



# INSTALLATION MANUAL

# AIR CONDITIONER

Please read this installation manual completely before installing the product.

Installation work must be performed in accordance with the national wiring standards by authorized personnel only. Please retain this installation manual for future reference after reading it thoroughly.

Modbus Gateway  
Original instruction



MFL62179518  
Rev.04\_052225

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## IMPORTANT SAFETY INSTRUCTIONS

### ***READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.***

Always comply with the following precautions to avoid dangerous situations and ensure peak performance of your product.

#### **⚠ WARNING**

It can result in serious injury or death when the directions are ignored.

#### **⚠ CAUTION**

It can result in minor injury or product damage when the directions are ignored.

#### **⚠ WARNING**

- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Installation work must be performed in accordance with the National Electric Code by qualified and authorized personnel only.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

#### **Installation**

- Be sure to request to the service center or installation specialty store when installing products.  
It will cause fire or electric shock or explosion or injury.

- Request to the service center or installation specialty store when reinstalling the installed product.  
It will cause fire or electric shock or explosion or injury.
- Do not disassemble, fix, and modify products randomly.  
It will cause fire or electric shock.
- Be sure to turn off power before installation. It will cause electric shock.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- Always perform grounding.
  - Otherwise, it may cause electrical shock.
- You need to use a safely insulated power supply which follows IEC61558-2-6 and NEC Class2.
  - If you do not follow, It may cause fire, electric shock, explosion or injury.
- Securely attach the electrical part cover to Module.
  - If the electric part cover of Module is not attached securely, it could result in a fire or electric shock due to dust, water, etc.

### **In-use**

- Do not place flammable stuffs close to the product. It will cause fire.
- Do not allow water to run into the product. It will cause electric shock or breakdown.
- Do not give the shock to the product. It will cause breakdown when giving the shock to the product.
- Request to the service center or installation specialty store when the product becomes wet.  
It will cause fire or electric shock.
- Do not give the shock using sharp and pointed objects. It will cause breakdown by damaging parts.
- Do not touch the board when the power is connected. It can cause a fire, electric shock, explosion, injury and problem to the product.

- Unplug the unit if strange sounds, smell, or smoke comes from it.
  - Otherwise, it may cause electrical shock or a fire.
- The appliance must only be supplied at safety extra low voltage corresponding to the marking on the appliance.
- This appliance is not intended to be accessible to the general public.

## CAUTION

### In-use

- Do not clean using the powerful detergent like solvent but use soft cloths. It will cause fire or product deformation.
- Do not press the screen using powerful pressure or select two buttons. It will cause product breakdown or malfunction.
- Do not touch or pull the lead wire with wet hands. It will cause product breakdown or electric shock.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.  
Children should be supervised to ensure that they do not play with the appliance.



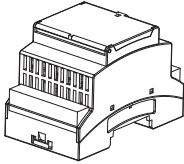
#### ENGLISH

#### Disposal of your old appliance

1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

# MODBUS GATEWAY SPECIFICATION

## Components

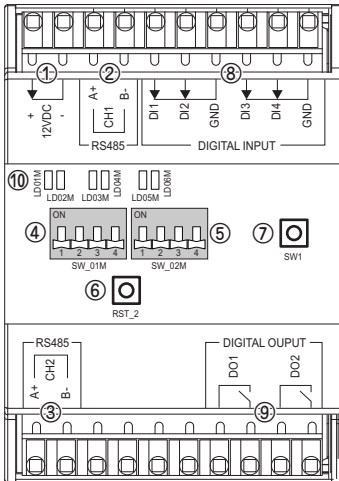


Modbus Gateway (1 EA)



Installation Manual (1 EA)

## Part Description



- ① Power : DC 12 V
- ② RS485 (CH1) : To 3rd Party Controller
- ③ RS485(CH2) : To Outdoor Unit
- ④ DIP Switch(SW\_01M) : Function Setting
- ⑤ DIP Switch(SW\_02M) : Modbus Address Setting
- ⑥ RST\_2 : Reset
- ⑦ SW1 : Not Used
- ⑧ DIGITAL INPUT (DI1 ~ DI4)
  - DI1~DI3 : Used for SG Ready Function.<sup>1)</sup>
  - DI4 : Used for EnWG function.<sup>1)</sup>
- ⑨ DIGITAL OUTPUT (DO1~DO2) : Not Used
- ⑩ Display (LED)
  - LD01M / LD02M : BMS & 3rd party Tx / Rx
  - LD03M / LD04M : Outdoor Unit Tx / Rx
  - LD05M : Searching For Indoor Unit
  - LD06M : Error

\* Note<sup>1)</sup> : Used only for the respective function according to the ④ SW\_01M settings.

### CAUTION

- This model requires external power supply (DC 12 V)  
(Select an insulating transformer that complies with IEC61558-2-6 and NEC Class 2.)
- Please check the product operation range below.

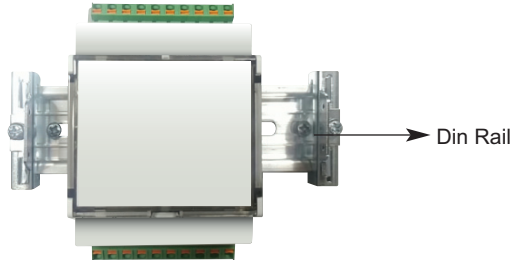
Power supply		DC 12 V
Product operation range	Ambient temperature	-20 ~ 65 °C
	Humidity	0 ~ 98 % (Non-condensing)

# MODBUS GATEWAY INSTALLATION

## Installation Method

When installing the Modbus Gateway, please fix and install using Din Rail  
 And then it should be setting modbus address. (Modbus Address Setting : SW\_02M)  
 Refer to 'Installation Scene' about modbus address and wiring.

(Example of Installation)







## Modbus Address Table (SW\_02M)

※ When factory shipped, Modbus address default is "1".

Modbus Address	SW_02M	DIP S/W No.				Modbus Address	SW_02M	DIP S/W No.			
		1	2	3	4			1	2	3	4
1		OFF	OFF	OFF	OFF	9		ON	OFF	OFF	OFF
2		OFF	OFF	OFF	ON	10		ON	OFF	OFF	ON
3		OFF	OFF	ON	OFF	11		ON	OFF	ON	OFF
4		OFF	OFF	ON	ON	12		ON	OFF	ON	ON
5		OFF	ON	OFF	OFF	13		ON	ON	OFF	OFF
6		OFF	ON	OFF	ON	14		ON	ON	OFF	ON
7		OFF	ON	ON	OFF	15		ON	ON	ON	OFF
8		OFF	ON	ON	ON	16		ON	ON	ON	ON

## Function Table (SW\_01M)

Function	SW_01M	DIP S/W No.			
		1	2	3	4
-		No effect	No effect	OFF	OFF
Reserved		No effect	No effect	OFF	ON
SG Ready <sup>1)</sup>		No effect	No effect	ON	OFF
EnWG <sup>2)</sup>		No effect	No effect	ON	ON

\* Note<sup>1)</sup> : Enables integration with smart grids, allowing the device to optimize energy consumption based on the availability of renewable energy and grid load conditions.

\* Note<sup>2)</sup> : Refers to compliance with §14a of the German Energy Industry Act (Energiewirtschaftsgesetz), which outlines the responsibilities of grid operators to ensure non-discriminatory access and secure energy supply, particularly for controllable energy-consuming devices.

## Installation Scene

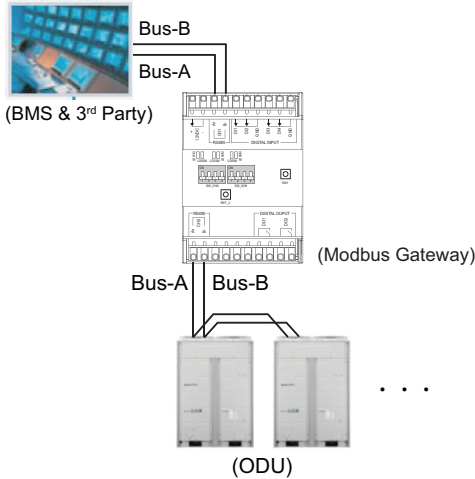
### Case 1. Single Module Installation Scene

Indoor unit can be connected up to 16 unit

#### CAUTION

- When connecting to an outdoor unit, it must be connected to the master unit of each outdoor unit.
- The communication line needs to match the A and B polarities. If it is incorrect, it will not work.
- First power on the indoor unit and the outdoor unit and then power on the Modbus Gateway after 3 minutes. Otherwise, it will not work properly.
- For Multi V outdoor units, the address of the indoor unit must be set from 00 to 3F, and for Single and Multi outdoor units, the address of the indoor unit must be set from 01 to 3F. Otherwise, the address can not be recognized by the Modbus Gateway.

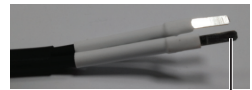
(Installation Example)



<Fig.1>

#### CAUTION

- For the wired Power wire, Communication wire and Signal wire, remove the coating at the end of the wire to connect and than use the pin type (JOBN153) to connect to the terminal block
- All field supplied parts and materials and electric works must be conform to local codes.
- Use copper wire only.
- All wiring must be performed by an authorized electrician.



Pin type (JOBN153)

### Case2. Series Module Installation Scene

The master module can connect up to three slave modules.

- The number of indoor units that can be connected depends on the number of modules.
- The Modbus address of each slave modules are fixed. (Reference in Fig 2. / Modbus Address Setting : SW\_02M)

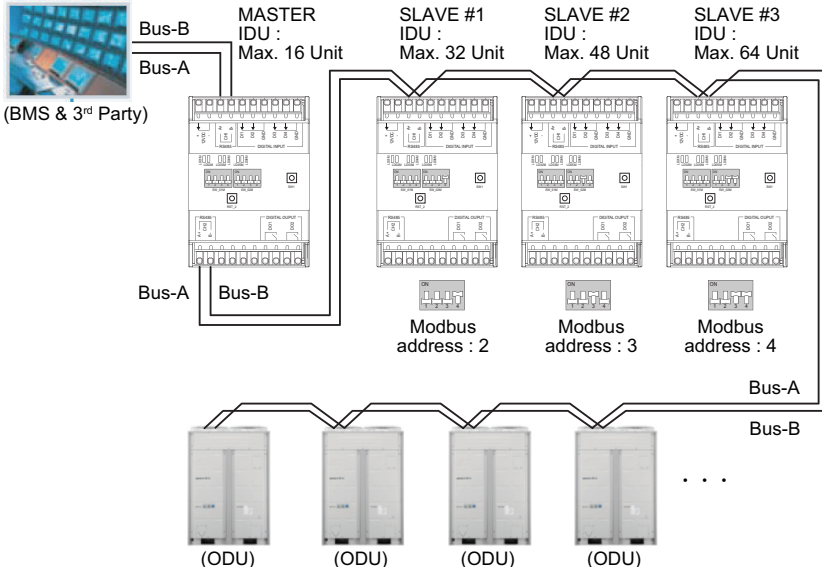
The number of Modbus Gateway	Indoor Unit
Master	Max. 16 Unit
Master + Slave(1 Module)	Max. 32 Unit
Master + Slave(2 Module)	Max. 48 Unit
Master + Slave(3 Module)	Max. 64 Unit

<Table 1>

### CAUTION

- The number of connectable indoor units must be matched as shown in Table 1. Otherwise it will not work.
- If one or more modules of the Modbus Gateway connected in the Series broken, the indoor unit is not controlled normally.
- Master module address setting and Slave module address setting do not affect each other.

(Installation Example)



<Fig.2>

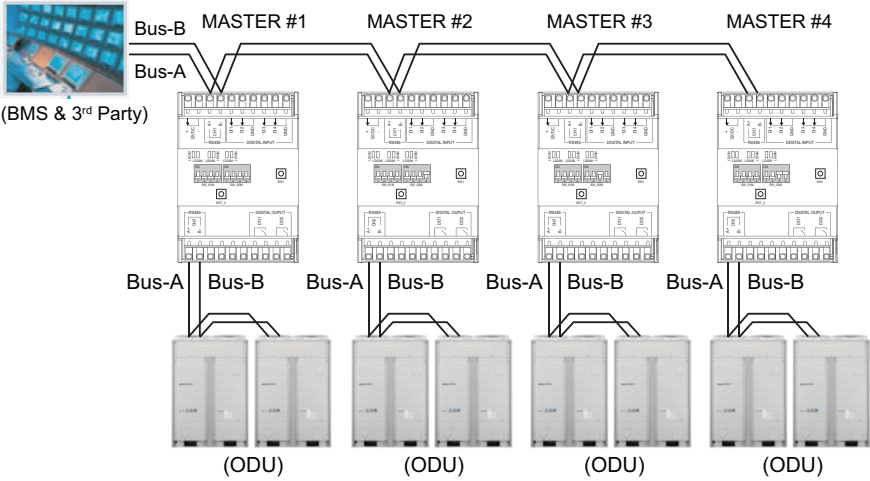
### Case3. Single module combination Installation Scene

1. The number of indoor units that can be connected to the system increases depending on the number of Master modules.
2. It can be connected up to 16 indoor unit per master module.
  - It can be connected up to 64 indoor unit through combination Installation
3. It should be set different address each master unit. (Modbus Address Setting : SW\_02M)

#### ! CAUTION

- If the address of each master module is the same, it will not work.
- If more than 16 indoor units are connected to each Master module, it will not operate normally.

(Installation Example)



<Fig.3>

# MODBUS GATEWAY MEMORY MAP

Baud Rate : 9 600 bps    Stop Bit : 1 stop bit    Parity : None Parity

Coil Register (0x01)

① No.	Data Bit			Function	Register
	Air Conditioner	Ventilator / DX Ventilator	HydroKit & AWHP		
1	Operate (On/Off)	Operate (On/Off)	Operate (On/Off)	0: Stop / 1: Run	Register = N X 16 + ① (N = Indoor Unit Central Address)
2	Auto Swing	Aircon Operate (On/Off)	Hot Water Mode (On/Off)	0: Disable / 1: Enable	
3	Filter Alarm <sup>2)</sup> Release	Filter Alarm Release <sup>1)</sup>	Reserved	0: Normal / 1: Alarm Release	
4	Lock Remote Controller	Lock Remote Controller	Lock Remote Controller	0: UnLock / 1: Lock	
5	Lock Operate Mode	Lock Operate Mode <sup>1)</sup>	Reserved	0: UnLock / 1: Lock	
6	Lock Fan Speed	Lock Fan Speed <sup>1)</sup>	Reserved	0: UnLock / 1: Lock	
7	Lock Target Temp.	Lock Target Temp. <sup>1)</sup>	Reserved	0: UnLock / 1: Lock	
8	Lock IDU Address	Lock IDU Address <sup>1)</sup>	Reserved	0: UnLock / 1: Lock	
9	Reserved	Quick Ventilate	Reserved	0: Disable / 1: Enable	
10	Reserved	EnergySave	Reserved	0: Disable / 1: Enable	

\* Note <sup>1)</sup> : This register value is applied 'DX Ventilator' ONLY.

\* Note <sup>2)</sup> : This register value is applied 'Multi V outdoor unit' ONLY.

Discrete Register (0x02)

① No.	Data Bit			Function	Register
	Air Conditioner	Ventilator / DX Ventilator	HydroKit & AWHP		
10001	Connected IDU	Connected IDU	Connected IDU	0: Disconnected / 1: Connected	Register = N X 16 + ① (N = Indoor Unit Central Address)
10002	Alarm	Alarm	Alarm	0: Normal / 1: Alarm	
10003	Filter Alarm <sup>3)</sup>	Filter Alarm <sup>1)</sup>	Hot Water Only <sup>2)</sup>	0: Normal / 1: Alarm Hydrokit – 0: Normal / 1: Hot Water Only	
10004	Reserved	Reserved	Target Temp Select	0: Air / 1: Water	
10005	Reserved	Reserved	Error Division <sup>2)</sup>	0: CH type error / 1: BC type error	

\* Note <sup>1)</sup> : This register value is applied 'DX Ventilator' ONLY.

\* Note <sup>2)</sup> : This register value is applied 'Hydrokit' ONLY.

\* Note <sup>3)</sup> : This register value is applied 'Multi V outdoor unit' ONLY.

## Holding Register (0x03)

① No.	Data Bit			Function	Register
	Air Conditioner	Ventilator / DX Ventilator	HydroKit & AWHP		
40001	Operate Mode	Operate Mode	Operate Mode	0: Cooling, 1: Dehumidifying, 2: Fan, 3: Auto, 4: Heating Hydrokit (Middle Temp. DHW)/AWHP – 0: Cooling, 3: Auto, 4: Heating Hydrokit(High Temp. DHW) – 3: Auto, 4: Heating	Register = N X 20 + ① (N = Indoor Unit Central Address)
40002	Fan Speed	Fan Speed	Target Temp. DHW <sup>2)</sup>	1 : Low, 2 : Mid, 3 : High, 4 : Auto	
40003	Target Temp.	Target Temp. <sup>1)</sup>	Target Temp. <sup>2)</sup>	16.0 ~ 30.0 [°C] X 10	
40004	Target Temp. Limit (Upper)	Target Temp. Limit <sup>1)</sup> (Upper)	Reserved	16.0 ~ 30.0 [°C] X 10	
40005	Target Temp. Limit (Lower)	Target Temp. Limit <sup>1)</sup> (Lower)	Reserved	16.0 ~ 30.0 [°C] X 10	
40006	Reserved	Vent. Operate Mode	Reserved	0 : HEX, 1 : Auto, 2 : Normal	

\* Note<sup>1)</sup> : This register value is applied 'DX Ventilator' ONLY.

\* Note<sup>2)</sup> : This value range can be between 0 ~ 127[°C]. And it would be limited by upper & lower value according to the setting of remote controller.

## Input Register (0x04)

① No.	Data Bit			Function	Register
	Air Conditioner	Ventilator / DX Ventilator	HydroKit & AWHP		
30001	Error Code	Error Code	Error Code	0 ~ 255 * Please refer to the product error table.	Register = N X 20 + ① (N = Indoor Unit Central Address)
30002	Room Temp.	RA Temp.	Room Temp.	-99.0 ~ 99.0 [°C] X 10	
30003	Pipe In Temp.	OA Temp. <sup>1)</sup>	Water Inlet Temp.	-99.0 ~ 99.0 [°C] X 10	
30004	Pipe Out Temp.	SA Temp. <sup>1)</sup>	Water Outlet Temp.	-99.0 ~ 99.0 [°C] X 10	
30005	Reserved	Pipe In Temp. <sup>1)</sup>	Sanitary Tank Temp.	-99.0 ~ 99.0 [°C] X 10	
30006	Reserved	Pipe Out Temp. <sup>1)</sup>	Solar Temp. <sup>2)</sup>	-99.0 ~ 99.0 [°C] X 10	

\* Note<sup>1)</sup> : This register value is applied 'DX Ventilator' ONLY.

\* Note<sup>2)</sup> : This register value is applied 'AWHP' ONLY.

For Multi V outdoor units, set the Indoor Unit Central Address starting from 0. For Single and Multi outdoor units, start from 1.

## §14a EnWG

Set the 3rd and 4th switches of SW\_01M to ON and ON.

\* To support §14a EnWG, use either the Digital Input or the Memory Modbus Map.

Modbus Memory Map to support §14a EnWG

Coil Register (0x01)

No.	Data Bit	Function	Register
3001	Activate Power Limitation <sup>1)</sup>	0: Not Used / 1: Limit Power acc. Reg.43001 to all ODU * EnWG Power Limitation Signal	

\* Note <sup>1)</sup> : The register value should be set periodically.

Holding Register (0x03)

No.	Data Bit	Function	Register
43001	Power Limitation Value <sup>1)</sup>	1 ~ 250 [0.1 ~ 25.0 kW] to all ODU * EnWG Power Limitation Value	

\* Note <sup>1)</sup> : The register value should be set periodically.

Discrete Register (0x02) ODU

① No.	Data Bit	Function	Register
11604	Activate Power Limitation	0: ON / 1: OFF - EnWG ON/ OFF - reflect the ODU's response	Register = $M \times 16 + \text{①}$ (M = Outdoor Unit Central Address <sup>1)</sup> )

\* Note <sup>1)</sup> : Outdoor Unit Central Address can be assigned starting from 1.

Input Register (0x04) ODU

① No.	Data Bit	Function	Register
32011	Power Limitation Value	EnWG Power Limitation Value - reflect the ODU's response	Register = $M \times 20 + \text{①}$ (M = Outdoor Unit Central Address <sup>1)</sup> )

\* Note <sup>1)</sup> : Outdoor Unit Central Address can be assigned starting from 1.

Digital Input to support §14a EnWG

Input Signal	Setting	Operation
DI4	Description	
Short	EnWG Power Limitation ON	Power Limitation Control for All Connected ODUs
Open	EnWG Power Limitation OFF	Turn OFF Power Limitation Control for All Connected ODUs

# Support for SG Ready 1.0

Set the 3rd and 4th switches of SW\_01M to ON and OFF.

## Digital Inputs to Support SG Ready 1.0

Status	Input Signal			Setting			
	DI1	DI2	DI3	Command	Operation	Cooling	Heating
ES1 / SG1	Short	Open	Open	Operation Off Lock Remote Controller <sup>1)</sup> (Max 2 hours.)	OFF, Lock Remote Controller	no change	no change
ES2 / SG2	Open	Open	Open	Normal Operation	no change	no change	no change
ES3 / SG3	Open	Short	Open	On Recommend	no change	-1°C	+1°C
ES4 / SG4	Short	Short	Open	On Command	ON	-1°C	+1°C
ES5	Open	Short	Short	++ Energy Consumption	ON	-2°C	+2°C
ES6	Open	Open	Short	+ Energy consumption	no change	-1°C	+1°C
ES7	Short	Open	Short	Energy Saving Mode	no change	+1°C	-1°C
ES8	Short	Short	Short	Super Energy Saving Mode	no change	+2°C	-2°C

\* Note <sup>1)</sup>: According to SG Ready 1.0, this operating mode comprises a maximum of 2 hours of 'hard' blocking time.

## Disposal of your old appliance(as per e-waste Rules)



1. When this crossed out wheeled bin symbol is depicted on the product and its operator's manual, it means the product is covered by the e-waste Management and Handling Rules, 2011 and are meant to be recycled, dismantled, refurbished or disposed off.

### 2. Dos

- a. The product is required to be handed over only to the authorized recycle for disposal.
- b. Keep the product in isolated area, after it becomes non-functional/un-repairable so as to prevent its accidental breakage.

### Don't

- a. The product should not be opened by the user himself/herself, but only by authorized service personnel.
- b. The product is not meant for re-sale to any unauthorized agencies/scrap dealer/kabariwalah.
- c. The product is not meant for mixing into household waste stream.
- d. Do not keep any replaced spare part(s) from the product in exposed area.

3. Any disposal through unauthorized agencies/person will attract action under Environment (Protection) Act 1986 .
4. This product is complied with the requirement of Hazardous Substances as specified under Rule 13 (1) & (2) of the E-Waste (Management & Handling) Rules, 2011.
5. To locate a nearest collection centre or call for pick-up (limited area only) for disposal of this appliance, please contact Toll Free No. **1800-180-9999** for details. All collection centre and pick up facilities are done by third parties with **LG Electronics India Ltd.** Merely as a facilitator.  
For more detailed information , please visit : <http://www.lge.com/in>.

※ The above information applies only to India.

## अपने पुराने नपिटान के उपकरण ( ई-अपशषिट नयिम के अनुसार )



1. जब इस काटे गए पहिये वाले बनि का चनिह कसिी उपकरण और इसके ओपेरेटर की पुस्तिका के साथ संलग्न होता है तो इसका मतलब है कि इसे "ई-अपशषिट" (प्रबंधन और हथालन ) नयिम २०११ के अंतर्गत सम्मलिति कयिा गया है , और इसे नवीनीकरणकरन ,वघिटन और नपिटान के लिए बनाया गया है ।
2. करें
  - क . उपकरण को सर्रिफ अधकृित पुनः नवीनीकरणकर्ता को ही नपितारण करने हेतु हस्तांतरति करें ।
  - ख. जब उपकरण कार्यरत न हो इसे अलग क्षेत्र में रखें ताकि उपकरण से होने वाली दुर्घटनाओं से बचा जा सके ।  
न करें
  - क. इस उपकरण को स्वयं/खुद नहीं खोलना चाहिए ! उपकरण को केवल अधकृित अधिकारी के द्वारा ही खोला जाना चाहिए ।
  - ख. इस उपकरण को पुनः बकिरी के लिए कसिी भी कबाड़ीवाला / भंगार-वाला / अनाधकृित संस्था को न दें ।
  - ग. इस उपकरण को कसिी घरेलू अपशषिट सामान के साथ मलिकर न रखें ।
  - घ. उपकरण के बदले हुए या आंतरकि पुरजो को खुले क्षेत्र में न रखें ।
3. यदा कसिी अनाधकृित वभिाग या व्यक्ती के द्वारा नपिटारन कयिा जाता है तो यह पर्यावरण (सुरक्षा) धारा १९८६ के अंतर्गत आता है ।
4. यह उत्पाद खतरनाक पदार्थों के लिए बनाये गए नयिमांक १३ (१) और (२), ई-वेस्ट (प्रबन्धन और रखरखाव) नयिम २०११ के कानून का पालन करता है.
5. उपरोक्त पदार्थो के नपिटारन के लिए नजदीकी नपिटारन संस्थान (संकीरण क्षेत्र )में काल करें। अधकि जानकारी के लिए हमारे टोल फ्री नंबर **1800-180-9999** पर कॉल करें. सभी संग्रहण केंद्र व पकि-अप की सुवधिएं कसिी थर्ड-पार्टी जो "LG Electronics India Ltd." को अपनी सेवाएं प्रदान कर रही हों, से करवाएं ।  
ज्यादा जानकारी के लिए देखें वेब:साईट - <http://www.lge.com/in>

※ ऊपर दी गई जानकारी केवल भारत पर लागू होती है।



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