

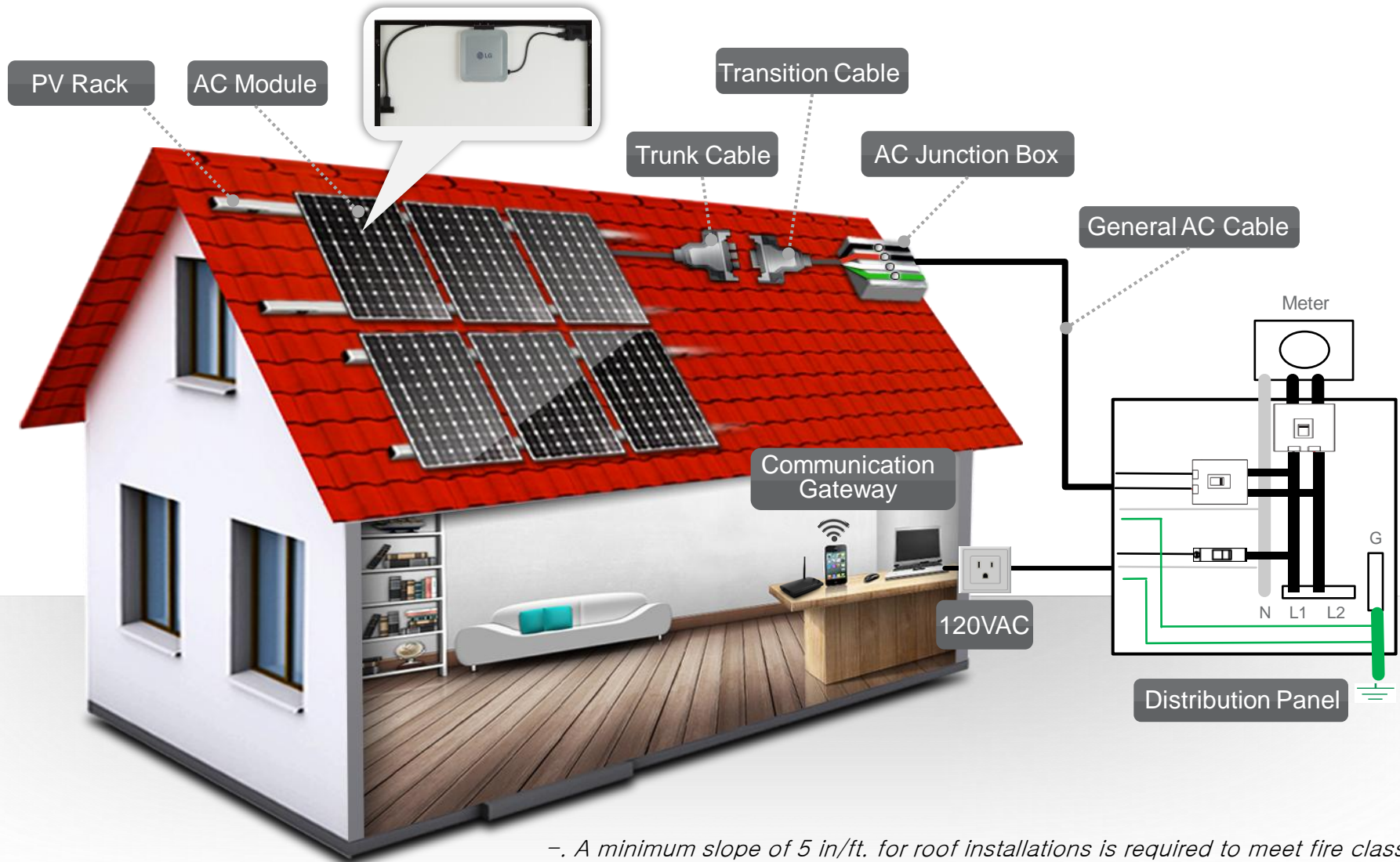


Installer Guide
Hardware and software for LGE Ace

Mono X[®] ACe

AC Module Installation Guide

Diagram of AC Module system



- A minimum slope of 5 in/ft. for roof installations is required to meet fire class ratings.
- The array frame must be grounded in accordance with NEC Article 250.

AC Module Installation Guide


Specification of AC Module

DC Input				
Parameter	Section	Value		
Power	Max.	295 W	300W	305W
	Tolerance	3 %	3 %	3 %
Voltage	Open Circuit	39.7 V	39.8 V	40.0 V
	Max. Power Point	31.8 V	32.0 V	32.1 V
Current	Short Circuit	9.85 A	9.98 A	10.10 A
	Max. Power Point	9.28 A	9.40 A	9.52 A
Efficiency	Relative Reduction	< 2.0%		
	Note : *Relative efficiency reduction in respect to irradiance			

AC Output			
Parameter	Section	240VAC	208VAC
Power	AC Continuous ¹⁾	280W (@DC Module 295W) / 285W (@DC Module 300W) / 290W (@DC Module 305W)	
	Inverter Rated Continuous	305W	300W
Voltage	Rated	240V (211 ~ 264 V)	208V (187 ~ 229V)
Current	Rated	1.27A	1.44A
	Max. Fault Current	77A	
Efficiency	Nominal	60 Hz (59.3 ~ 60.5 Hz)	
	Extended	57.0 Hz ~ 60.5 Hz	
Power Factor		> 0.95	
CEC Weighted Efficiency (California Energy Commission)		96.5%	96.0%
Max. Number of AC Modules		12 ea	11ea
¹⁾ Pmax (AC) = Max. Input DC Power x CEC Efficiency			

AC Module Installation Guide

Specification of AC Module

Protection	
Ground Fault Detection and Interrupt (GFDI)	Applied
Fuse	2A
 CAUTION : FOR CONTINUED PROTECTION AGAINST THE RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE	
Over Current Protection Device (OCPD)	20A

EnerBox

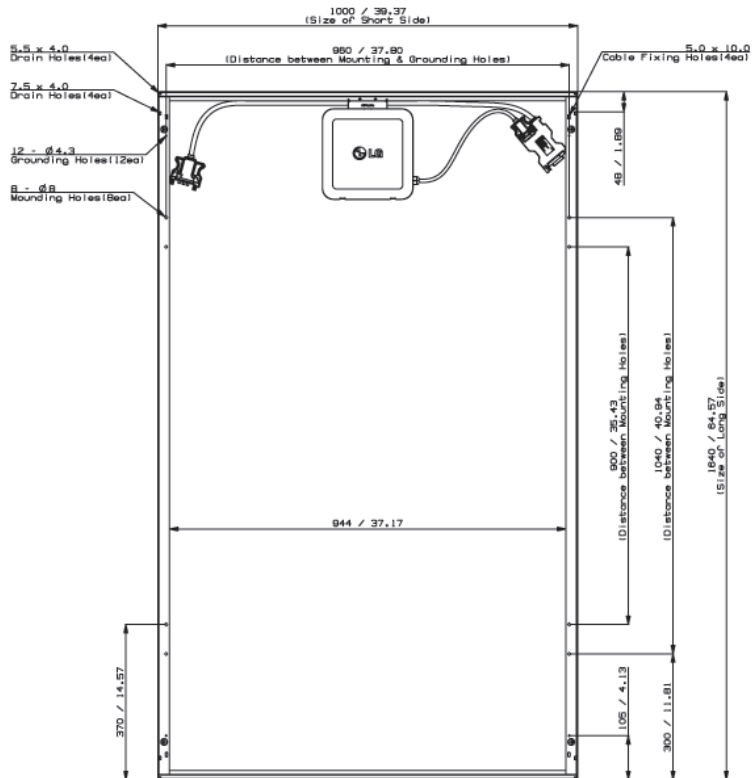
Power Requirements	
AC Supply	120 VAC, 60 Hz
Power Consumption @ DC 12V	3.8 watts typical, 5.4 watts maximum
Mechanical Properties	
Dimensions (W X D X H)	150 mm x 101.8 mm x 32.7 mm (5.9 in x 4.0 in x 1.3 in)
Weight	210 g (7.4 oz.)
Temperature Range	0 ~ 40°C (32 ~ 104°F), Installed Indoors
Enclosure Rating	IP20
Certification	
Certifications	UL 60950-1, FCC Part 15 Class B
Limited Warranty	2 years

AC Module Installation Guide

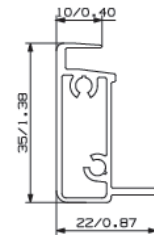
Specification of AC Module

Mechanical Data	
Micro Inverter Model (Utility Interactive)	LM305UE-G1
Enclosure Rating	Type 6
Operating Ambient Temperature	- 40 ~ 65 °C (-40 ~ 145°F)
Operating Temperature (internal)	- 40 ~ 90 °C (-40 ~ 194°F)
Storage Temperature	- 40 ~ 90 °C (-40 ~ 194°F)
Weight	18.0 kg

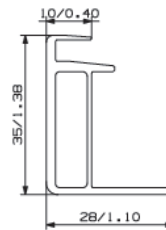
Unit: mm / in.



Cross-sectional Drawings



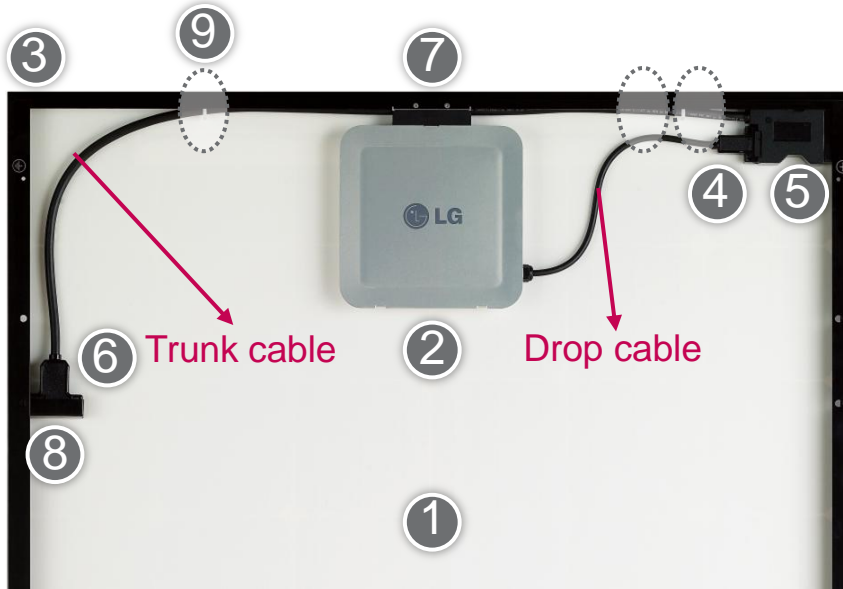
Short Side Frame



Long side frame

AC Module Installation Guide

Specification of AC Module



- ① PV module
- ② Micro inverter
- ③ PV frame
- ④ AC drop connector
- ⑤ Trunk male connector
- ⑥ Trunk female connector
- ⑦ Bracket
- ⑧ Dust cover
- ⑨ Cable holder 1)*

1)* Prevents AC trunk cables from moving during transportation.

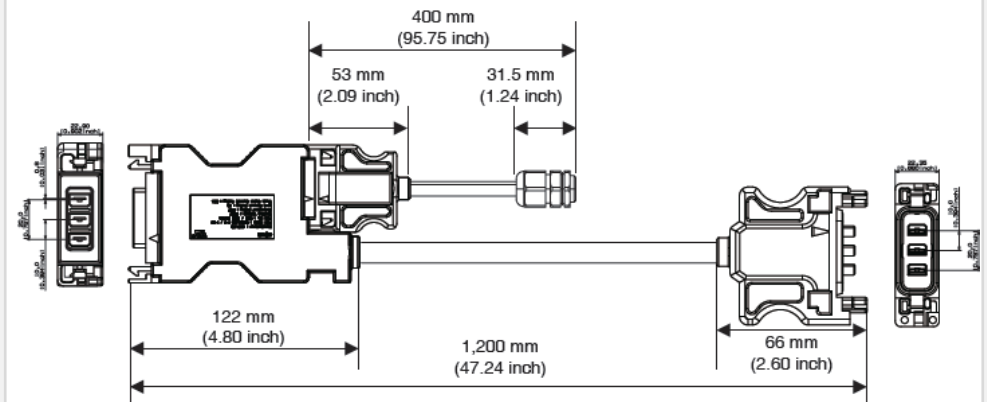
※ Warranty is void if it is broken after installed.

Trunk		
Cable	Type	TC-ER sunlight resistant
	Max. Voltage	600V
	Max. Current	20A
	Size	12AWG
Connector	Max. Voltage	300V
	Max. Current	20A
Drop		
Cable	Type	TC-ER sunlight resistant
	Max. Voltage	600V
	Max. Current	5A
	Size	18AWG
Connector	Max. Voltage	300V
	Max. Current	5A

Certification

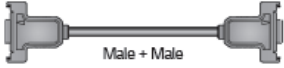
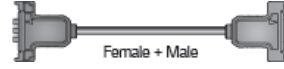







UL9703, UL6703A

Dimensions



AC Module Installation Guide

Specification of AC Module

Div.	Items	
Cable	Extension (Portrait) Male – Male, 63 inch [1.6m]	
	Extension (Portrait) Female-Female, 63 inch [1.6m]	
	Extension (Landscape) Male-Female, 126 inch [3.2m]	
	Transition (Male) 39 *, 59 inch [1m]* [1.5m]	
	Transition (Female) 39 *, 59 inch [1m]* [1.5m]	
Cap	End Cap (Male)	
	End Cap (Female)	
Others	Unlocking Tool	
Gateway	Gateway	

* Size 39 inch of Transition cable will be launched from January 2015.

AC Module Installation Guide

Specification of EnerBox



Declaration of Conformity

Trade Name : LG

Model : LGENBOX-01

Responsible Party : LG Electronics Inc.

Address : 1000 Sylvan Ave, Englewood
Cliffs, NJ 07632, U.S.A

TEL : 201-266-2534

① **Power Port (12V / 1A)**

Powers communication gateway via AC adapter.

② **PLC IN Port**

Delivers signal of AC modules to communication gateway via AC cable.

③ **LAN Port**

Connects to network via LAN cable. (Green light will turn on if connected properly.)

④ **RS-485 Port**

Connects to serial network via RS-485 cable.
(Administrator only)

⑤ **Power LED (Green)**

Green when AC adapter is connected properly.

⑥ **GFDI LED (Red)**

Turns on in case of ground fault in solar system.

⑦ **PLC LED (Green / Red)**

Green: AC cable is connected properly.

Red: Connection disruption.

⑧ **Wireless LAN LED (Green / Red)**

Green: Wireless communication is operating properly.

Red: Problem with wireless communication.

⑨ **USB Port (Charge Only)**

Charge smart device via supplied USB.

⑩ **Gateway Reset Pin**

Used to reset gateway if malfunctioning.

⑪ **Wireless LAN Reset Pin**

Used to reset WAP password.

※ Default password : 87654321

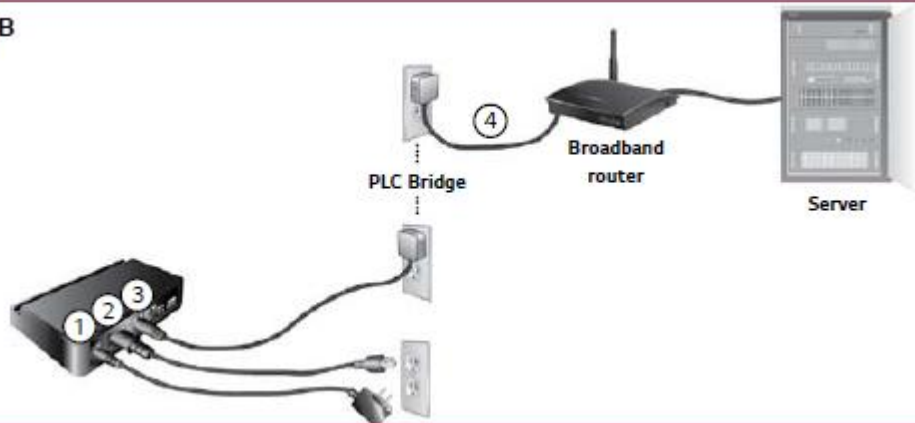
AC Module Installation Guide

The connection method of Enerbox

Method A



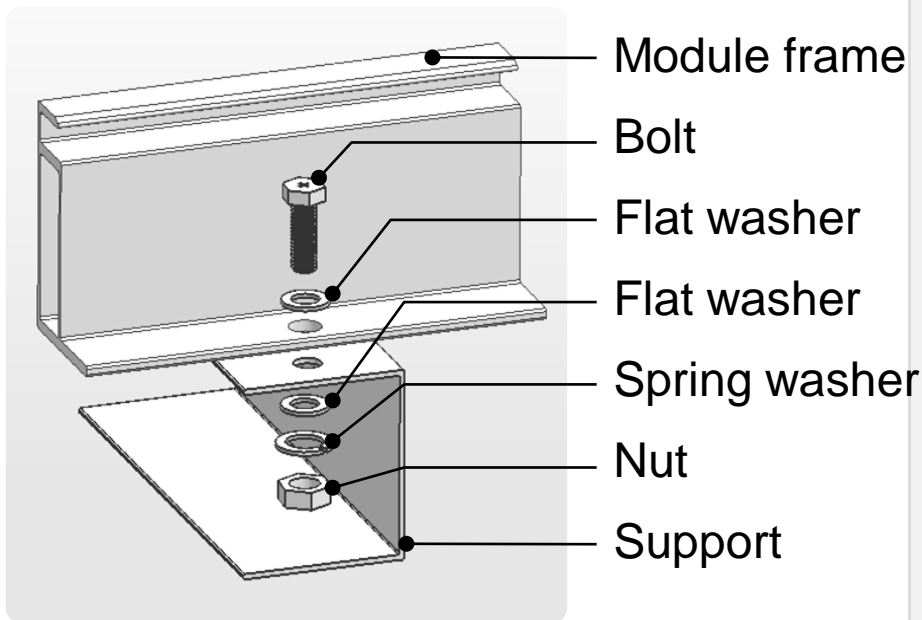
Method B



AC Module Installation Guide

Mount the AC module on the rack

Connection of the PV Rack and PV Module



300mm
(11.81 in.)

300mm
(11.81 in.)



AC Module Installation Guide

**** To prevent the danger of the electric shock, firmly connect all connectors and Endcaps.**

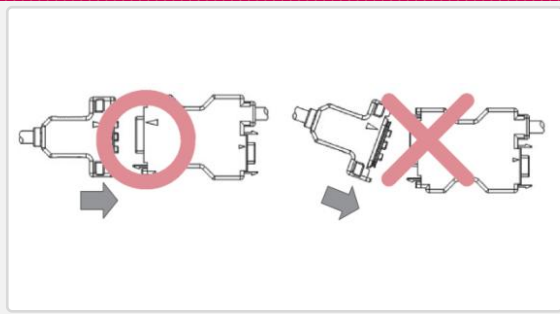
Connect the AC module cable

- Maximum connection of AC modules at the different voltage condition

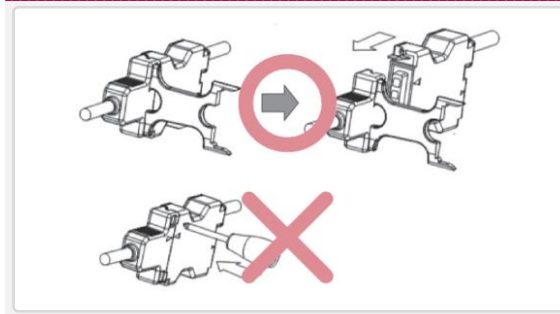
AC voltage	Number of maximum AC modules	Capacity [per circuit]	Circuit Breaker [20A]
Single phase 240V (Per Branch circuit)	12 EA	3.6 kW	2-pole * 1ea
Three phase 208V (Per Branch circuit)	6 EA * 3 branch circuit	1.8 kW	3-pole * 1ea
	11 EA * 3 branch circuit at the Split-type condition	3.3 kW	2-pole * 3ea

- Right method of cable connection and disconnection

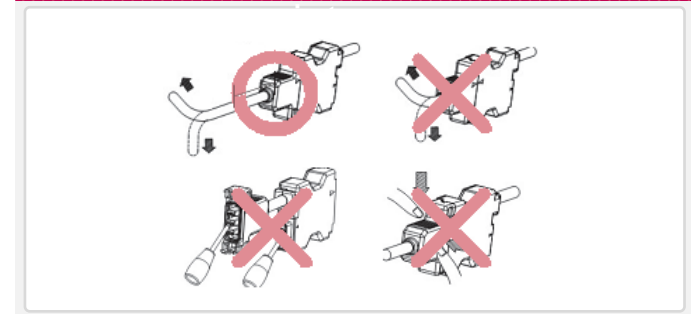
Trunk connector insertion



Trunk connector removal



Trunk cable usage and



Trunk male connector is not completely fixed on the back sheet of PV module for the purpose of easy connection.

Sizes of trunk cable and drop cable are decided according to NEC2011 based on product specification.

AC Module Installation Guide

Material lists for AC module connection.



Portrait 2 Rows 5.4kW



Portrait 3 Rows 5.4kW



Landscape 2 Rows 5.4kW

*** It is only guide to assist for your information.**

AC Module Installation Guide

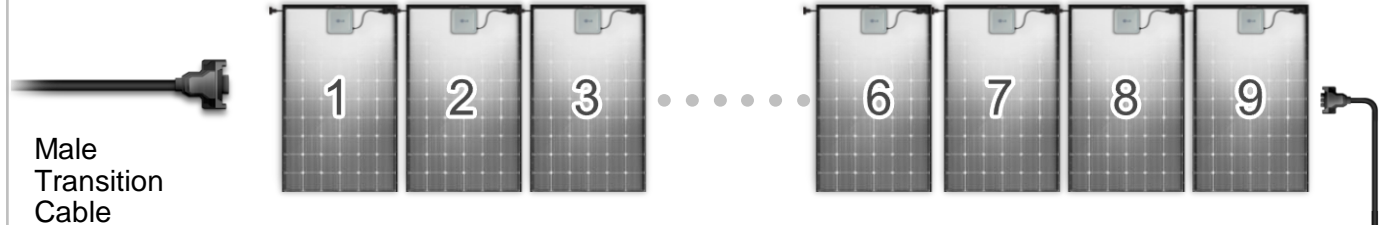
Case I – Portrait 2 Rows 5.4kW, Position of AC Junction box is left side of Array

AC 240V Single Phase

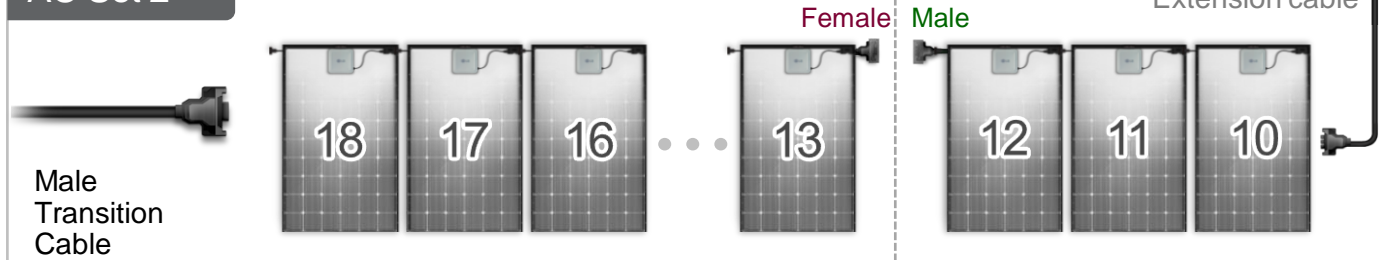


AC Junction Box

AC Set 1



AC Set 2



Material	Model	Quantity
AC Module	ACe	18
Transition Cable	Male	2
Extension Cable	Female + Female	1
End cap	Male	1
	Female	1

* If the case is not mentioned on installation guideline / installation manual, please consult with LGE.

AC Module Installation Guide

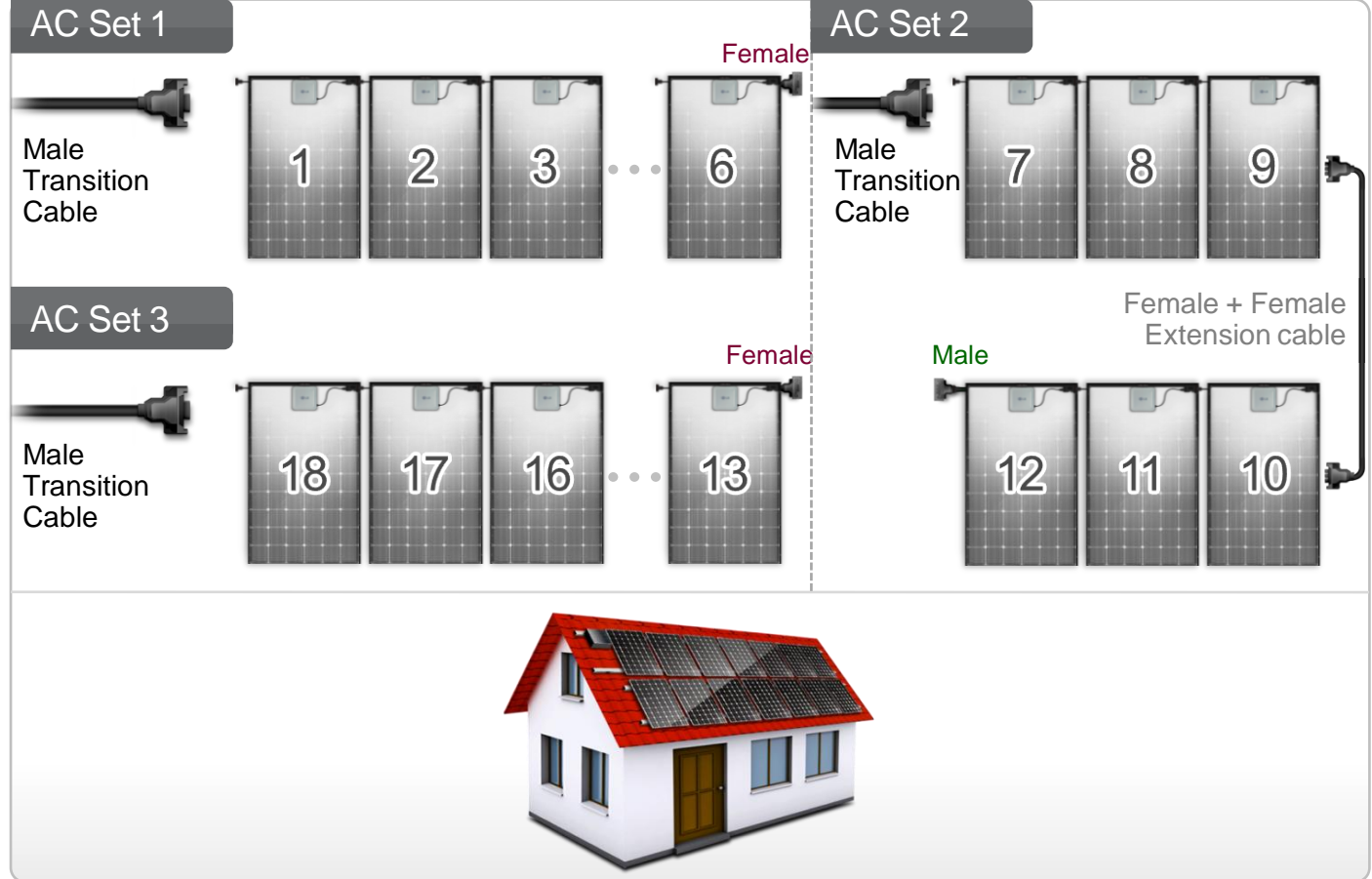
Case I – Portrait 2 Rows 5.4kW, Position of AC Junction box is left side of Array

AC 208V Three Phase



AC Junction Box

Material	Model	Quantity
AC Module	ACe	18
Transition Cable	Male	3
Extension Cable	Female + Female	1
End cap	Male	1
	Female	2



* If the case is not mentioned on installation guideline / installation manual, please consult with LGE.

AC Module Installation Guide

Case II– Portrait 3Rows 5.4kW, Position of AC Junction box is left side of Array

AC 240V Single Phase

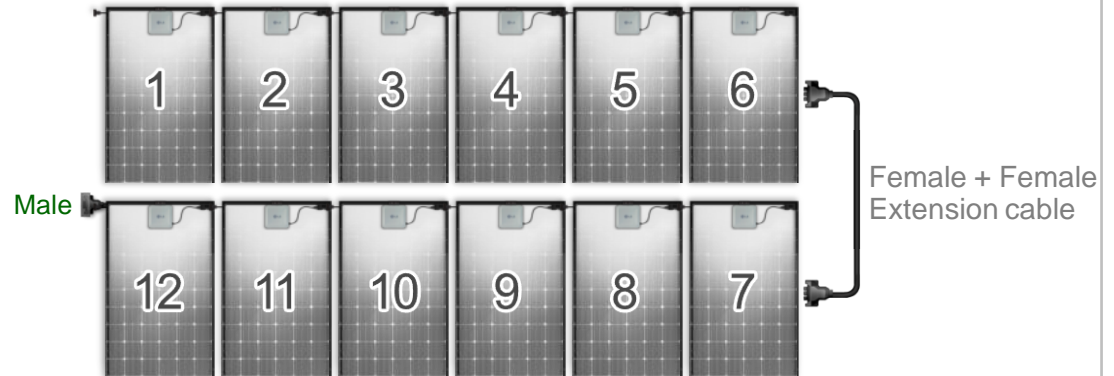


AC Junction Box

AC Set 1



Male Transition Cable



AC Set 2



Male Transition Cable



Material	Model	Quantity
AC Module	ACe	18
Transition Cable	Male	2
Extension Cable	Female + Female	1
End cap	Male	1
	Female	1

* If the case is not mentioned on installation guideline / installation manual, please consult with LGE.

AC Module Installation Guide

Case II– Portrait 3Rows 5.4kW, Position of AC Junction box is left side of Array

AC 208V Three Phase



AC Junction Box

AC Set 1



Male Transition Cable



AC Set 2



Male Transition Cable



AC Set 3



Male Transition Cable



Material	Model	Quantity
AC Module		18
Transition Cable	Male	3
Extension Cable		
End cap	Female	3



* If the case is not mentioned on installation guideline / installation manual, please consult with LGE.

AC Module Installation Guide

Case III– Landscape 2Rows 5.4kW, Position of AC Junction box is left side of Array

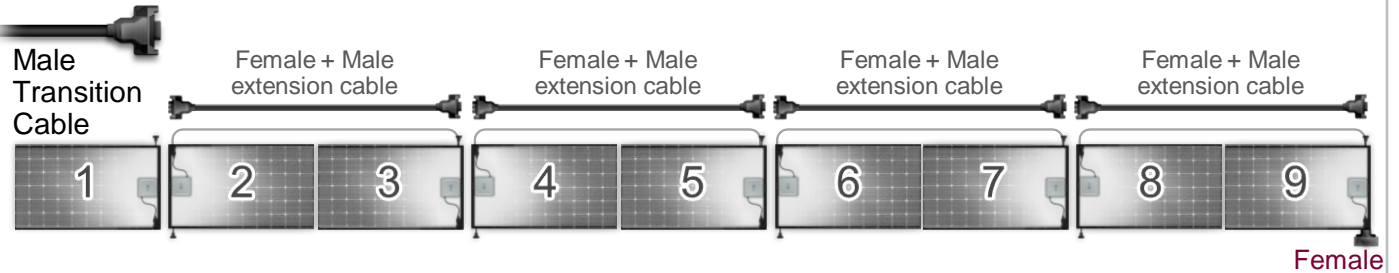
AC 240V Single Phase



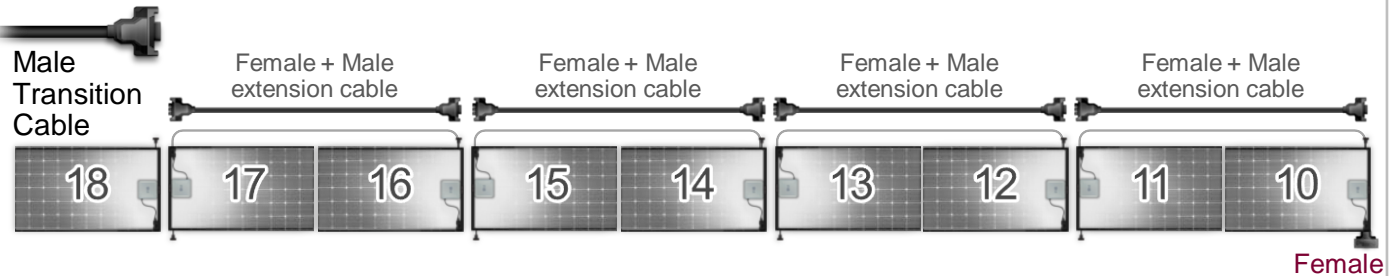
AC Junction Box

Material	Model	Quantity
AC Module	ACe	18
Transition Cable	Male	2
Extension Cable	Female + male	8
End cap	Female	2

AC Set 1



AC Set 2



* If the case is not mentioned on installation guideline / installation manual, please consult with LGE.

AC Module Installation Guide

Case III– Landscape 2Rows 5.4kW, Position of AC Junction box is left side of Array

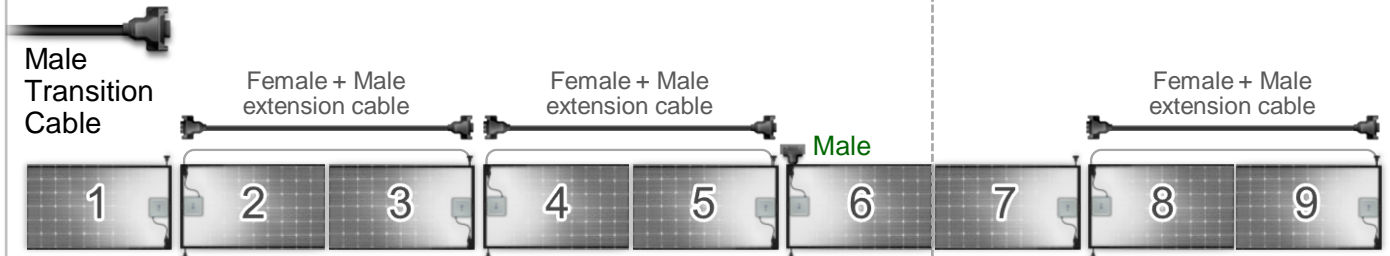
AC 208V Three Phase



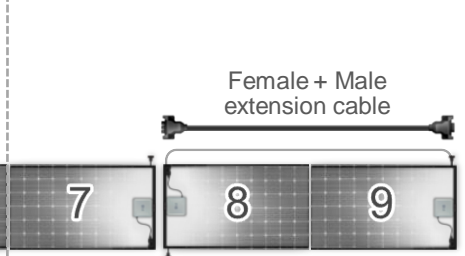
AC Junction Box

Material	Model	Quantity
AC Module	ACe	18
Transition Cable	Male	3
Extension Cable	Female + male	6
End cap	Male	2
	Female	1

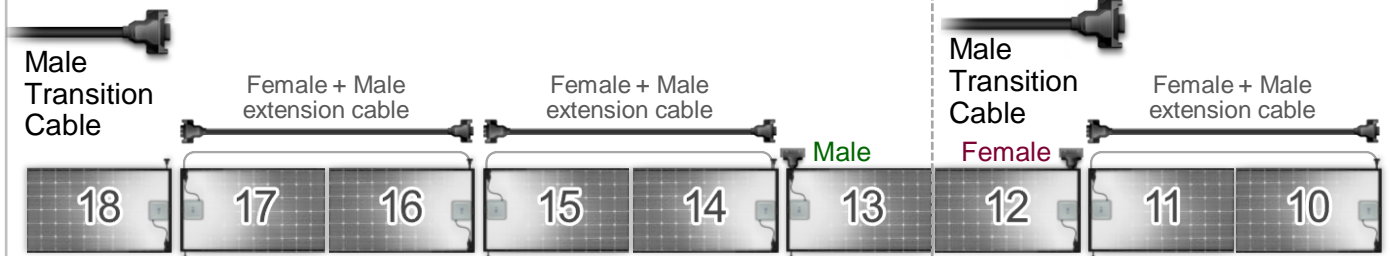
AC Set 1



AC Set 2



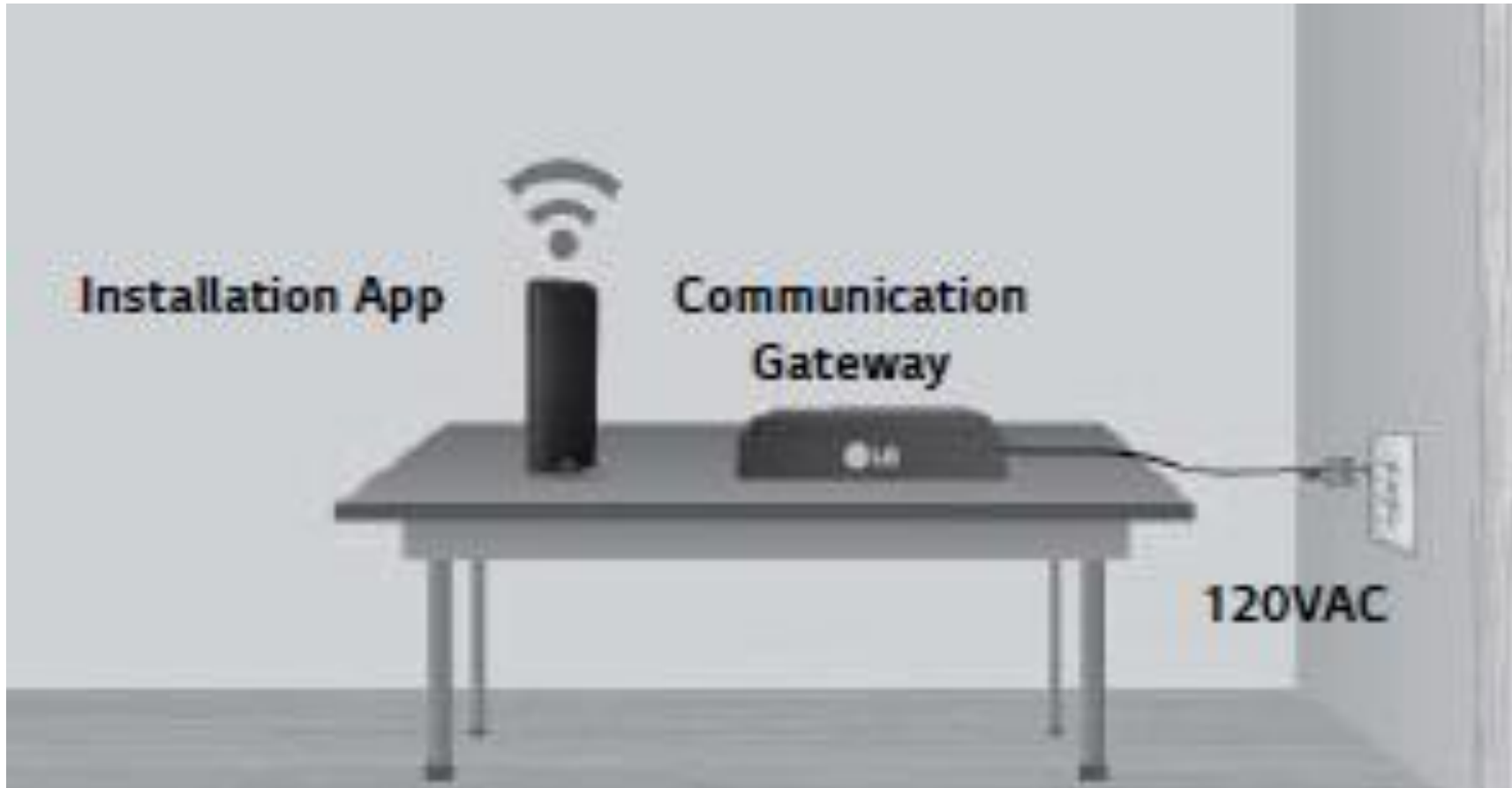
AC String 3



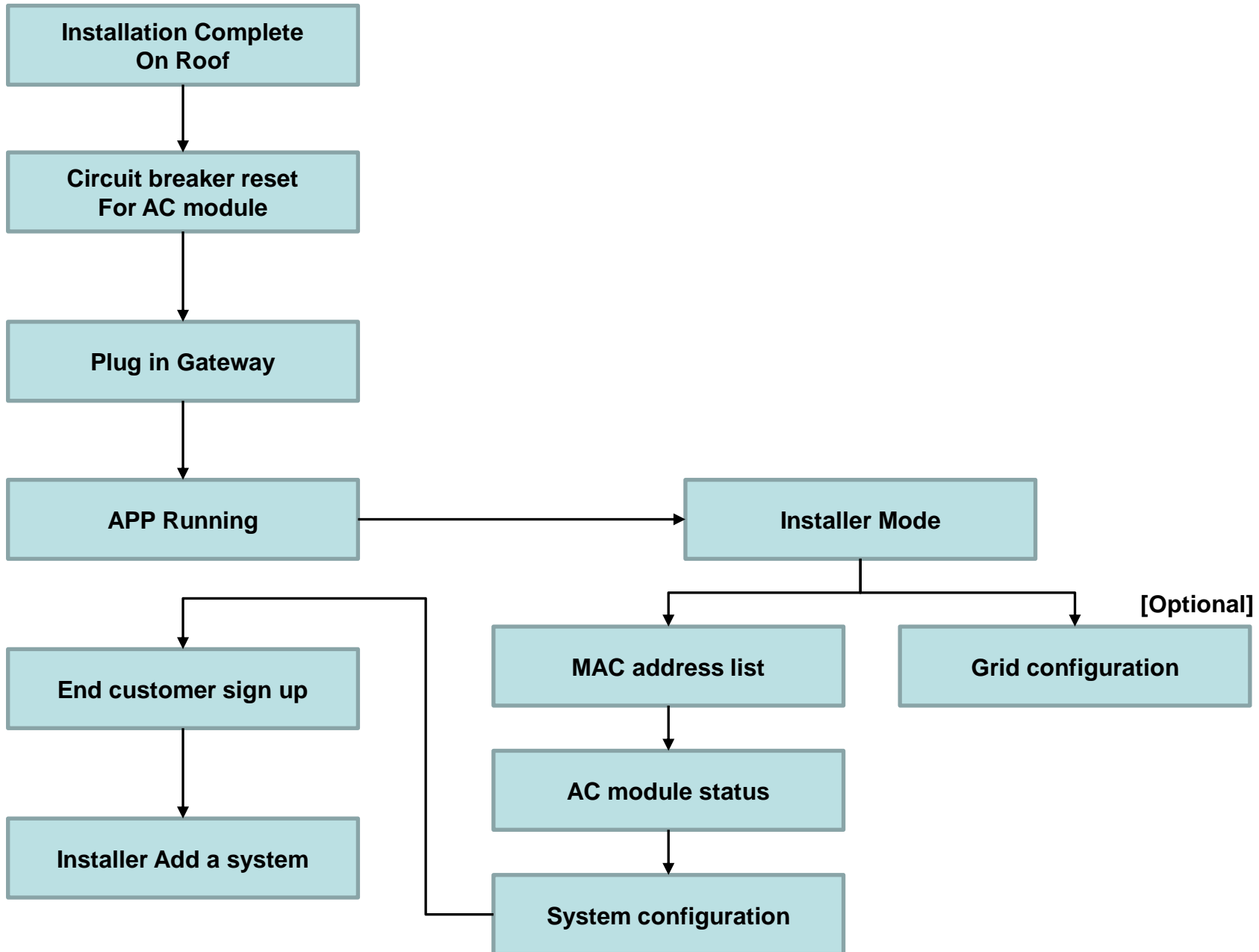
* If the case is not mentioned on installation guideline / installation manual, please consult with LGE.

AC Module Installation Guide

APP and Web setting



Normal procedure for 1 phase 240V [Flow chart]



Normal procedure for 1 phase 240V

A. Installation Completion of AC module on Roof

*Take out bar code sticker of all AC modules to register in monitoring system [Enervu]

B. Circuit breaker reset of AC module.

C. Plug in Gateway to outlet near to circuit breaker.

D. Checking the status LED Lamp of the Gateway → 3 Lamps ON "Green" [Power, PLC, WLAN]
: Max. 1 Minute.

E. Installer Mode In APP

F. MAC address list In APP → Adding & registration for AC Module : Real time sync

* After adding & registration, The Gateway automatically will recognize installed AC modules and It takes 5 seconds per each AC module. When Gateway recognizes AC modules the LED color of PLC(No.7) will be Orange.

G. AC module status In APP → Normal or abnormal condition

*Information on AC module through Gateway will be updated by every 15 minutes regardless normal or abnormal. If you find abnormal AC module in APP, you have to clear error message and wait **Max.15 minutes again**.

H. Grid Configuration [Option] In APP → Default "Single phase 240V"

*Only for 3 phase 208V.

I. System configuration In APP → It is **mandatory** to connect web server.

*Necessary procedure for Web server

*Take out bar code sticker of Gateway to register in monitoring system.

J. Sign In Enervu webpage for monitoring Gateway: <http://enervu.lg-solar.com/>

*Register bar code stickers of AC module and Gateway.

▪ Procedure from B to F will be completed within 15 minutes, if not, the AC module will be sleep mode.

In case of sleep mode[For power saving], to wake up AC modules, you require to reset circuit breaker of AC module.

▪The initial operation of AC module will be started within 1 minutes after switch on of Circuit breaker. It is not affected to operating status of AC modules during a setting APP. These are different mechanism.

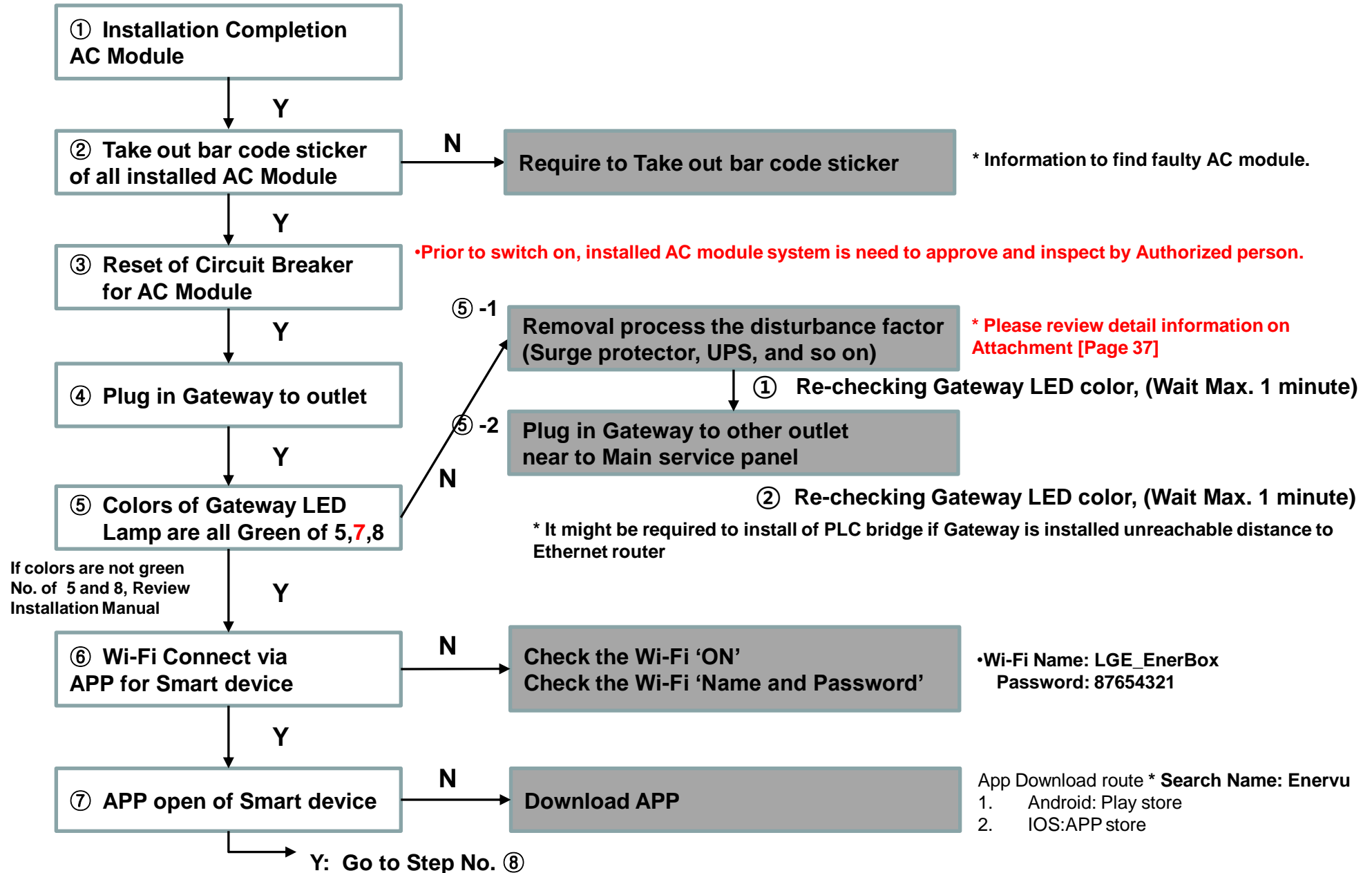
▪Do not inform the App [Enervu] for setting monitoring to end customer, it can occur the system faulty, if customer change the setting.

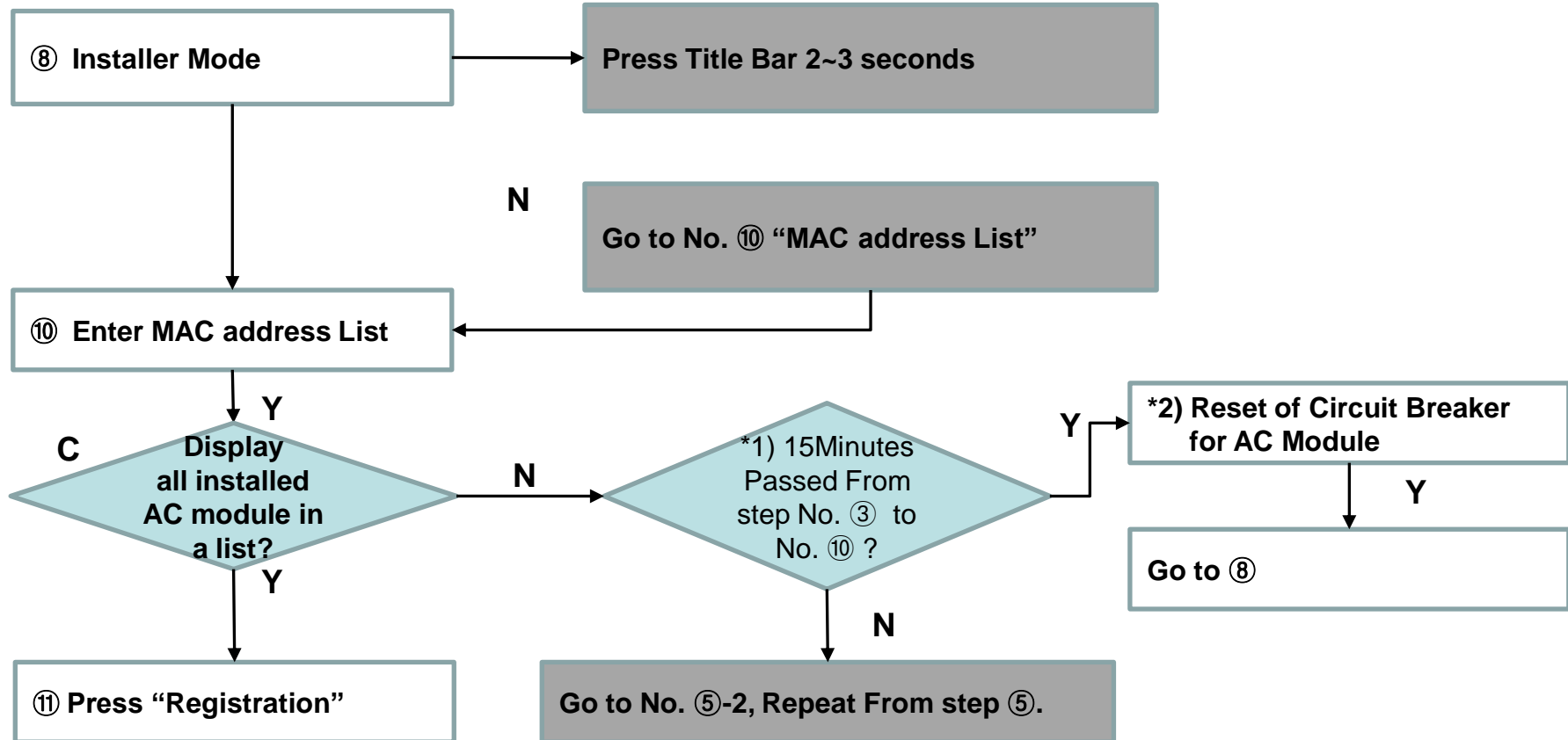
This is only for the installation purpose. If they request the monitoring tool for AC module, we request to inform to end customer the web address for Enervu,

Abnormal procedure for 1 phase 240V

In case Gateway doesn't not detect installed AC module.

- A. Plug in the Gateway to nearest outlet to circuit breaker with PLC bridge. Nevertheless, If Gateway does not detect installed AC module, It will be require to install the dedicated outlet between the gateway and AC module.
- B. Repeat the normal procedure



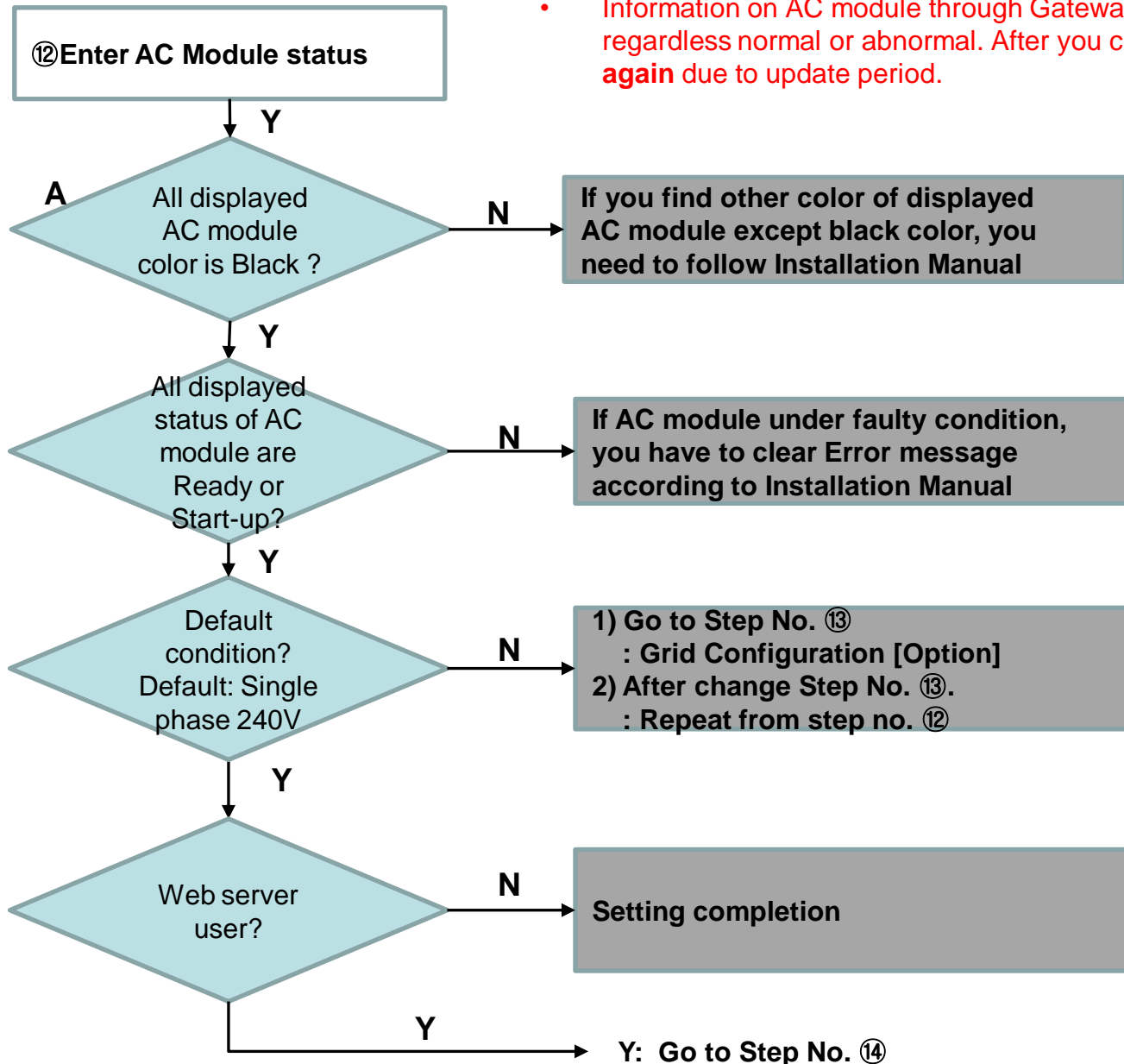


•When Gateway recognizes AC modules the LED color of PLC(No.7) will be Orange.

*1) Purpose of power saving, AC module will be sleep mode within 15 minutes.

*2) This step is needed to wake up for AC module

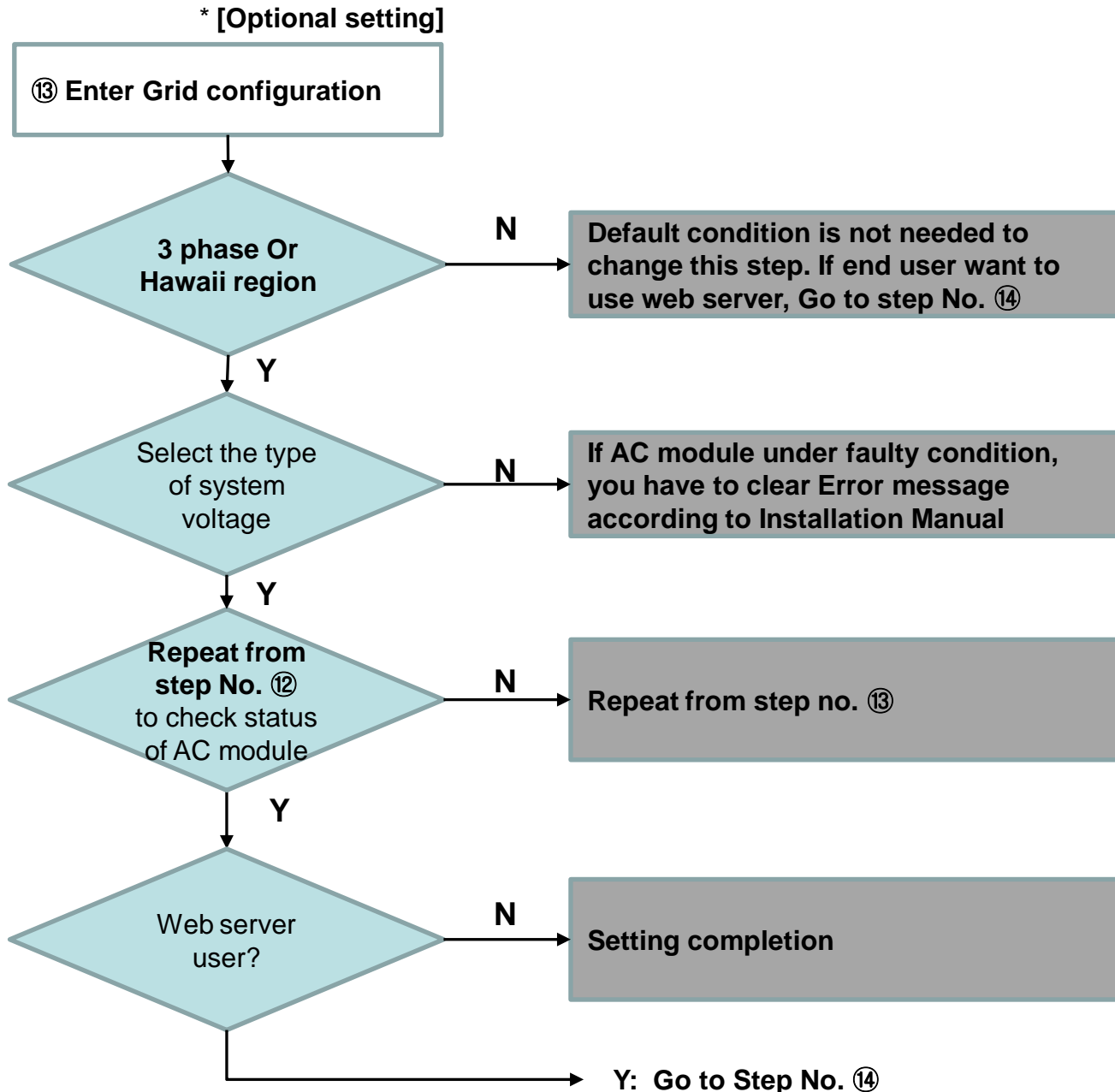
Y: Go to Step No. ⑫



- Information on AC module through Gateway will be updated by every 15 minutes regardless normal or abnormal. After you clear Error message , wait **Max.15 minutes again** due to update period.

•Download route

- www.lg-solar.com
- <http://enervu.lg-solar.com/support/downloads>



•Download route

- 1) www.lg-solar.com
- 2) <http://enervu.lg-solar.com/support/downloads>

⑭ System configuration

- It is **mandatory whole process** to connect web server
- Take out bar code sticker of Gateway to register in monitoring system.
(The positions of bar code are on bottom and outer box of Gateway.)

Back System Configuration

Time Synchronization

Ethernet Setting

IP

Netmask

Gateway

Ethernet Auto Settings

NTP Setting

NTP Server

Web Server Setting

URL

Web Server is not connected

Select Service Type

OFF

- 1 Click **Time Synchronization** to sync the time zone of the gateway and web server.
- 2 If the IP address is assigned from the broadband router automatically. Check the **Ethernet Auto Settings**.
** In case of static IP, Input **IP, Netmask, Gateway** address and Click Set.
- 3 Click **Set** automatically to set NTP (Network Time Protocol – real time sync)
- 4 Click **Set** automatically to set Web Server (EnerVu web address).
- 5 Check Web Server connection.
When OK, "**Web Server has been connected.**"
When NG, "**Web Server is not connected.**"
- 6 Select **ON** and click **Set** button to finish web server activation.

Sign up Enervu webpage for monitoring Gateway: <http://enervu.lg-solar.com/>

- To register of installed AC module system for End–customer, Installer will require to input Gateway bar code(serial No.) on web server.

[The positions of bar code(serial No.) are on bottom of gateway and outer box of gateway.]

- It will be required to set of web server user who is first name, last name and e-mail address.
To set of web server, end customer have to sign up before installer setting.
- Installer will be required to input information of end-customer to use the web server.

It is divided to

1) Sign in for end customer

<http://enervu.lg-solar.com/>

2) Sign in for installer

<http://enervu.lg-solar.com/installer>

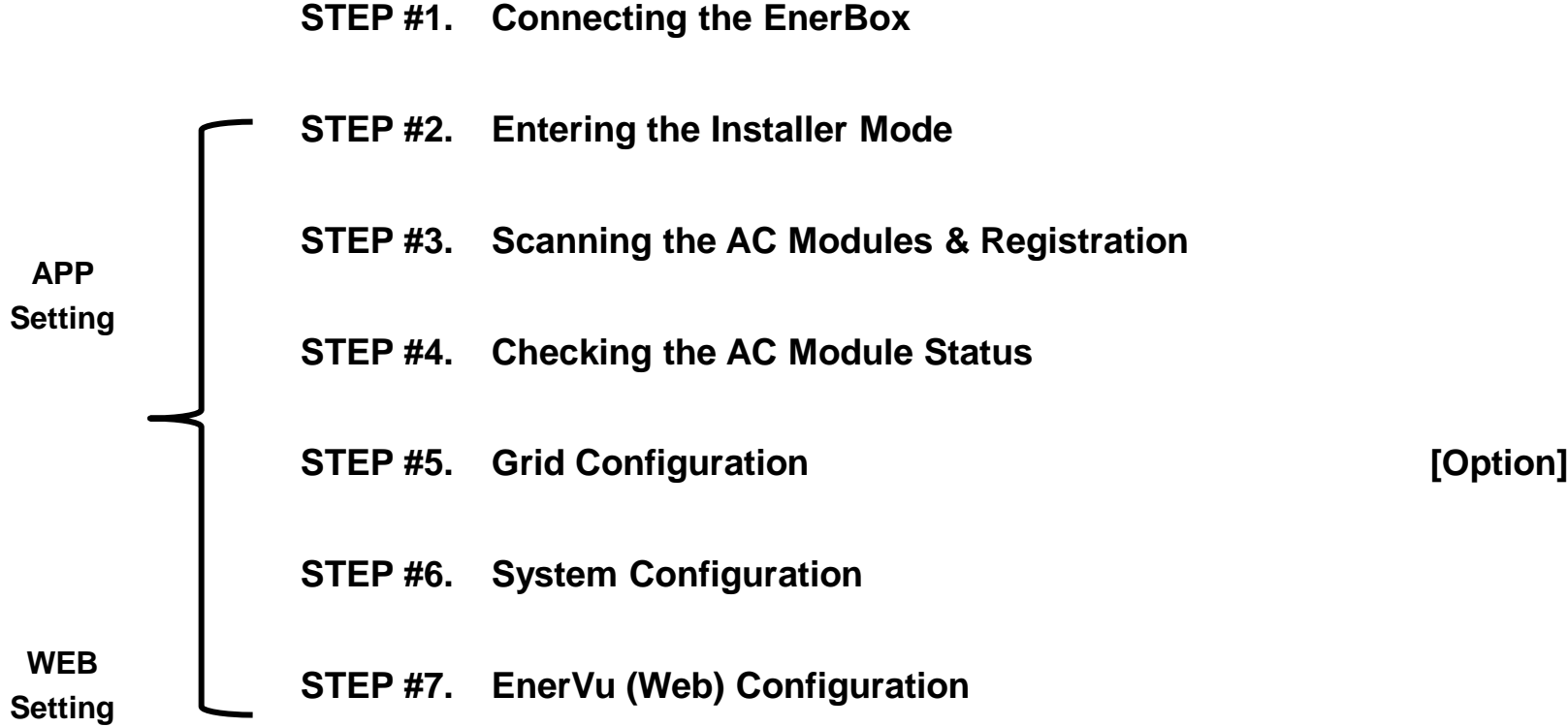
The detail information of setting and operating of web server, you will download in below web address.

•Download route

1) www.lg-solar.com

2) <http://enervu.lg-solar.com/support/downloads>

Setting step detail



Appendix #1- Replacement procedure of malfunction Gateway

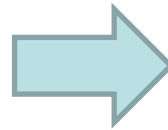
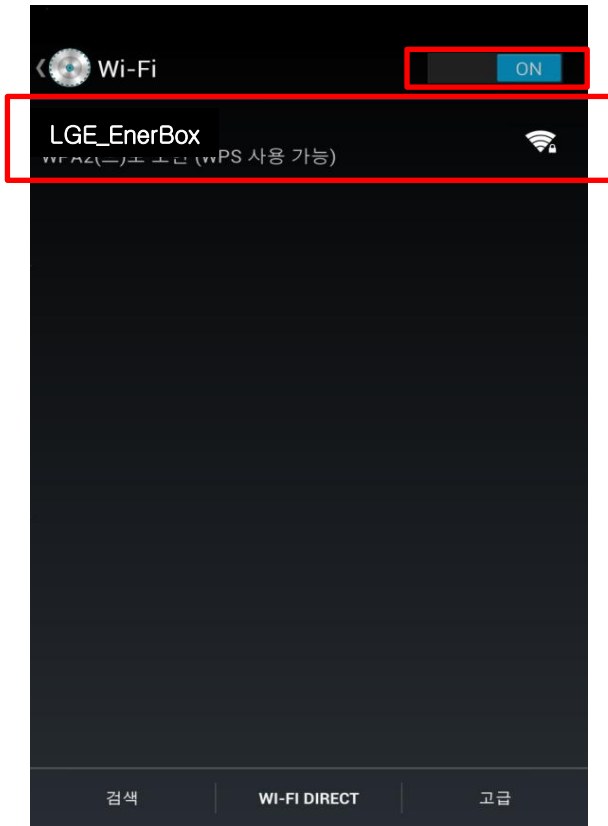
Appendix #2- Replacement procedure of malfunction AC module

Appendix #3- PLC Issues

Connecting the Gateway [Enerbox]

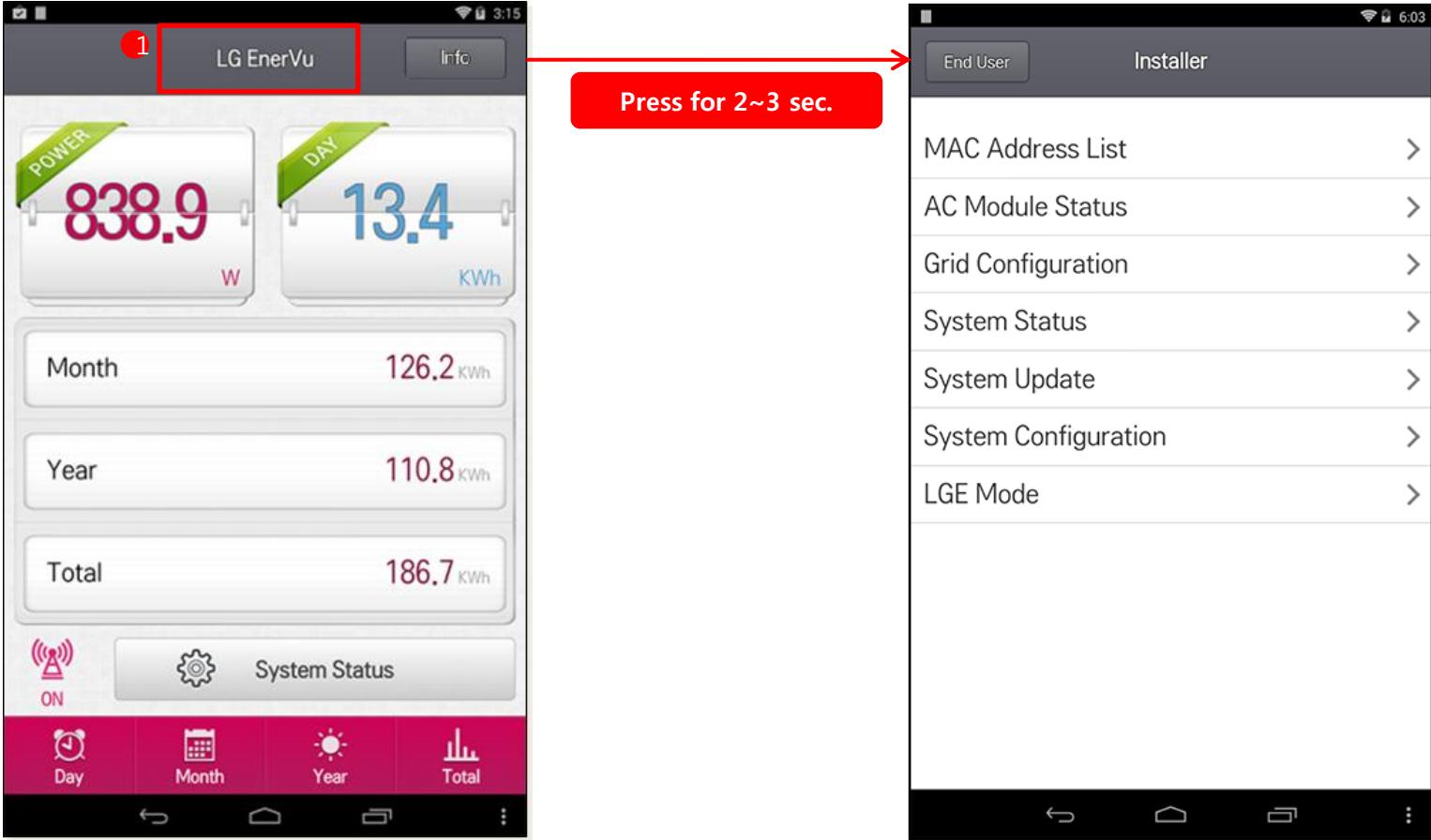
1. Turn on Wi-Fi in Smart Phone
2. Select the SSID[WiFi name] of **Gateway [Enerbox]** - **“LGE_EnerBox”**
3. Input the password – **“87654321”**

- App Download route
1. Android: Play store
 2. IOS: APP store
- * **Search Name: Enervu**

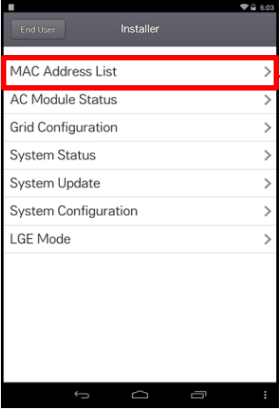


Entering the Installer Mode

1. Press the title bar for 2~3 seconds to enter installer mode.



MAC address list - Scanning the AC Modules & Registration



The 'Mac Address List' screen features a top navigation bar with 'Back' (1) and 'Registration' (2) buttons. Below is a table (3) with columns for ID, MAC Address, and a 'Delete' button. At the bottom, there is a text field for 'LGElectronics' (4) and an 'EnerBox Group change' button. A bottom bar contains 'Add' (5), 'Import' (6), and 'Export' (7) buttons.

ID	MAC Address	Action
01	48:D1:8E:00:02:14	Delete
02	48:D1:8E:40:00:53	Delete
03	48:D1:8E:00:02:1F	Delete
04	48:D1:8E:00:02:AB	Delete
05	48:D1:8E:00:01:F3	Delete

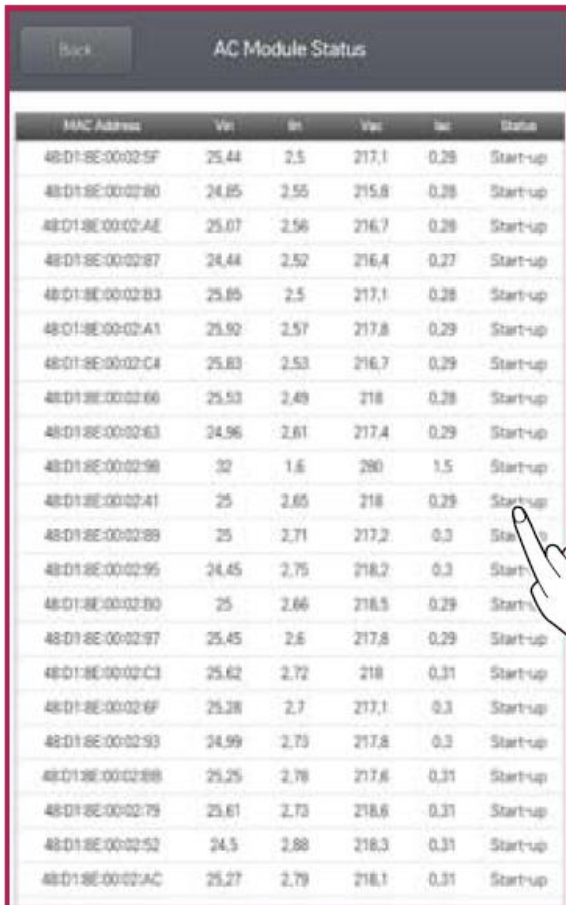
- 1 Back** Moves to Installer page
- 2 Registration** Registers the **detected** AC Modules. **In case all AC module are not detected, Do not REGISTER**
- 3 MAC Address** Shows the detected AC Modules.
- 4 EnerBox Group change** **Only For adding or replacing the of AC Modules, EnerBox**
- 5 Add** Only for LG Electronics supervisor
- 6 Import** Only for LG Electronics supervisor
- 7 Export** Only for LG Electronics supervisor

AC Module Status

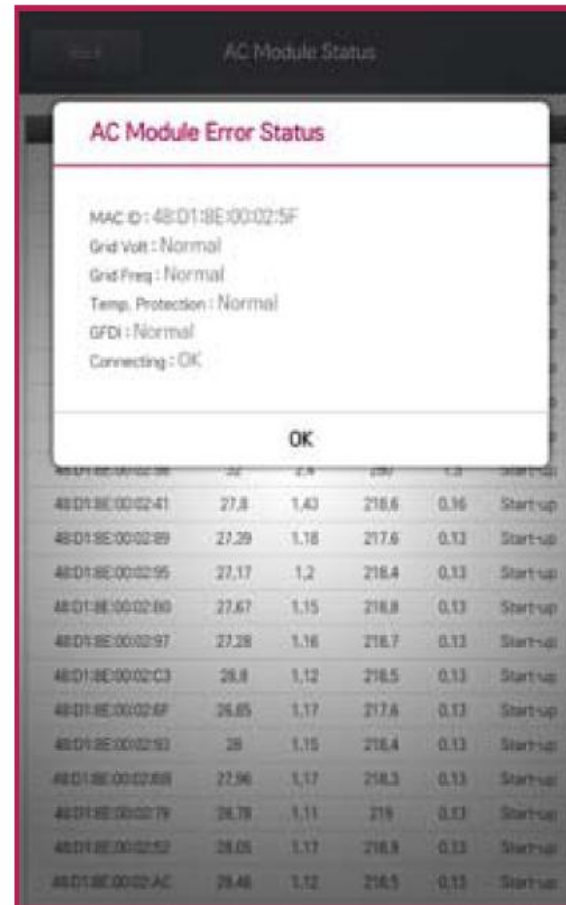
Enter into **AC Module Status** just to check operating status of the AC Module.

AC module status In APP → Normal or abnormal condition

*Information on AC module through Gateway will be updated by every 15 minutes regardless normal or abnormal. If you find abnormal AC module in APP, you have to clear error message and wait **Max.15 minutes again**.



MAC Address	Vin	In	Voc	Ioc	Status
48:D1:8E:00:02:5F	25.44	2.5	217.1	0.29	Start-up
48:D1:8E:00:02:80	24.85	2.55	215.8	0.28	Start-up
48:D1:8E:00:02:AE	25.07	2.56	216.7	0.28	Start-up
48:D1:8E:00:02:87	24.44	2.52	216.4	0.27	Start-up
48:D1:8E:00:02:83	25.85	2.5	217.1	0.28	Start-up
48:D1:8E:00:02:A1	25.92	2.57	217.8	0.29	Start-up
48:D1:8E:00:02:C4	25.83	2.53	216.7	0.29	Start-up
48:D1:8E:00:02:66	25.53	2.49	218	0.28	Start-up
48:D1:8E:00:02:63	24.96	2.61	217.4	0.29	Start-up
48:D1:8E:00:02:98	32	1.6	280	1.5	Start-up
48:D1:8E:00:02:41	25	2.65	218	0.29	Start-up
48:D1:8E:00:02:89	25	2.71	217.2	0.3	Start-up
48:D1:8E:00:02:95	24.45	2.75	218.2	0.3	Start-up
48:D1:8E:00:02:80	25	2.66	218.5	0.29	Start-up
48:D1:8E:00:02:97	25.45	2.6	217.8	0.29	Start-up
48:D1:8E:00:02:C3	25.62	2.72	218	0.31	Start-up
48:D1:8E:00:02:6F	25.28	2.7	217.1	0.3	Start-up
48:D1:8E:00:02:93	24.99	2.73	217.8	0.3	Start-up
48:D1:8E:00:02:88	25.25	2.78	217.6	0.31	Start-up
48:D1:8E:00:02:79	25.61	2.73	218.6	0.31	Start-up
48:D1:8E:00:02:52	24.5	2.88	218.3	0.31	Start-up
48:D1:8E:00:02:AC	25.27	2.79	218.1	0.31	Start-up



AC Module Error Status

MAC ID: 48:D1:8E:00:02:5F
Grid Volt: Normal
Grid Freq: Normal
Temp. Protection: Normal
GFDI: Normal
Connecting: OK

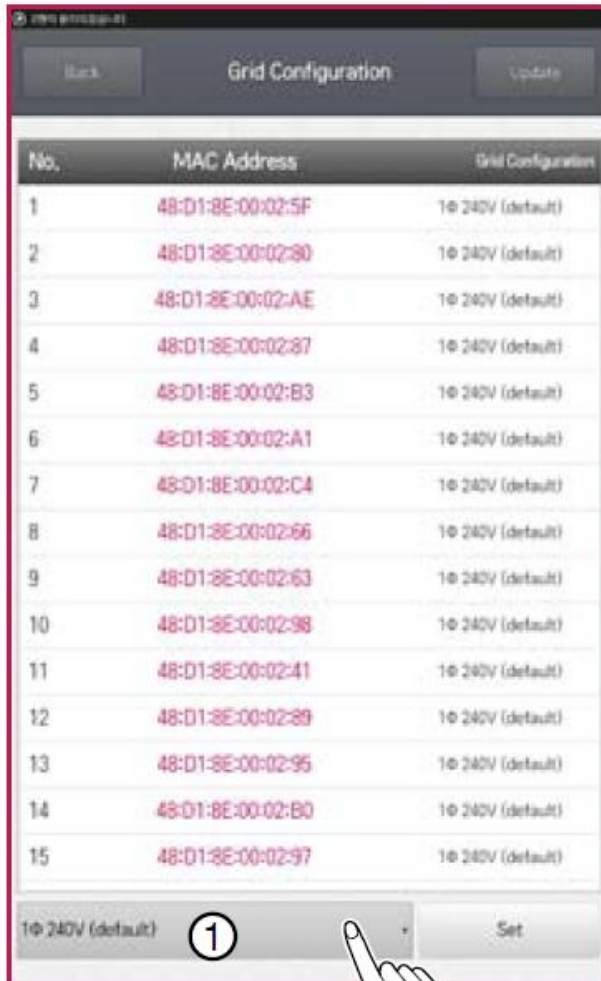
OK

MAC Address	Vin	In	Voc	Ioc	Status
48:D1:8E:00:02:41	27.8	1.43	218.6	0.16	Start-up
48:D1:8E:00:02:89	27.29	1.18	217.6	0.13	Start-up
48:D1:8E:00:02:95	27.17	1.2	218.4	0.13	Start-up
48:D1:8E:00:02:80	27.67	1.15	218.8	0.13	Start-up
48:D1:8E:00:02:97	27.28	1.16	218.7	0.13	Start-up
48:D1:8E:00:02:C3	26.8	1.12	218.5	0.13	Start-up
48:D1:8E:00:02:6F	26.85	1.17	217.6	0.13	Start-up
48:D1:8E:00:02:93	28	1.15	218.4	0.13	Start-up
48:D1:8E:00:02:88	27.96	1.17	218.3	0.13	Start-up
48:D1:8E:00:02:79	28.78	1.11	219	0.13	Start-up
48:D1:8E:00:02:52	28.05	1.17	218.8	0.13	Start-up
48:D1:8E:00:02:AC	28.48	1.12	218.5	0.13	Start-up

Grid Configuration [Option]

*Only for 3 phase 208V.

1. Enter into **Grid Configuration** and set the grid configuration to suit your environment. If the grid configuration is wrong, AC module may not operate correctly.
2. Press the **Set** button. **It takes about 5 seconds per module for setting.**
3. Press the **Update** button and check that the selected grid setting is correct. If all AC modules are not updated, please try again.



System Configuration – Gateway setting & Web server activation

Necessary procedure for Web server

***Take out bar code sticker of Gateway to register in monitoring system.**

It is **mandatory** to connect web server.

The screenshot shows the 'System Configuration' page with a 'Back' button. The page is divided into several sections, each with a 'Set' button:

- Time Synchronization:** A section with a 'Set' button.
- Ethernet Setting:** Contains input fields for IP (192.168.1.220), Netmask (255.255.255.0), and Gateway (192.168.1.1), along with an 'Ethernet Auto Settings' checkbox and a 'Set' button.
- NTP Setting:** Contains an input field for NTP Server (time.nist.gov) and a 'Set' button.
- Web Server Setting:** Contains an input field for URL (http://acgw.us.enervu.lg-solar.com), a 'Set' button, and a status indicator 'Web Server is not connected' with a 'Check' button.
- Select Service Type:** Contains a toggle switch currently set to 'OFF' and a 'Set' button.

- 1 Click **Time Synchronization** to sync the time zone of the gateway and web server.
- 2 If the IP address is assigned from the broadband router automatically. Check the **Ethernet Auto Settings**. ** In case of static IP, Input **IP, Netmask, Gateway** address and Click Set.
- 3 Click **Set** automatically to set NTP (Network Time Protocol – real time sync)
- 4 Click **Set** automatically to set Web Server (EnerVu web address).
- 5 Check Web Server connection.
When OK, **“Web Server has been connected.”**
When NG, **“Web Server is not connected.”**
- 6 Select **ON** and click **Set** button to finish web server activation.

EnerVu (Web) Configuration

<http://enervu.lg-solar.com/>

*Appendix 1- Replacement procedure of malfunction Gateway



Note 2.

Changing the EnerBox:

If the EnerBox is not working correctly, follow steps below to troubleshoot.

- ① After connecting a new EnerBox, enter the serial number of the failed EnerBox on the blank and press **EnerBox Group change** button.
- ② Compare MAC addresses listed in app and web server.
- ③ If matching, press **Registration** button to finish.

*Appendix 2- Replacement procedure of malfunction AC module



Note 3.

Exchanging the AC module:

If you need to exchange an AC module, follow the steps below.

① Enter *LGElectronics* (initial password) on the blank box in the figure and press the **EnerBox Group change** button to return the gateway to the initial condition.

Check that the PLC LED has turned red.

② Press **Back** button. Wait for a minute and check that PLC LED is now turned to green. Then, press **MAC Address List** and check if the additional AC modules have been listed.

※ If you can't see the additional AC modules, connect the gateway to another outlet near the distribution panel and search for the unlisted AC modules.

③ Press **Delete** button to delete the exchanging AC module MAC address.

④ Press **Registration** button to finish.

* Appendix 3. PLC (Powerline Communication) Issues

3-1 Power Line Communication Issues

- The micro inverter has a built-in power line communication module to support communication with the gateway. The gateway includes the same module to communicate with the microinverter. LG AC module monitoring system is designed to automatically achieve power line communication without additional configuration. However, the gateway and microinverter are commonly connected to the same power source in a home or building. As a result, other devices can affect the communication between the gateway and micro inverter, and vice versa. This interference can lead to communication issues.

3-1-1 Factors that Affect Power Line Communication

- Power strips or surge protectors in the same circuit.
- UPS (Uninterruptible Power Supply) or Battery backup units in the same circuit.
- Lamp dimming switches.
- Power line communication-based home networks or home automation devices.
- Sensor lamps
- Battery Chargers (Cell phone and laptop charger)
- AC Adapters
- Heavy rotating motors (fans, refrigerators, freezers, water pumps, etc.)
- Home Appliances including but not limited to washing machines and dryers, vacuums, hair dryers, electric drills, etc.
- Electricity powered insect repellants.
- Other electronic devices.
- Please designate a power outlet for the sole use of the gateway.

* Appendix 3. PLC (Powerline Communication) Issues

3-1-3 Problems Checking AC Module through the Smartphone App

- If AC modules registered to a gateway cannot be accessed through the smart phone app, there is a communication problem between the gateway and AC module.
- This could be a problem with the current outlet. Try to connect the gateway to a different outlet.
- Though the maximum communication distance range is 328 yds. (under optimal conditions), it is recommended to install the gateway within 109 yds. (100m) of the AC modules.
- It is strongly recommended to have a dedicated outlet between the gateway and AC module. Appliances and devices using the same outlet will disrupt communication.