carefully and ensure compliance with cooling and ventilation requirements.
- Unauthorized modification, removal of protective devices, improper use, or incorrect installation may result in serious injury, electric shock, or equipment damage.

Grid Connection Requirements

Before connecting the microinverter to the public electricity grid, contact the local grid operator to obtain the required approvals and permissions.

Operating Restrictions

- Only two (2) × 200 W PV modules may be connected to one inverter input.
- Do not connect batteries or other power sources to the inverter.
- Do not install the inverter in flammable, explosive, corrosive, extremely hot, cold, humid, or wet environments.
- Do not operate the inverter if the Power Meter is not functioning or is disabled.

Always wear appropriate personal protective equipment (PPE), including gloves and eye protection, during installation.

2.1. Safety instructions

Abnormal Operation

If any abnormal behavior is observed during operation, stop using the device immediately and contact CraftStrom support.

Residual Electrical Hazard

Warning

Even when disconnected from the public grid, certain components inside the microinverter may retain residual electrical charge.

- Always exercise extreme caution when handling the inverter after disconnection.
- Before touching any part of the inverter, ensure that:
  - the surface temperature is safe to touch
  - voltage levels have dropped to a safe potential

Liability Disclaimer

CraftStrom assumes no responsibility for damage or injury caused by:

- improper installation
- incorrect operation
- non-compliance with this manual
- unauthorized modification of the product

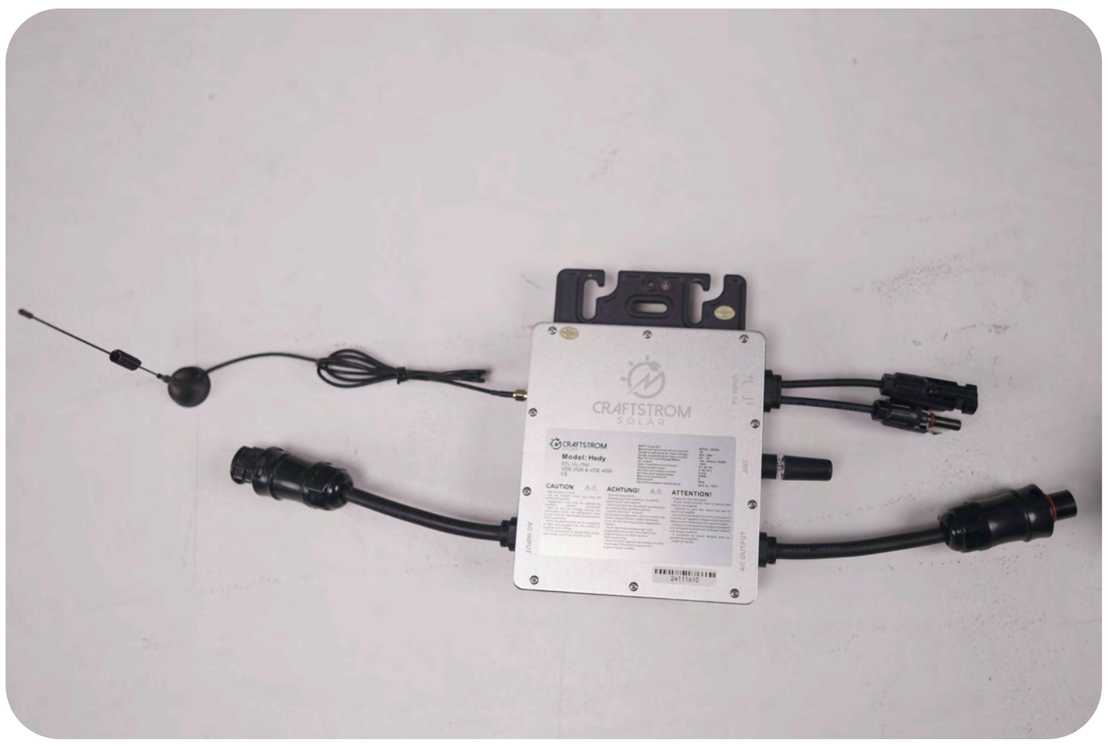
Liability for commercial third-party components rests with their respective manufacturers.

Qualified Personnel Requirement

All electrical installation, servicing, and maintenance work must be performed by a licensed electrician and in full compliance with local electrical regulations and standards.

Failure to comply with these requirements may result in serious safety hazards and void the product warranty.

2.2. Product overview



Solar Kit & Inverter

The CraftStrom Solar Kit is a plug-in photovoltaic system designed to generate electrical energy from sunlight for residential use. The system is intended for easy integration into existing electrical installations and operates in combination with other CraftStrom components.

The Solar Kit consists of solar panels, a microinverter, and supporting components that work together to convert solar energy into grid-compatible AC power for household consumption.

System Function

Solar energy is generated by the photovoltaic panels in the form of direct current (DC).
The inverter converts this DC power into alternating current (AC) synchronized with the public electricity grid.

The generated energy is supplied directly to household loads, helping to reduce grid consumption and overall electricity costs. Depending on system configuration and grid regulations, surplus energy may be exported to the grid.

Role of the Inverter

The inverter is the central functional component of the Solar Kit.
Its primary functions include:

- converting DC power from the solar panels into usable AC power
- synchronizing the system with the electrical grid
- ensuring safe and stable system operation

The inverter enables efficient energy conversion while maintaining compliance with grid connection requirements.

2.2. Producct overview

System Integration

When used together with the CraftStrom Power Meter, the Solar Kit allows accurate monitoring of:

- solar energy production
- household energy consumption
- power flow direction

All system data is visualized in the CraftStrom App, providing real-time insight into system performance and energy usage.

Modular System Design

The CraftStrom Solar Kit is designed as a modular and scalable system.
It can be expanded with additional solar panels or combined with other CraftStrom components to adapt to changing energy requirements.

This modular architecture allows flexible system configuration while maintaining a consistent operating concept.

2.3. Technical Specifications – Solar Panels

Semi-Flexible & Transparent Bifacial Solar Panels (36V)

Parameter	Value
Max Power Front	200 W
Max Power Back	70 W
Max Power Voltage	36.48 V
Open-circuit Voltage	42.88 V
Max Power Current	5.49 A
Cell Efficiency	23.5 %
Protective Layer	ETFE
Max System Voltage	DC 1000 V
Dimensions	1170 × 923 × 3.8 mm
Weight	4.2 kg
Working Temperature	−40 °C to +80 °C

Semi-Flexible & Transparent Bifacial Solar Panels (24V)

Parameter	Value
Max Power Front	200 W
Max Power Back	70 W
Max Power Voltage	23.2 V
Open-circuit Voltage	27.7 V
Max Power Current	8.63 A
Cell Efficiency	23.5 %
Protective Layer	ETFE
Max System Voltage	DC 1000 V
Dimensions	1170 × 923 × 3.8 mm
Weight	4.2 kg
Working Temperature	−40 °C to +80 °C

Warning

This module produces electricity when exposed to light.

Follow all applicable electrical safety precautions.

- ONLY qualified personnel should install or perform maintenance work on these modules.
- Be aware of dangerous high DC voltage when connecting modules.
- DO NOT damage or scratch the rear surface of the module.
- FOLLOW the battery manufacturer’s recommendations if batteries are used with modules.

2.4. Technical Specifications – Inverter

Input & Operating Parameters

Parameter	Value
Maximum input power	400 Watt
Output voltage mode	120 / 230 V auto switch
PV open circuit voltage	60–100 VOC
Operating voltage range	55–100 V
MPPT range DC	65–100 V
Short circuit current	7 A
Maximum working current	6.3 A

Output Parameters

Parameter	@120V	@230V	@240V
Output peak power	400 Watt	300 Watt	350 Watt
Rated output power	400 Watt	300 Watt	350 Watt
Output current	2.91 A	1.44 A	1.52 A
AC voltage range	80–160 VAC	180–280 VAC	180–280 VAC
AC frequency range	48–51 Hz / 58–61 Hz	48–51 Hz / 58–61 Hz	48–51 Hz / 58–61 Hz
Power factor	>95%	>95%	>95%
Number of branch connections	30 pcs (single)	30 pcs (single)	30 pcs (single)
Output efficiency	99%	99.5%	99.5%
Static MPPT efficiency	99.5%	99.5%	99.5%
Max output efficiency	99.5%	99.5%	99%
Loss of power at night	<0.5 W	<0.5 W	<0.5 W
Total current harmonics	5%	5%	5%

2.4. Technical Specifications – Inverter

General Characteristics

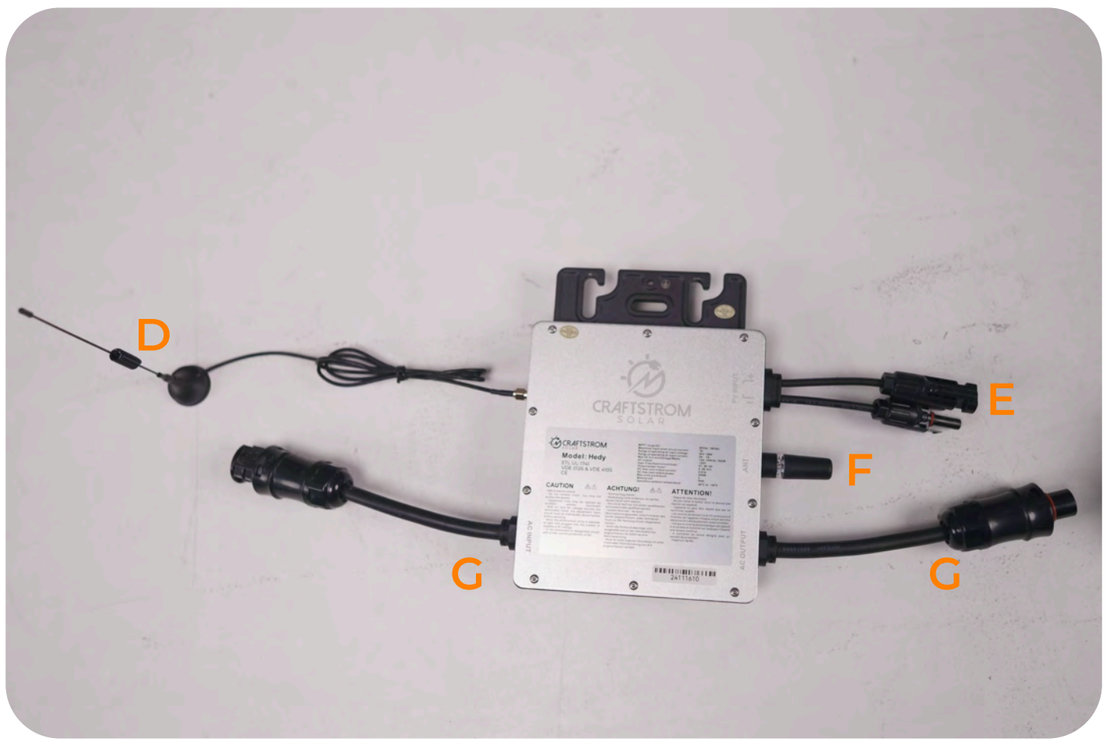
Parameter	Value
Apparent and technical features	—
Temperature range	–20 °C to +50 °C
Dimensions (L × W × H)	165 mm × 176 mm × 38 mm
Net weight	0.82 kg
Enclosure rating	NEMA 3R
Heat dissipation mode	Self-cooling
Communication mode	WiFi
Power transmission mode	Reverse transmission, Load priority
Monitoring system	Mobile phone App, Browser
Electromagnetic compatibility	EN 50081 Part 1, EN 50082 Part 2, CISPR 22, EN 61000
Power grid	EN 61000-3-2, EN 62109, UL STD 1741
Power grid detection	DIN VDE 4105, IEEE STD 1547.1, IEC 61727
Certification	FCC, CE, ETL

Packing Information

Parameter	Each (Packaging)	Box (15 pcs)
Weight	1.28 kg	19.2 kg
Size	245 × 202 × 60 mm	450 × 395 × 345 mm

2.5. Package Contents

The CraftStrom Solar panel kit package contains:



A - Solar Panel

- Bifacial semi-flexible solar panels
- Designed for outdoor use on curved or flat surfaces
- Lightweight construction with ETFE protective layer
- Equipped with MC4 connectors for quick and secure connection

B - Smart Inverter

- Converts DC power generated by the solar panels into AC power
- Plug-and-play design for direct connection to outdoor power outlets
- Integrated WiFi communication for monitoring via the CraftStrom App
- Designed for outdoor installation

C - Inverter Connector Cables

- Used for parallel connection of multiple micro inverters (max. 5 units).

D - MHz Antenna (433 MHz) – 1 pc

- Enables sub-GHz communication between CraftStrom devices
- Used for internal system communication
- Magnetic base for internal mounting

E - MC4 Connector

- Used to connect the solar panels to the micro inverter.

F - WiFi Antena

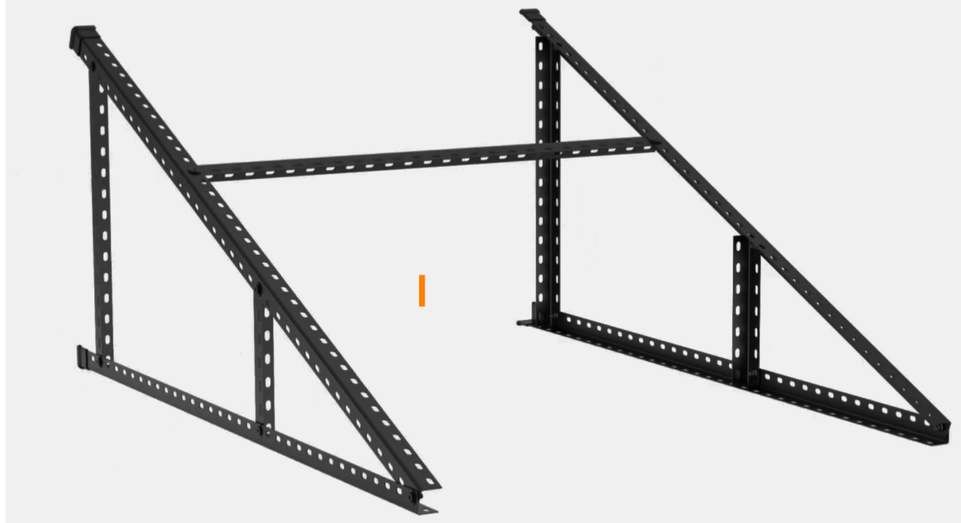
- Provides wireless communication between the inverter and the home WiFi network.
- Required for system setup and monitoring in the CraftStrom App.

G - AC port

- AC output port is used to connect the inverter to the AC power cable or to a connector cable when installing multiple systems.

2.5. Package Contents

The CraftStrom Solar panel kit package contains:



H - AC Cable

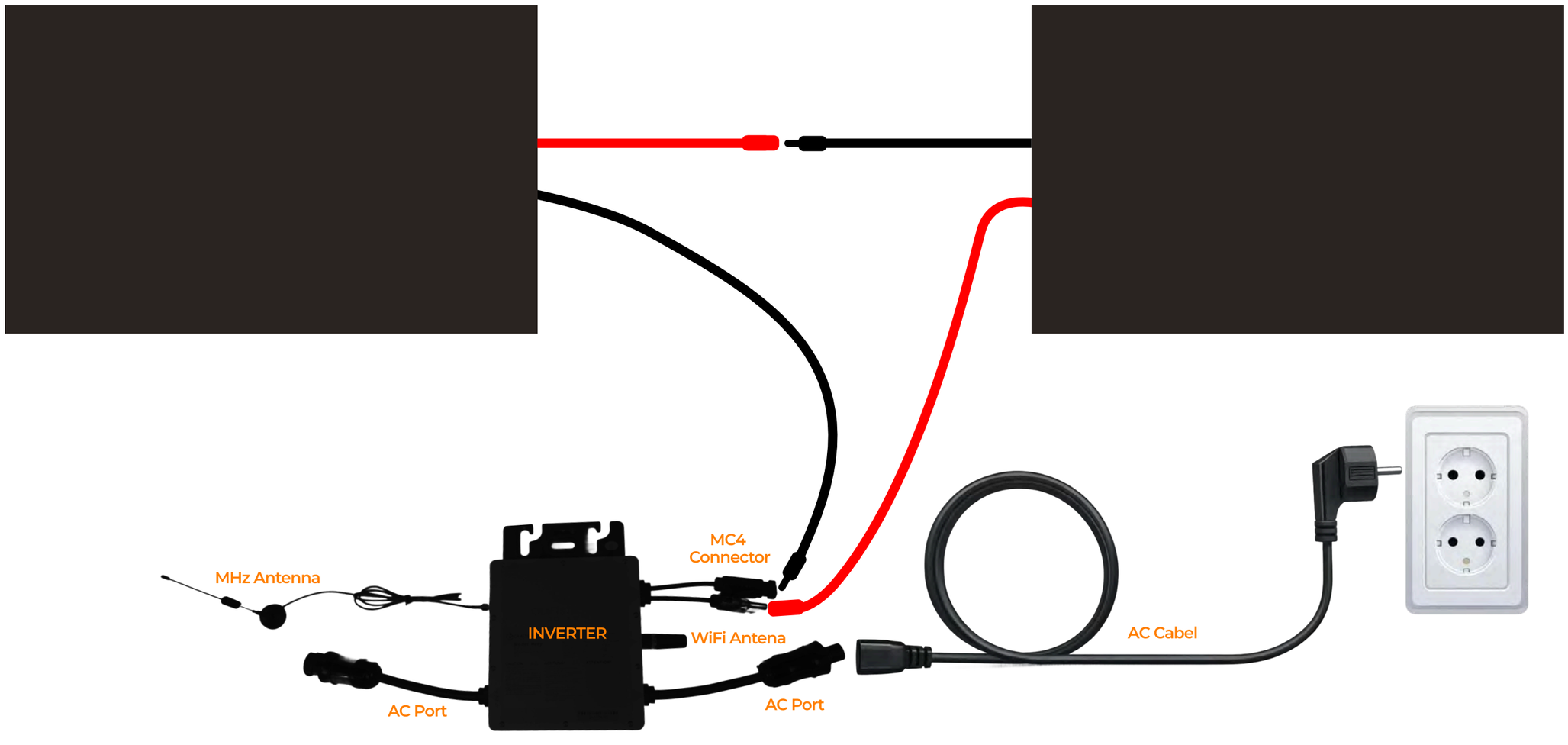
- Used to connect the micro inverter to a standard outdoor power outlet
- Pre-assembled and ready for use
- Designed for outdoor environments

I - Solar Panel Stand

- Lightweight flexible solar panel mount
- Designed for 200W panels
- Holds micro-inverters
- Ground-or Railing-mount, Flexes for heavy winds

2.6. Installation – General Setup

This page describes the general installation of the Solar Kit. Detailed mounting options, including installation on a stand, are described on the following pages.



Step 1 – Unpack Components

Carefully unpack the solar panels. Avoid stepping on or striking the panel, as excessive pressure may result in permanent damage.
Do not bend the panels beyond 30°, as this may cause permanent damage.

Step 2 – Prepare the Micro Inverter

Unpack the micro inverter and attach the included antennas:

- **WiFi antenna (2.4 GHz)**
- **MHz antenna (433 MHz)**

Ensure both antennas are securely connected before installation.

Step 3 – Connect Solar Panels to each other and to the Inverter

Connect the solar panels and inverter using the **MC4 connectors.**

- The connectors fit only in the correct orientation
- Ensure all connections are fully engaged

Step 4 – Mount the Micro Inverter

Install the micro inverter in a shaded and dry location.Đ

- Ensure sufficient airflow around the inverter
- The inverter housing acts as a heat sink and may become hot during operation
- Do not touch the inverter while operating

2.6. Installation – General Setup

Step 5 – Connect AC Power

Connect the **AC cable to the inverter** and **plug it into a standard outdoor power outlet.**

- Do not use the outdoor outlet to power other devices
- **Use only one inverter at a time during initial setup**

Step 6 – App Installation and Pairing

Install the inverter in the CraftStrom App **(2.9. Installation – CraftStrom App) - one inverter at a time**.
This prevents WiFi interference during setup.

- Complete setup for the first inverter
- Repeat the process for additional inverters if installed

Step 7 – Final Check

Verify that:

- All panel connections are secure
- The inverter is properly mounted
- Antennas are correctly positioned
- The system is visible and reporting correctly in the app

Step 8 – Maintenance

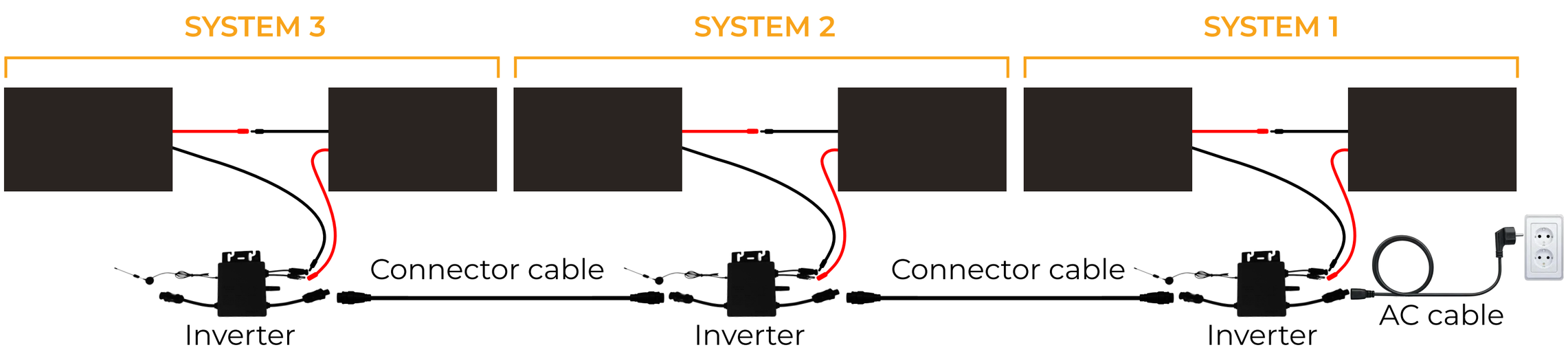
- During snowfall, **remove heavy snow loads from the solar panels**.
- **Clean the panels regularly using mild soap and water** to remove dirt from the ETFE surface.
- **Do not use brushes or abrasive tools**, as they may scratch the ETFE layer.
- Regularly inspect all cable connections for cracks, wear, or animal damage to prevent short circuits.

Attention

- Even a small area of distortion on a solar panel can cause damage to internal cells.
- **Avoid stepping on or striking the panel, as excessive pressure may result in permanent damage**.
- **Ensure the solar panel is securely mounted and not left freely supported**, as shown in the example.
- Proper rear stabilization is required to prevent damage caused by strong crosswinds.
- It is recommended to use 3M Very High Bond (VHB) double-sided tape as an additional method to secure the panels.

2.7. Installation – Multiple Panels (System Expansion)

- ***Do not connect multiple systems before completing the app installation for each system.***
- ***Install and set up one system (2 solar panels + 1 inverter) at a time***
- ***Wait until the inverter appears and reports data correctly in the app before adding the next***
- ***Repeat the installation steps for each additional system***



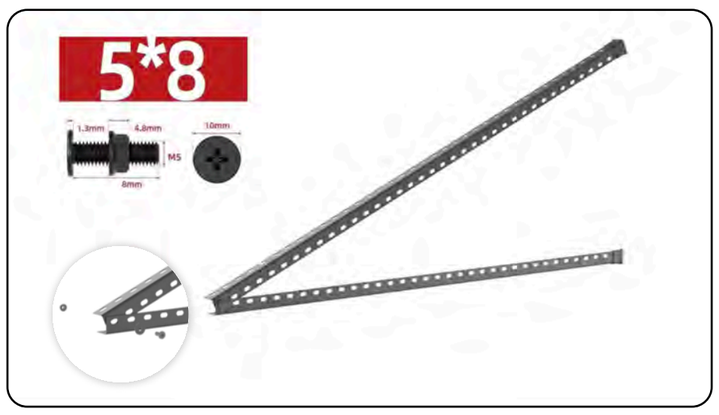
Note**:* To expand the initial system **(system 1)** with an additional **(system 2/3)**, repeat Steps 1–4 of ***Section 2.6 – General Setup for each additional panel set. After completing Step 4, continue with the step below:

After installing an additional system, connect one end of the connector cable to the AC port of the one inverter and the other end to the AC port of the another inverter that you already pluged in outlet.

Each additional inverter is connected in parallel to the previous one.
Continue adding systems in the same way until the installation is complete.
The final inverter in the chain is then connected to the outdoor power outlet using the AC cable.

***Note**:* A maximum of 5 inverters can be connected in parallel.

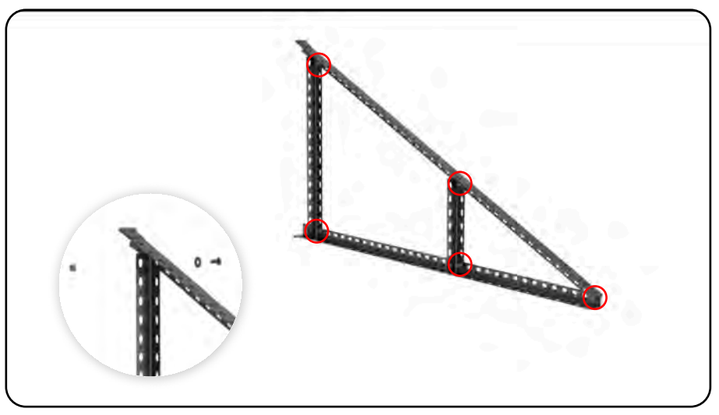
2.8. Installation – Stand



Step 1

Use 5×8 pcs of M5 bolts (with matching nuts/washers) to assemble the two long support rails into the initial V-shape base.

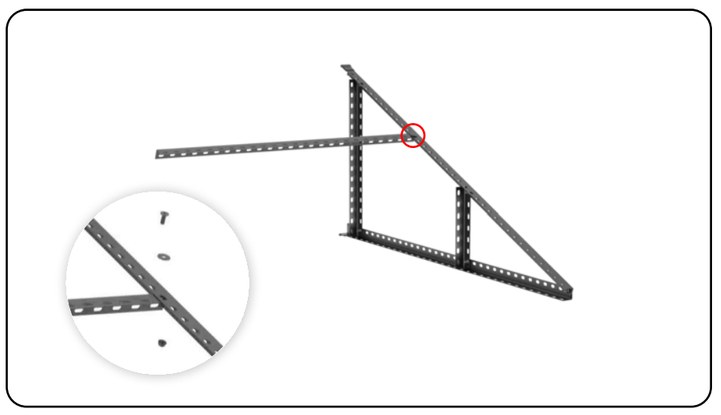
- Lay the two perforated rails on a flat surface.
- Align the holes at one end and fasten them together to form the angle shown.
- Keep the bolts snug but not fully tightened yet, so you can adjust alignment in the next steps.



Step 2

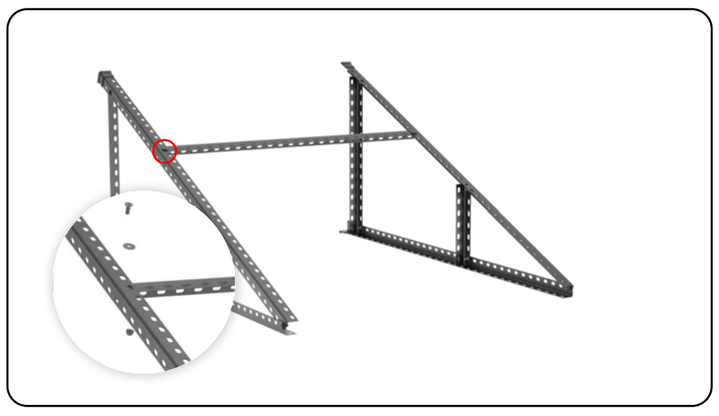
Add the two vertical support rails to the base assembly.

At the marked connection points, fasten the supports using the same bolts and method as in Step 1.



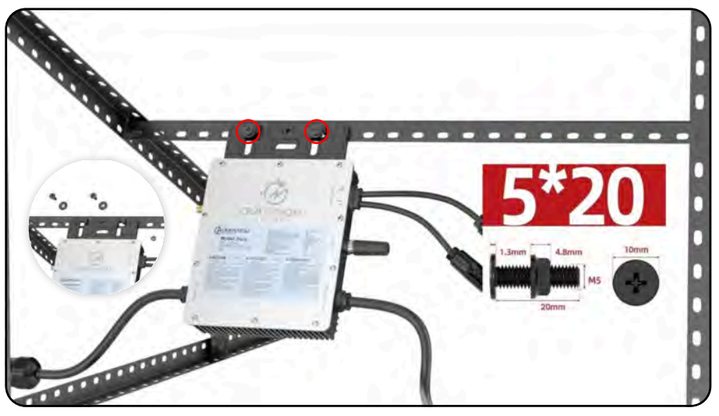
Step 3

Attach the horizontal support rail to the vertical support at the marked connection point.
Secure it using the same bolts and fastening method as in Steps 1 and 2.



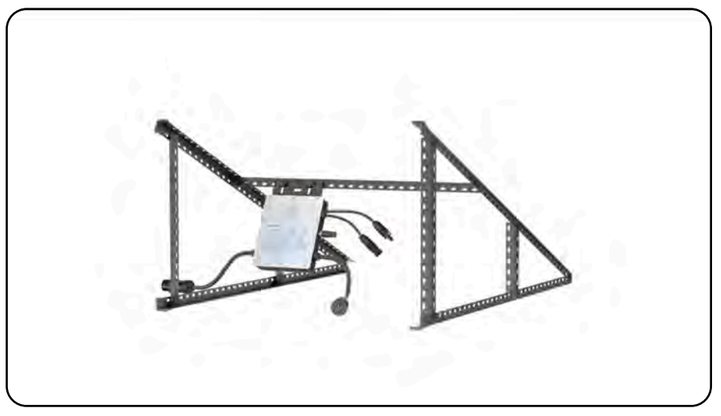
Step 4

Attach the second side frame to the horizontal support rail.
Fasten it at the marked connection point using the same bolts and method as in the previous steps.



Step 5

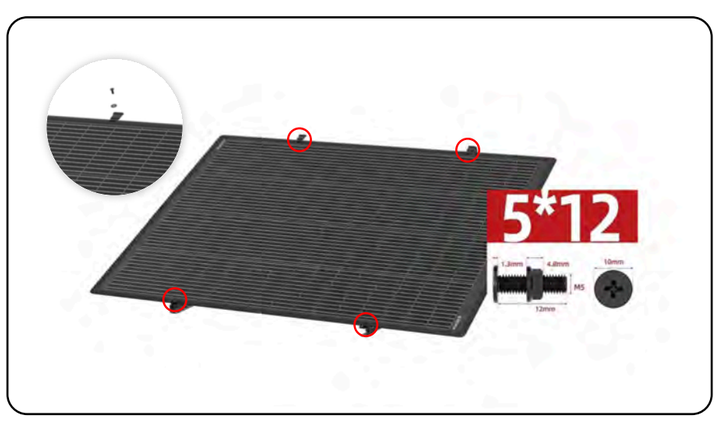
Secure the micro inverter to the stand using 5×20 mm bolts at the marked mounting points.
Ensure the inverter is firmly attached and positioned to allow proper airflow.



Step 6

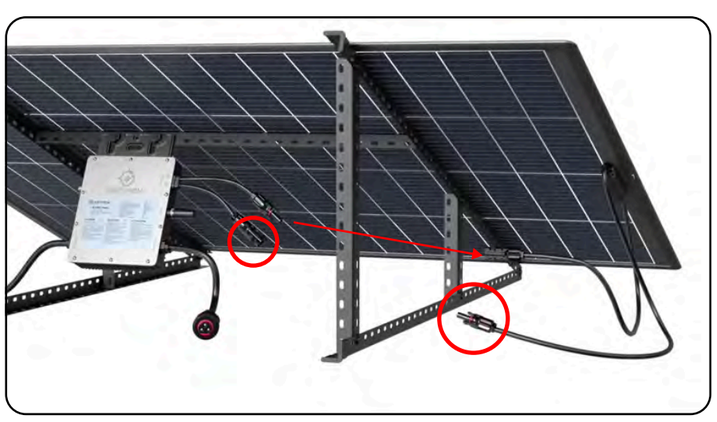
At this stage, the stand should be fully assembled with the micro inverter mounted.
Verify that the structure matches the illustration and is ready before installing the solar panel.

2.8. Installation – Stand



Step 7

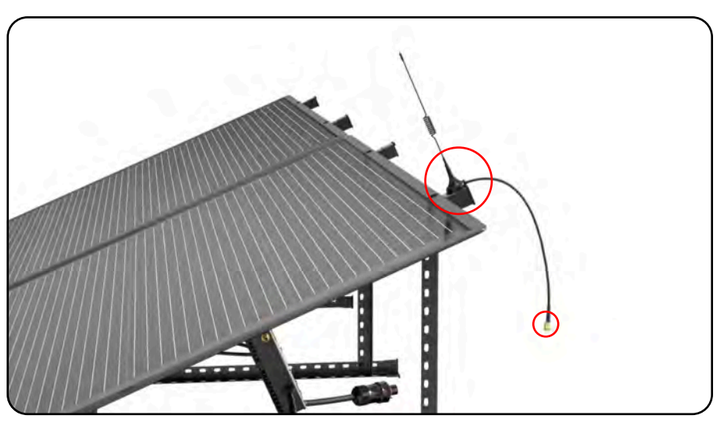
Place the solar panel onto the stand and align the mounting eyelets with the stand mounting holes.
Secure the panel using 5×12 mm bolts at the marked positions.



Step 8

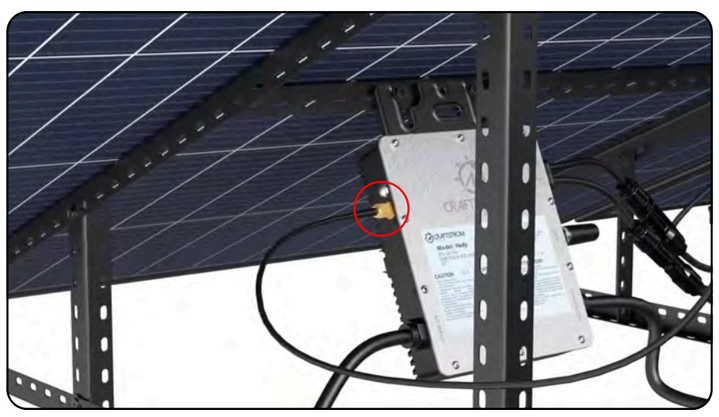
Connect the solar panel and inverter using the MC4 connector.
The connectors fit only in the correct orientation.

The two connectors marked with red circles are used for connecting an additional solar panel, as described in Section 2.5 – Installation: General Setup.



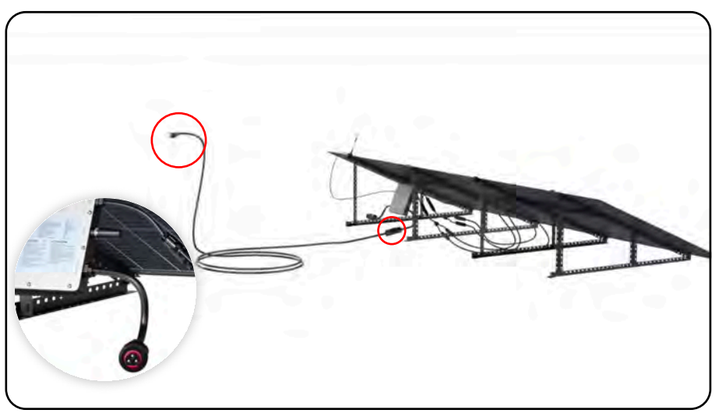
Step 9

Attach the MHz Antenna to the micro inverter and route the antenna cable as shown.
Ensure the antenna is positioned securely and not under tension or obstructed.



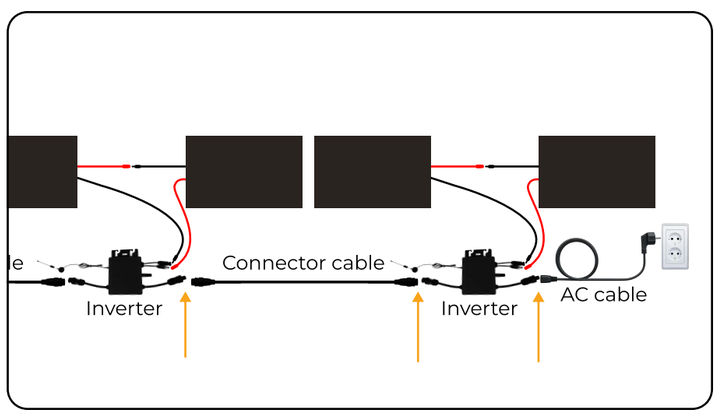
Step 10

Connect the other end of the antenna installed in Step 9 to the marked antenna port on the micro inverter.
Ensure the connector is fully seated and securely tightened.



Step 11

Connect the AC cable to the micro inverter and route the cable as shown.
Plug the AC cable into a standard outdoor power outlet to complete the installation.



Step 12

Adding Additional Panels
If you want to add more solar panels, do not connect the AC cable in Step 11. Instead, connect a **Connector Cable to the AC output of the inverter and connect it to the next micro inverter**. Repeat Steps 1–11 to install and mount the additional panel and inverter. The AC power cable is connected only to the last inverter in the system.

Note: A maximum of 5 inverters can be connected in parallel. Install and set up one complete system (2 solar panels + 1 inverter) at a time, wait until it appears and reports data correctly in the app, and only then proceed with connecting and installing the next system.

2.9. Installation – CraftStrom App

The CraftStrom Inverter operates in conjunction with CraftStrom power meter and energy storage systems (batteries) to manage data communication between all CraftStrom devices and the CraftStrom App.

To enable system communication and monitoring, the Inverter must be registered in the CraftStrom App. Once all devices are successfully registered, they establish an **independent internal communication network operating at 433 MHz**.

For remote monitoring and system control, essential operating data is transmitted to the CraftStrom server via **Wi-Fi (2.4 GHz)**.

> ***Note**: During device registration, only a dedicated 2.4 GHz Wi-Fi network may be used.*

The CraftStrom App is provided free of charge and enables comprehensive monitoring and management of your solar energy system.

Key features includes

- real-time monitoring of connected CraftStrom devices
- management of solar energy production, consumption, and battery storage
- performance tracking and system status overview

The app also allows users to:

- review accumulated energy data in kilowatt-hours (kWh)
- compare measured values with monthly electricity bills

Energy values displayed in **kWh** correspond directly to the units shown on standard electricity invoices.

Dashboard

Get your home energy balance overview

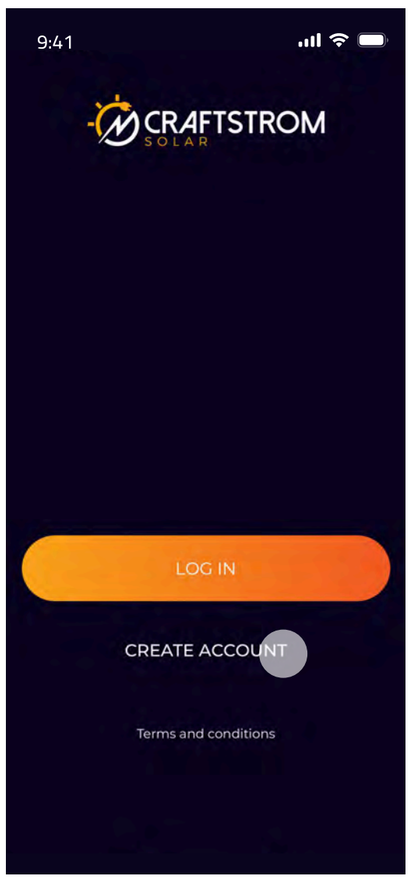
Usage

Check power usage of your home/appliances

Production

Check production of your solar kit

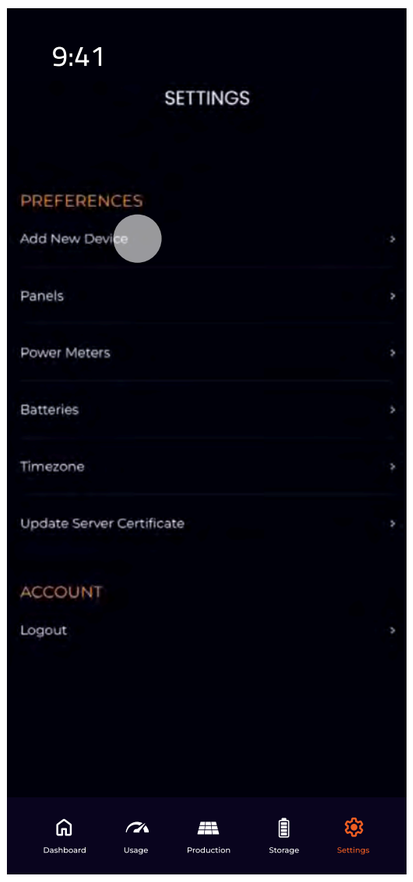
2.9. Installation – CraftStrom App



Step 1

Create an Account

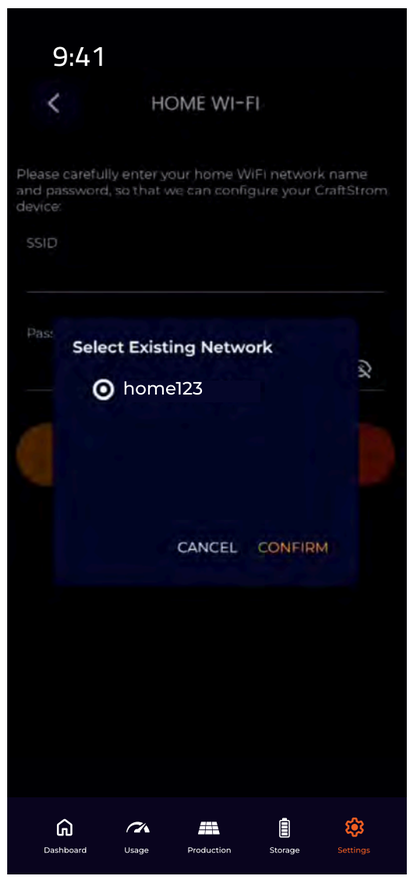
Open the CraftStrom App and create a user account by entering a username and password.



Step 2

Add a New Device

In the settings menu, select Add New Device to begin the device setup process.



Step 3

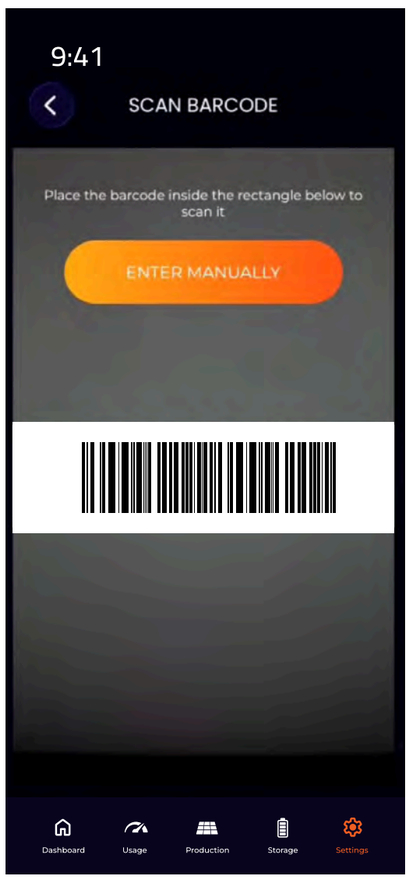
Select Wi-Fi Network

Select your home Wi-Fi network (2.4 GHz) and enter the network password.

Step 4

Select Device Type

Choose Add Solar panel from the list of available devices.



Step 5

Device Identification

Scan the barcode on the Inverter or manually enter the device ID.

Step 6

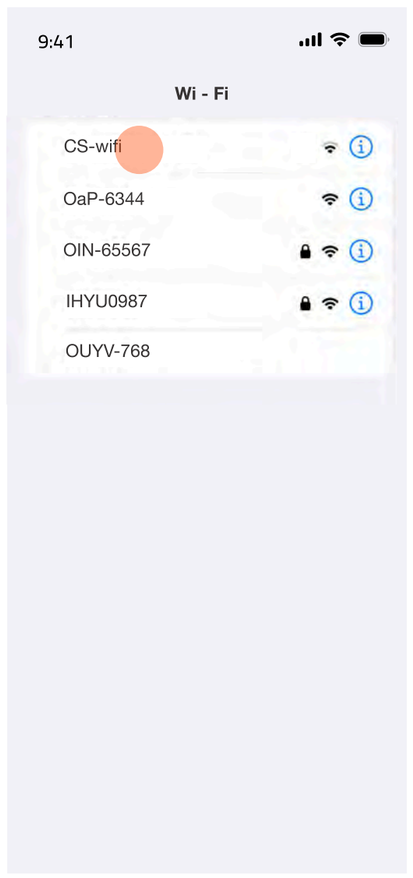
Confirm Device ID

Verify and confirm the entered device ID to continue.

Step 7

Open Network Settings

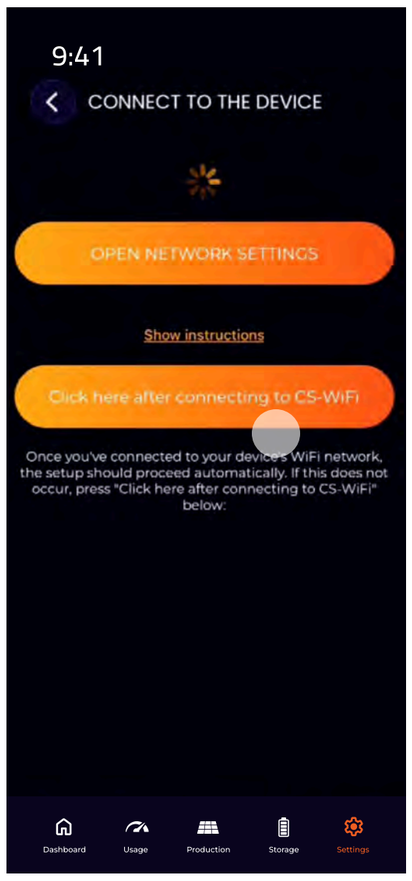
Open the network settings on your mobile device using the provided button.



Step 8

Connect to Power Meter Wi-Fi

Select the Wi-Fi network named CS-WIFI to establish a temporary connection to the Inverter.



Step 9

After selecting CS-WiFi, Return to the CraftStrom App and tap the second button.

The app will then complete the setup and display the success screen.

> ***Note**: If the inverter does not appear on the Production page within 10 minutes, go to Settings → Devices, delete the device ID, then press and hold the RESET button next to the antenna connectors for 15 seconds.*
> *Restart the installation process.*

2.10. Power Flow & Communication

Craftstrom is the only company to hold a process patent for communication between AC-coupled products to balance solar production and storage in the US, Europe, and Japan.

We use MHz communication for internal operations (with a reaction time of 0.1 seconds—essential for the Zero Backfeed option) and WiFi to display data in the app.