



Installation & User Guide
Curb M10

V5.0 (2023.06)

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INTRODUCTION

CURB is the world's smartest home energy monitoring and energy control system. It is intended to be installed alongside a circuit breaker panel and communicates with the CURB cloud for mobile and web-based access. Curb tracks whole home energy consumption & production to empower our users to make better decisions about how they use energy.

Box Contents

1. Curb device
2. 2x Large CT Clamps – Rated up to 100 Amps
3. 8x Small CT Clamps – Rated up to 30 Amps
4. Power wires – optional. Not smaller than 18 AWG.



SAFETY PRECAUTIONS

Before You Begin

This chapter contains important safety precautions that must be followed before attempting to install, service, or maintain electrical equipment. Carefully READ and FOLLOW the safety precautions outlined below BEFORE working with CURB power hub.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- **Only qualified electrical workers** should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Turn off all power supplying the power hub and the equipment in which it is installed before working on it.
- All circuit-breakers powering the power hub must meet the relevant requirements of IEC 60947-1 and IEC 60947-3.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. In the USA, see NFPA 70E.
- Before closing all covers and doors, carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Use caution while removing or installing panels so that they do not extend into the energized bus; avoid handling the panels, which could cause personal injury.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.
- Equipment should be used as specified by this manual, otherwise protection provided by equipment may be impaired.
- NEVER bypass external fusing.
- The M10 should be installed in a suitable electrical and fire enclosure.
- The insulation rating for all external circuits shall be 300V minimum

Failure to follow this instruction will result in death or serious injury.

HAZARD CATEGORIES AND SPECIAL SYMBOLS

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

	IEC 60417-5019	Protective earth (ground)
	IEC 60417-5032	Alternating current

DANGER

DANGER indicates an immediately hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

CAUTION

CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, **can result in** property damage.

NOTE: Provides additional information to clarify or simplify a procedure.

Not recommended

Recommended

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified electrical personnel. If the equipment is used in a manner not specified by Curb, the protection provided by the equipment may be impaired. No responsibility is assumed by Curb for any consequences arising out of the use of this manual.

CLASS B FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.

Curb, Inc.
3601 S Congress Ave, Suite I-100,
Austin, Texas 78704

CURB Support
+1 (512)-339-5108
support@energycurb.com

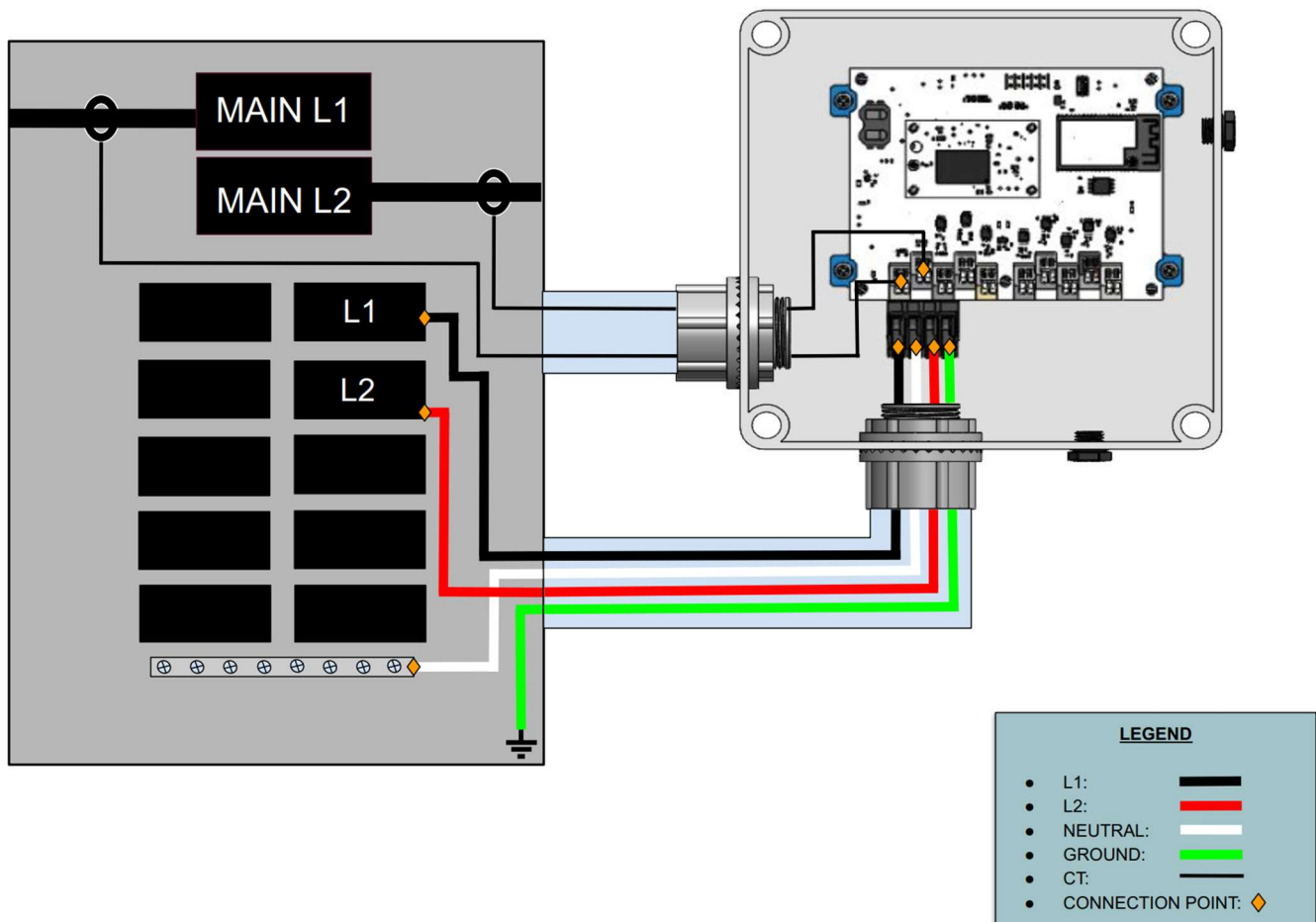
INSTALLATION

Check CURB package to ensure that all contents are present

- SEE “Box Contents” section above.
- If anything is missing, contact CURB customer support (844) 629-2872 or support@energycurb.com
- Inform customer to save and shut down their computers and sensitive electronic equipment.
- Make sure that the breakers that will power the M10 are off.

Mount & Connect the Hub

- The hub should be connected 3ft off the ground with conduit opening towards the bottom, preferably in a shaded area.
- The hub should be mounted with approximately 4”-6” clearance on each side.
- Mounting in direct sunlight is discouraged, as is mounting such that there is sun “load” heating during the hottest part of the day.
- Earth ground on the hub shall be connected to earth ground in panel.



Mount the M10:

Mount the Curb M10 enclosure on the wall adjacent to the electrical panel. Use the included 4x metal mounting tabs to secure the enclosure to the wall. Secure the metal tabs to the back of the enclosure using the existing holes then secure the tabs to the wall. Do not screw the enclosure in locations other than the pre-drilled holes or else the enclosure will no longer be water resistant.

4x Metal Mounting Tabs for M10 Enclosure



Wiring the M10 Installation

⚠ WARNING

- The installation must have a disconnect breaker for each unearthed pole.

⚠ WARNING


- Before turning on power, ensure that the unit is grounded properly. This product must be grounded, metal, permanent wiring systems, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product. The installation must have a disconnect breaker for each unearthed pole.
- Field-wiring leads not smaller than two wire sizes and not smaller than 18 AWG

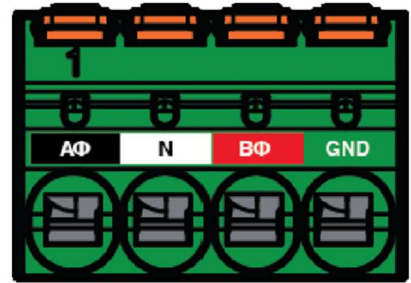
⚠ WARNING

- Opening the unit and repairing or testing under power must be performed only by a qualified service personnel familiar with the product.

Connect and Power Up CURB

- ⚠ Switch **OFF** the main breakers.
- Connect **black wire** from Phase A Breaker to Black “**A**” port.
- Connect **Red wire** from Phase B Breaker to Red “**B**” port.

- Connect **white neutral wire** from neutral rail to **white “N” port**.
- Connect **green earth wire** to **Green “GND” port**. 



Step 1: Attach power wires to electrical panel

1. Add an additional 2x pole breaker to power the Curb.
2. Ensure the 2x pole Curb breaker is turned off ⚠
3. Identify L1 on the 2x pole breaker and attach the Black power wire
4. Identify L2 on the 2x pole breaker and attach the Red power wire
5. Identify Neutral bar and attach the white wire
6. Identify a suitable ground location and attach the green wire

Step 2:

1. Route all 4x power wires (Black, Red, White, Green) from the electrical panel through conduit to the Curb M10 enclosure.
2. Attach all 4x power wires to the power connector.
 - Ensure all of the orange tabs of the power connector are up (at 90 Degrees)
 - Insert wires
 - Close orange tabs(4x) and ensure the wires are secured.
3. Insert the power connector into the M10.

NOTE

- The conduits, hubs and fittings must be suited for field wiring systems.
- Use conduit and wiring appropriate for the installation location per the NEC. Outdoor installations must use components that are rated NEMA 3R or higher.
- The unit is a NEMA 3 rated. Unused conduit openings and glands should be sealed with appropriate seals.
- Black fittings on enclosures are water-resistant, not watertight. So, the fittings must never face upwards.

NOTE

- Labeling the disconnect breaker is very important. It may be necessary to power-cycle the device. The breakers provide the only safe way to do that for safety-reasons. It is important that the customer is able to identify the Curb disconnect breakers without having to open any panels or enclosures.

CAUTION

- Drilling vibrations may damage the unit and will void the warranty. Use a torque wrench or an electric drill with adjustable clutch that meets the mounting torque requirements. Do Not Use impact drivers for mounting.
- Do not drill through enclosure.
- Prior to CT installation:
 - Disconnect power to equipment before installing or servicing
 - Do not restrict ventilation openings
 - Do not install near breaker arc vent
 - Not suitable for Class 2 applications
 - Secure current transformer and route conductors away from live terminals or bus structure

Priority circuit installation

1. Install Large CT clamps on Main power feeds:
 - Identify Main L1 power feed by verifying Voltage = 0 reading between Curb Breaker (Black wire)

- Clip 1x Large CT clamp around Main L1 power feed
 - Thread wire through conduit
 - Connect into CT clamp port #1
 - Verify CT clamp leads are secured into Port #1
 - Repeat steps for Main L2
2. Install 8x Small CT clamps circuits according to **Priority Circuits** list (see below).
 3. Document labels, multipliers and CT clamp sizes in **Configuration Matrix** (see below)

WARNING

- If using the copper pigtails provided, ensure that they are installed with proper connections to other wiring.
- If the home panel has aluminum wiring, check local electrical codes for proper method of connecting copper to aluminum wiring.

WARNING

- All CT clamps must be installed on insulated wires that meet applicable building codes for the region in which CURB is being installed. **Do not connect CTs to bare wire**, only connect CTs to wire that has proper insulation for the voltage applied.

NOTE

- If installing a CURB hub in a sub-panel, then sub-panel circuits on main panel should not be clamped.
- Similarly, sub-panel mains do not need to be measured either, and should not be clamped.

CAUTION

- Use only Curb approved CTs.

NOTE

- For balanced loads, you may connect one of the two legs. There is an option to multiply the load in the software configuration.
- Common balanced loads include Solar Systems, AC Compressors, Hot Water Heaters, and Washing Machines.

Communication

Bluetooth

The Curb M10 uses Bluetooth via the Curb Mobile Installer App to communicate with and update the hub once the above physical install steps have been completed. Before beginning the installation process below, ensure that Bluetooth and location sharing settings are turned on in your installer device settings.

Internet Connectivity

Once a hub has been commissioned in the Curb Mobile Installer App, the next step is to connect the hub to the Curb Cloud – To do this, the hub must have internet connectivity via WIFI or Cellular Data

- **WIFI**
 - If a WIFI network is available, use the Installer App to connect to the network using the steps below.
 - Ensure that the Wi-Fi network you are connecting to is a 2.4Ghz network
 - If the only available networks are 5Ghz, refer to the troubleshooting steps.
- **Cellular**
 - If a Wi-Fi network is not available, the Curb hub will transmit data via its inbuilt cellular modem, based on cellular data subscription.

CIRCUITS AND CONFIGURATION

Priority Circuits

Priority Circuit List

Priority	Device	Default Naming Convention
1	AC Compressor	For 1 AC: AC. For 2 AC's: AC 1, AC 2
1	Electric Vehicle	EV
1	Electric Hot Water Heater	Water Heater
1	Furnace / Air Handler	Furnace
2	Pool Pump	Pool Pump
2	Sub Panel	Sub-Panel
2	Electric Clothes Dryer	Dryer
3	Washing machine	Washing Machine
3	Cooktop/Range/Oven	Range
3	Dishwasher	Dishwasher
3	Fridge / Freezer	Fridge
3	Whole House Fan	Fan
4	Lights and Plugs	Lights & Plugs (1,2,3, etc)

Configuration Matrix

Curb M10 Configuration Matrix

Input	Curb Label	Multiplier	CT size
1	Main A	N	Large
2	Main B	N	Large
3	Solar	Y	Small
4	A/C	Y	Small
5	Furnace	N	Small
6			Small
7			Small
8			Small
9			Small
10			Small

Inputs in grey are defaults that can be changed by the installer if necessary

MAINTENANCE AND TROUBLESHOOTING

Introduction

CURB does not contain any user-serviceable parts. If the CURB hub requires service, contact your local sales representative. Do not open the power hub. Opening the hub voids the warranty.

Getting Technical Support

In the United States, contact CURB customer support by emailing support@energycurb.com.

Troubleshooting

The information in the following table describes potential problems and their possible causes. It also describes checks you can perform or possible solutions for each. After referring to this table, if you cannot resolve the problem, contact your local CURB sales representative for assistance.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- This equipment must be installed and serviced only by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Use caution while removing or installing panels so that they do not extend into the energized bus; avoid handling the panels, which could cause personal injury.

Failure to follow this instruction will result in death or serious injury.

Troubleshooting Tips – Hardware Configuration

Potential Problem	Possible Solution
What if the installation is incomplete, and I need to regain access to the install application?	In your Curb Installer App, click the gear icon. This will display the full list of installations associated with your account, including incomplete installs. To resume an install, click on the appropriate location name. This will bring you to the point where the installation was left off.
What if there's not enough space next to the panel to install the Curb?	Ensure that the installation is at least 3 feet off the ground. Ensure that there is at least 4"-6" of clearance on each side. If either side is close to other objects can affect the wireless performance.
I only have one CURB, but have multiple circuit breaker panels. What should I do?	Either install an additional CURB hub in each panel or install one CURB hub in the main panel with CT clamps on each of the sub-panel mains (summarizing subpanel activity).
Which clamp is which?	The small CT is for circuits up to 30amps, the large CT is for circuits up to 100amps

Troubleshooting Tips – Wi-Fi Configuration

Potential Problem	Possible Solution
The home's Wi-Fi doesn't appear on my app. What do I do?	If the configuration screen shows 2 blinking dots or less, wire the CURB hub to a circuit of different phase.
The home's Wi-Fi is too weak to connect to. What do I do?	Use a Wi-Fi repeater to extend the range of the home's Wi-Fi signal
I do not know the home's Wi-Fi password. What do I do?	Test the installation with the cellular connection. Once you have completed the install on cellular, reach out to the Elevation Customer Support team to alert them that this home's install was not connected to Wi-Fi.

Troubleshooting Tips – Installation App

Potential Problem	Possible Solution
What if I get an error when I search for the Curb in my installation app?	See the Curb website for solutions.
Amps on mains is reporting as a negative number. What should I do? What if I don't see anything in the dropdown list of available circuits?	If the building is not generating power via solar or other non-grid sources, you can check the “+/-” toggle on the Hubs page for that circuit. If the building is receiving power from solar or another non-grid source, first determine if it is generating more power than being consumed -- which can be the cause of a negative total. If more power is being consumed than generated, it is safe to check the “+/-” toggle for the circuit. If the list of available circuits is empty or missing circuits, you may have either (a) forgotten to identify that phase of the missing circuits, (b) specified the wrong phase for the missing circuits, or (c) chosen the wrong panel from which to choose circuits.
What does “Multiplier” mean? Is this used for combo throws?	This option is for combo throws. Choosing a multiplier will multiply the measured voltage of the circuit by 2 (for a double-throw) or by 3 (triple-throw). This is useful if you have a balanced-load appliance (such as a furnace or water heater) and you only want to use one CT clamp on one phase (e.g. one half of a double-throw breaker pair).

Troubleshooting Tips – Solar

Potential Problem	Possible Solution
<p>What’s the difference between line-side and breaker-side solar?</p>	<p>In breaker-side solar installations, the output from the solar system is connected to circuits in the main breaker panel. Thus, in breaker-side installations, the power reported on the mains can fluctuate between positive and negative numbers depending on the balance of power between production and consumption.</p> <p>In line-side solar installations, the output from the solar system is connected to the grid in parallel with the main breaker panel. In such configurations, there will NOT be any circuits in the main panel connected to the solar system. As a result, the mains in the main panel will only report power consumption. CURB software sums the consumption and production values in order to report net power.</p> <p>Be sure to identify the correct solar installation type for each solar circuit in the configuration software.</p>
<p>How do I bridge a solar panel that is far from my circuit panel?</p>	<p>If the solar breaker panel is far away from the main circuit breaker panel, use an approved data cable (such as Cat-5) to extend the length on the CT-clamp wires. Be sure to follow applicable building codes for the region in which CURB is being installed.</p>

Troubleshooting Tips – Operation

Potential Problem	Possible Solution
How do I create a new installer account?	In order to create a CURB installer account, download the Curb Installer App from the Apple or Android play stores. Once downloaded, click 'Sign Up' to create your Curb Installer account.
I lost my password. What should I do?	You can reset on the login page of the Curb Installer App. Click 'forgot password?' and follow the instructions
How can I change the email address associated with my account?	To change your CURB email address, navigate to the top right corner of your installer app. Click on the gear to change either your password or email.
My bill is not accurate, what should I do?	Make sure that you have entered the correct zip code and chosen the correct energy plan within the "Energy Providers" section of the app. If the totals still don't match, please contact CURB so we can investigate further.
In my list of circuits, what does "other" mean?	"Other" represents the total of all unmeasured circuits in your home. It is calculated by subtracting the sum of all measured circuits from the total consumption on the mains.

Troubleshooting Tips – Cellular Connectivity

Potential Problem	Possible Solution
My cellular modem is not working. What do I do?	If the configuration screen shows 2 blinking dots or less, wire the CURB hub to a circuit of different phase.
I don't see any status indicators on my hub. What do I do?	If you do not see any status lights on your cellular board, swap out your hub for another one and send the hub back to Curb for RMA

SPECIFICATIONS

Model	
CURB M10	007xx

Electrical Characteristics		
Type of measurement		Current: High-Accuracy (2 channels) Standard (8 channels) Voltage (2 channels)
Accuracy	Current	High-Accuracy 2% from 10% to 110% Standard 5% from 10% to 110%
	Voltage	2% from 100 to 120VAC – L1 2% from 0 to 120VAC – L2
	Frequency	±0.01 Hz from 45 to 65 Hz
Sample rate		2 kHz
Input voltage Range	L1	100 to 130VAC
	L2	0 to 130VAC
Input Frequency Nominal		60Hz
Input Rating	L1	120V / 6W / 60Hz
	L2	120V / 100mW / 60Hz

Mechanical Characteristics	
Weight	775 grams
Dimensions	205 x 205 x 102 mm

Environmental Characteristics		
Operating Temperature	Curb Power Hub	0 °C to +70 °C
Storage Temperature	Curb Power Hub	-40 °C to +85 °C
Humidity Rating		5 To 95% RH at 50 °C (non-condensing)
Pollution control		CAT III
Location		Rated for indoor and outdoor use, including wet location up to NEMA 3
Altitude		2,000 m
Metering category		CAT III – up to 120VAC L-N

Electromagnetic Characteristics	
Conducted and radiated emissions	CE commercial environment / FCC part 15 class B
Electrostatic discharge	Level III (IEC 61000-4-2)
Immunity to radiated fields	Level III (IEC 61000-4-3)
Immunity to fast transients	Level III (IEC 61000-4-4)
Immunity to impulse waves	Level III (IEC 61000-4-5)
Conducted immunity	Level III (IEC 61000-4-6)

Immunity to magnetic fields	Level III (IEC 61000-4-8)
Immunity to voltage dips	Level III (IEC 61000-4-11)
Harmonics	IEC 61000-3-2

Safety	
U.S.	Tested to UL-61010-1
RoHS / Lead Free	Compliant

Communications	
WiFi (802.11b,g,n)	2412 - 2484MHz (regional)
Bluetooth	2402 - 2480 MHz
Cellular	LTE CAT-M1 (Rel 13)

Firmware Characteristics	
Firmware update	Update via network