

# CCM<sup>Master</sup>



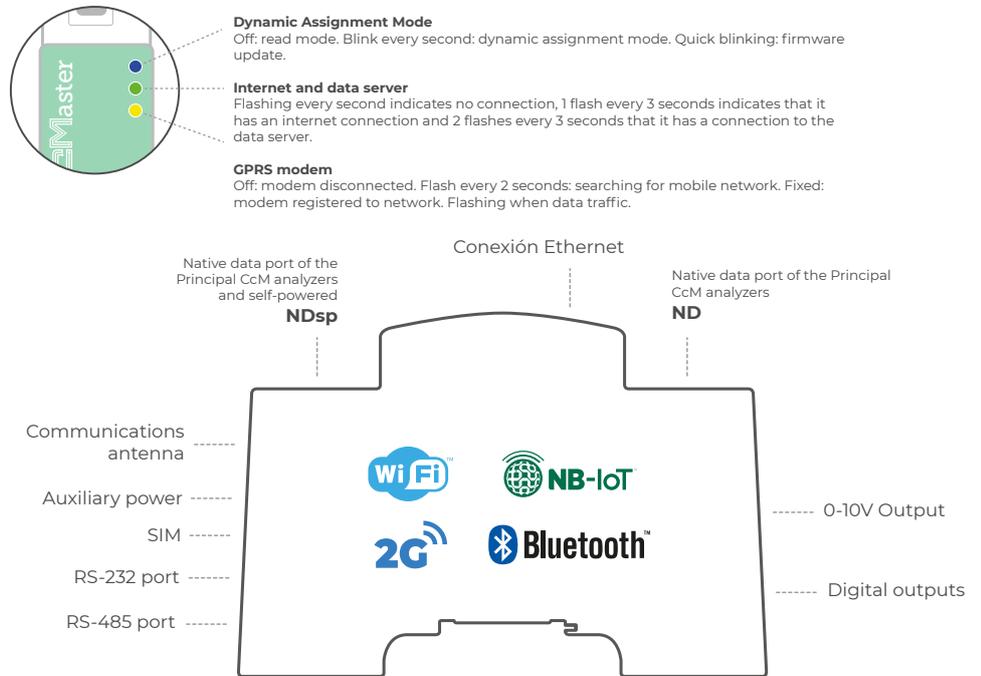
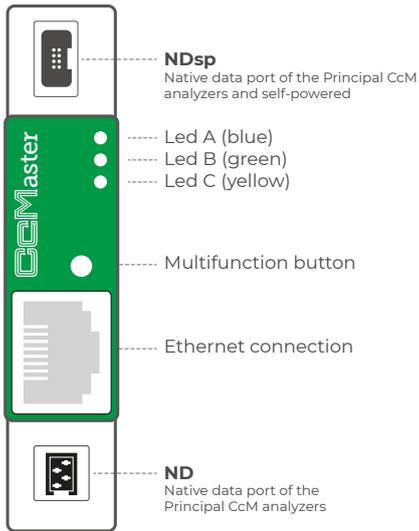
## INSTALLATION MANUAL

The intelligent multi-device hub designed  
to provide **up to six possible connectivity  
solutions**

- ✓ 1 Module
- ✓ DIN rail



# Connections



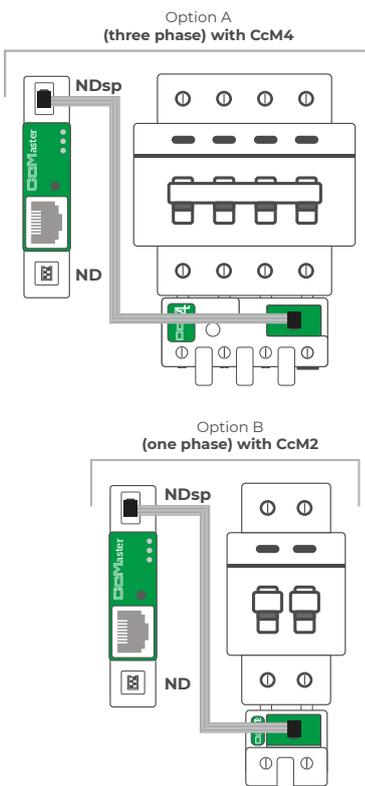
# Installation Steps

## 1. POWER THE CcMASTER FROM A PRINCIPAL CCM DEVICE

The 8-wire cable supplied with the CcMaster device, shall be connected as follows:

- a. The green end with the two-connector adapter, connected to the CcM Principal device (CcM2 or CcM4)
- b. The black 8-pin connector, connected to the NDsp connector of the CcMaster <sup>(notes 1,2,3)</sup>

Once the 8-wire cable is connected to the NDsp connector, the CcMaster will start up. An initial blink on the blue LED, A, and a blink every two seconds of the green LED, B.



**NOTE 1:** The NDsp connector of the CcMaster has an unambiguous connection format for connecting the 8-wire cable.

**NOTE 2:** The 8-wire cable connected to the NDSP connector provides power to the CcMaster through the Principal CcM device and allows the CcMaster to acquire the data from that device.

**NOTE 3:** The NDsp connector only allows only 1 Principal CcM to be connected, being by default the device with ID Modbus '1' address and the one that give power to the CcMaster.

**NOTE 4:** The rest of the Principal CcM devices, up to 32, will be connected via cable through the second native connector (ND), as described later in the manual.

**NOTE 5:** If Secondary CcM devices are to be connected, these must be connected to any other Principal CcM device that hangs from the bus that terminates in the ND connector (see CcM1-C and CcM3-C manual).

**NOTE 6:** Up to 10 Principal CcM devices more may be connected, via a CcM Wifi device, apart from the 32 Principal CcM devices connected via cable, as described later in the manual.

**NOTE 7:** It is recommended to perform this entire connection process after activating the protection device to prevent voltage from reaching the devices.

## 2. CONNECT TO THE CCMaster WEB SERVER

The CcMaster generates a WiFi access point to which the user can connect to access the web server. To do this, the user must use a PC with a WiFi connection in order to search for the available WiFi networks and locate the one generated by CcMaster. The network will have a name (SSID) with a format "MCCM\_XX:XX" (where the characters XX:XX are the last four digits of the MAC address of the CcMaster device). The password to access this network is: 123456789, by default.



This internal WiFi network of the CcMaster has NO Internet connection, make sure you do not have any firewall or settings on your PC that prevent you from connecting to this type of WiFi network.

Once connected to the WiFi network of the CcMaster, the user must open the web browser and write in the address bar: **http://192.168.4.1/**

The web server will load, which has a left side menu through which you can access the different configuration options. Each sub-menu will be described separately below. The "Info" sub-menu is displayed as the home screen. The essential information to identify the CcMaster is displayed in this screen:



### CcMaster

- Info
- Network
- Services
- Devices
- Solar
- Settings
- Update
- Reboot

#### CcMaster Information

Serial Number	4420080005
Model Version	CcMaster Pro
Firmware Version	0.1.11
Hardware Version	0002
MAC	F0:08:D1:60:5A:28

Through the Devices menu, the information of the devices connected to the CcMaster is available. Later sections of this manual will explained this menu in more detail. (note 8)

### CcMaster

- Info
- Network
- Services
- Devices
  - View CcM
  - View External
  - Add External...
- Solar
- Settings
- Update
- Reboot

#### CcMaster PRO

Serial: 4420080003      Firmware: 0.1.4

Voltage output Value: 0 V	Digital output 1	Digital output 2	Config
<input type="range"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### CcM4

Serial: 0419019999      Firmware: 0X1802

Data	Modbus	MB Address	Time	Config
	MB_RTU_CCM	001	10:58:40	

**NOTA 8:** Principal CcM devices have the Modbus ID '1' by default. Therefore, the Principal CcM device connected to the NDsp port and powering the CcMaster keeps the ID '1', and the address of the rest of the CcM devices connected to the ND port must be changed, since both ports share the same bus and are internally connected.

## 3. CONNECT THE CCMaster TO THE NETWORK TO UPLOAD DATA

The CcMaster has three different communication interfaces to upload data to the cloud:

- **Via WiFi connection**
- **Via Ethernet connection**
- **Via NB or 2G connection**

### 3.1 VIA WIFI

Configuration of the WiFi interface to upload data, available on all CcMaster models.

By selecting the “enable” option the WiFi interface is activated and the user is able to enter the configuration parameters of the WiFi network to which the device shall be connected. Then enter the name of the WiFi network (SSID) and the password; be sure to keep the upper and lower case and any special characters.

Pressing the "Save" button will save the configuration.

The screenshot shows the CcMaster web interface with a sidebar menu on the left containing: Info, Network (selected), Access Point, WiFi, Ethernet, Modem (NB/IoT/GPRS), Services, Devices, Solar, Settings, Update, and Reboot. The main content area is titled "Wifi Configuration" and includes the following elements: a green "Enable" toggle switch, a green "Upload data" toggle switch, a green "Search Networks" button, a "SSIDs available" dropdown menu, input fields for "SSID" (containing "wifi name"), "Password" (containing "password" with an eye icon), "DHCP" (green toggle), "IP Address", "Gateway", and "Netmask" (all empty), and a green "Save" button at the bottom.



To specifically set that the CcMaster shall upload data using this interface, the “upload data” option must be enabled.

### 3.2 VIA ETHERNET

Configuration of the Ethernet interface to upload data, available on the CcMaster Lite Plus and PRO models.

The user must connect a network cable to the Ethernet input of the CcMaster (RJ-45 connector) and select the “enable” option to activate connectivity through the Ethernet port. In case the physical channel is not well established, the device automatically disables the Ethernet output to avoid excessive consumption.

Pressing the "Save" button will save the configuration.

The screenshot shows the CcMaster web interface with a sidebar menu on the left containing: Info, Network (selected), Access Point, WiFi, Ethernet (selected), Modem (NB/IoT/GPRS), Services, Devices, Solar, Settings, Update, and Reboot. The main content area is titled "Ethernet Configuration" and includes the following elements: three green toggle switches for "Enable", "Upload data", and "DHCP", input fields for "IP Address", "Gateway", and "Netmask" (all empty), a status line that reads "Configured! IP Address: 192.168.1.168", and a green "Save" button at the bottom.



To specifically set that the CcMaster shall upload data using this interface, the “upload data” option must be enabled.

### 3.3 VIA NB OR 2G CONNECTION

NBiot/CAT M1/2G modem configuration, available on CcMaster Lite NBiot and PRO models. This modem allows the equipment to be connected to the Internet through a mobile data network, by inserting a microSIM card supplied by the mobile operator and connecting the external antenna supplied with the equipment.



The SIM card PIN code must be disabled.

By selecting the "enable" option the interface is activated and the user is able to enter the modem configuration parameters, provided by the operator. These parameters are: APN (Access Point Network), user and password. The "Technology" and "Operator" options are optional, they specifically define the connection and operator technology to be used by the CcMaster. The selected technology must be supported by the SIM contract, otherwise the CcMaster will not be able to establish connection.



To specifically set that the CcMaster shall upload data using this interface, the "upload data" option must be enabled.

Pressing the "Save" button will save the configuration.



If the CcMaster is not going to use 2G/NB communications, it is recommended to disable the modem in order to avoid permanent retries to connect the device.

#### CcMaster

- Info
- Network**
  - Access Point
  - WiFi
  - Ethernet
  - Modem (NBiot/GPRS)**
- Services
- Devices
- Solar
- Settings
- Update
- Reboot

### Modem Configuration

**Enable**

**Upload data**

**APN**

**User**

**Password**

**Technology**

**Operator**

**Operator Number**

## 4. CONNECT AND LINK OTHER PRINCIPAL CcM DEVICES TO THE CCMaster THROUGH MODBUS RTU VIA RS-485

It is possible to connect different Principal CcM devices to the CcMaster, so that the latter can interrogate them and collect their data. To do this, it is necessary to carry out the process of linking these devices to the CcMaster and assigning a unique address (ID) to the RS-485 (Modbus) bus.

To link other Principal CcM devices (CcM2 and CcM4) to the CcMaster, different from the Principal CcM device that powers it through the NDsp connector, it is necessary to use the ND connector by following the steps below:

### 4.1 PHYSICAL CONNECTION

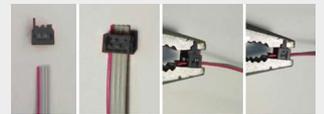
Principal CcM devices have the Modbus ID '1' by default. Therefore, the Principal CcM device connected to the NDsp port and powering the CcMaster keeps the ID '1', and the address of the rest of the CcM devices connected to the ND port must be changed, since both ports share the same bus and are internally connected.

**1.** The remaining Principal CcM devices (CcM2 and CcM4) to be connected to the CcMaster, are connected through the ND connector of the CcMaster. To do this, the 4-wire flat cable and the black connectors are included in the CcMaster kit shall be used. The connectors shall be crimped to the flat cable at the desired distance from the CcMaster. <sup>(note 9)</sup>

Subsequently, one end of the cable is connected to the CcMaster in the ND connector.

**2.** The intermediate connectors of the cable are connected to the black connector (and not the red one) of the Principal CcM devices to be linked to the CcMaster <sup>(note 10)</sup>

**NOTE 9:** Crimp the connector with the tab that protrudes over the red-coloured wire that is part of the 4-wire cable supplied with the CcMaster.



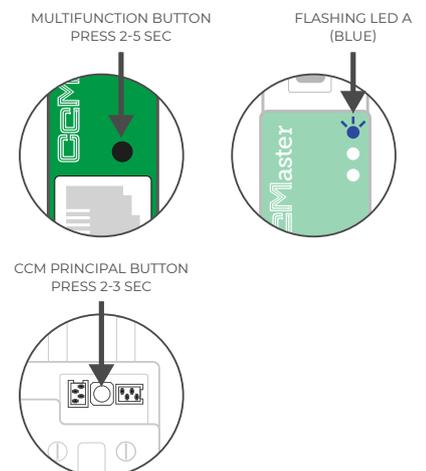
**NOTE 10:** It is very important **TO NOT CONNECT** the cable that converges in the ND connector of the CcMaster to the **RED** connector of the Principal CcM device since this **RED** connector has power and would break the CcMaster by applying power to the communication port, it must be connected to the black connector of the Principal CcM device that only contains an RS-485 data port

### 4.2 DYNAMIC ADDRESS ASSIGNMENT BETWEEN DEVICES AND THE CCMaster

**1.** The black button on the front of the CcMaster (multifunction button) shall be pressed for 2 to 5 seconds, until the LED A (Blue) starts to flash. At that time, the button shall be released. The led should remain blinking.

**2.** Press the black button on the Principal CcM (located between the two connectors) to be linked to the CcMaster until the blue LED of the Principal CcM device starts flashing. At that moment, the button should be released. The device would flash, indicating that it has received a correct Modbus RTU address from CcMaster and is connected to the CcMaster Native bus. The CcMaster will automatically assign address '2' and so on.

**3.** It is necessary to repeat the previous step successively for all the Principal devices to be connected to the CcMaster.



4. Once all the desired devices have been linked with their unique address, the black button on the front of the CcMaster (multi-function button) shall be pressed again for a few seconds, until the blue LED stops flashing and returns to reading mode, leaving the synchronization mode.

5. When the process is finished, the Web Server page must be reloaded in the browser of the PC.

In the “Devices > View CcM” sub-menu, all connected devices will be displayed.

CcMaster Lite Plus				
Serial: 4220080001		Firmware: 0.1.4		
Digital output 1	Digital output 2	Config		
<input type="checkbox"/>	<input type="checkbox"/>			

CcM4				
Serial: 0420020081		Firmware: 0X2C06		
Data	Modbus	MB Address	Time	Config
	MB_RTU_CCM	001	11:44:01	

CcM2				
Serial: 0220060041		Firmware: 0X3504		
Data	Modbus	MB Address	Time	Config
	MB_RTU_CCM	002	11:44:00	

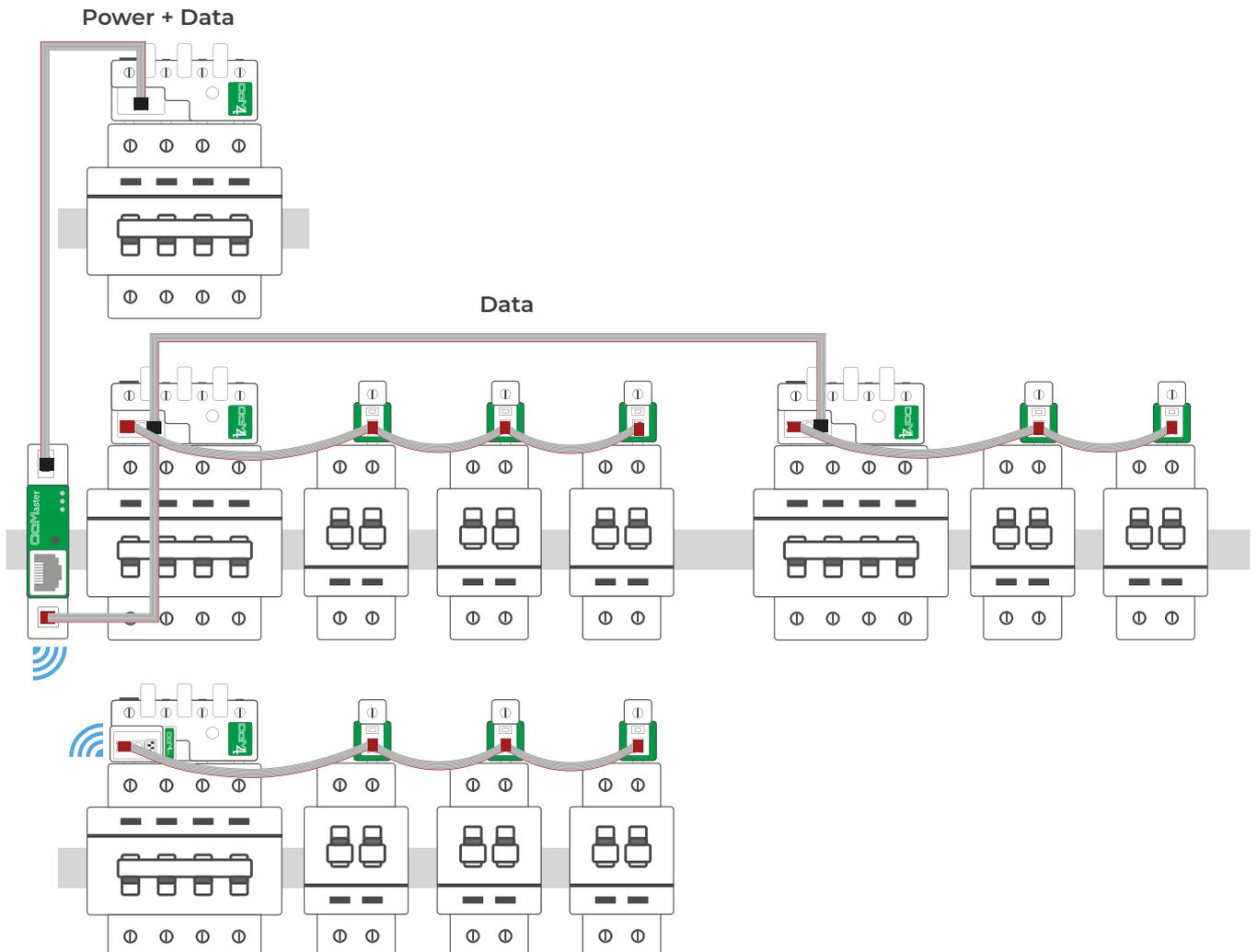
  

CcM1				
Serial: 0119060072		Firmware: 0X2823		
Data	Modbus	MB Address	Time	Config
	MB_RTU_CCM	002	11:44:00	

CcM1				
Serial: 0119070162		Firmware: 0X2823		
Data	Modbus	MB Address	Time	Config
	MB_RTU_CCM	002	11:44:00	

### 4.3 EXAMPLE OF INSTALLATION WITH MULTIPLE DEVICES



## 5. CONNECT AND LINK EXTERNAL "AUTHORIZED" DEVICES TO THE CCMaster

The CcMaster is able to communicate not only with native CcM devices, but also with external devices that are authorized by Energy CcM. Click here to consult the list of authorised external devices.

It will be possible to connect external devices through the following communication ports:

- **RS-485:** Using the external RS-485 port on the right side, and the green terminals supplied.

- **TCP/IP:** Via WiFi or Ethernet, by connecting a network cable to the RJ-45 connector on the front.

Once physically connected, the user must configure the CcMaster through the web server, entering the sub-menu "Devices > Add External".

The device in question shall be selected by filling in the form, from the list of authorised devices.

1. If the selected port is RS-485, the user shall indicate the provide Modbus ID.

2. If the selected port is TCP/IP, the user shall indicate the provide Modbus ID, as well as the IP and port.

Pressing the "Save" button will add the device and it will automatically appear in the "Devices -> View External" sub-menu.

The screenshot shows the CcMaster web interface. On the left is a navigation menu with options: Info, Network, Services, Devices (highlighted), View CcM, View External, Add External..., Solar, Settings, Update, and Reboot. The main content area is titled 'Add external authorized device' and contains several dropdown menus: CommunicationPort (set to 'Communication Port...'), Type (set to 'Type...'), Brand (set to 'Brand...'), Class (set to 'Class...'), Serie (set to 'Serie...'), and Model (set to 'Model...'). Below these are two text input fields for 'ID Modbus' and 'Alias'. A green 'Save' button is located at the bottom right of the form.

## 6. FIRMWARE UPDATE

It is possible to update the firmware of the CcMaster locally, through the web server.

Select the sub-menu "Update" from the left side menu. A screen like the one below shall appear:

The screenshot shows the CcMaster web interface with the 'Update' sub-menu selected in the left navigation menu. The main content area is titled 'Device update' and contains a section for 'Firmware'. Below this section, there is a text prompt: 'Update the CcMaster firmware uploading the binary file provided by Energy CcM.' Below the prompt is a file selection area with a button labeled 'Seleccionar archivo' and the text 'Ningún archivo seleccionado'. To the right of this area is a green 'Upload' button.

The user must select the firmware upgrade file using the "Select file" button and upload it by pressing the "upload" button. The process may take several minutes, please wait until the message "Update firmware upload" appears.

Once finished, the user should reload the web server page and check in the "Info" submenu that the "Firmware version" field has been updated.

**CcMaster**

- Info**
- Network
- Services
- Devices
- Solar
- Settings
- Update
- Reboot

<b>Serial Number</b>	4420080005
<b>Model Version</b>	CcMaster Pro
<b>Firmware Version</b>	0.1.11
<b>Hardware Version</b>	0002
<b>MAC</b>	F0:08:D1:60:5A:28



Always check that you are still connected to the WiFi Access Point of the CcMaster.