

LG Electronics Technical Service Manual

LED DOWNLIGHT(8W)

MODEL : D4A0081EDF1.C0AAWAA
D4A0083EDF1.C0AAWAA
D4A0085EDF1.C0AAWAA
D4A0081EDF2.C0AAWAA
D4A0083EDF2.C0AAWAA
D4A0085EDF2.C0AAWAA

Caution: Please carefully read the safety precautions within this manual
before operating the product



Revisions

- Established date : 2013. 07. 19
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- Revision No. : 00

Revision No.	Scope	Details of revision	Revised date	Prepared by	Checked by Document Management department
01	All	New	2013.07.19	Hyojin Kim, Research Engineer	

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Safety Precautions

The meaning of the symbol expressed in this product and manual is as follows.

- The purpose of this symbol is to gain the attention of the user on items or operations that can cause dangerous situations. To avoid dangerous situations, please read and follow the directions with the symbol carefully.
- The purpose of this symbol is to show possible electric shock in specific conditions.

⚠ WARNING Can result in major injury or casualty (death) when the directions are violated.

⚠ CAUTION Can result in minor injury or product damage when directions are violated.

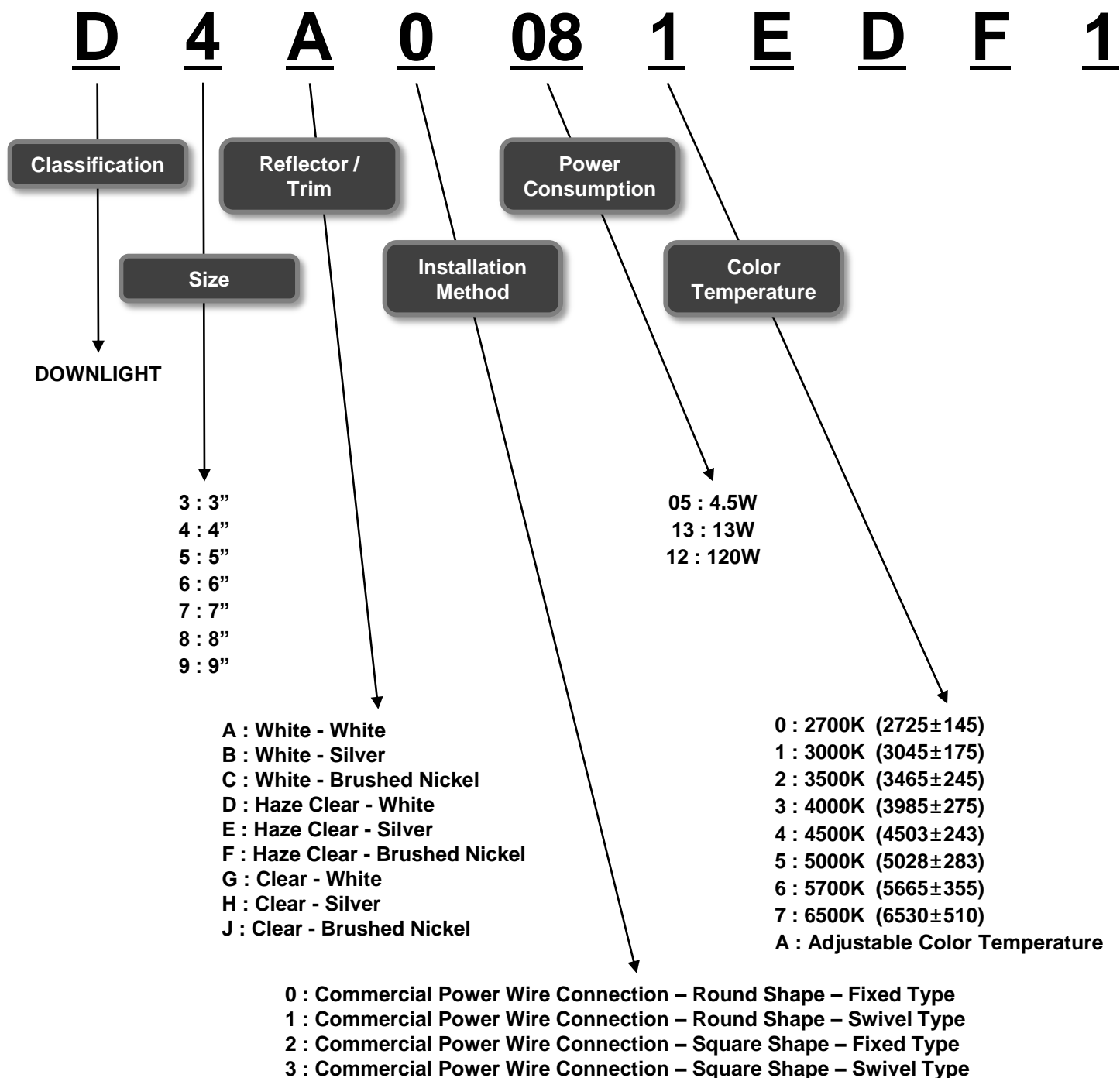
⚠ WARNING

- **Do not twist or damage the power cable.**
It can cause fire and electric shock.
- **When repairing or installing the product, always make sure to turn off the power.**
It can cause fire and electric shock.
- **Do not connect the polarity of the power arbitrarily.**
It can damage the product or cause a safety accident.
- **Firmly fixate the product on the ceiling.**
It can cause the product to fall down and cause an injury.
- **Be careful not to drop or apply impact on the product.**
It can cause product failure.
- **When the product is turned on, do not directly stare into the lamp.**
Strong light can cause visual disorder.
- **Do not let any alien particles penetrate into the product, and if alien particles do penetrate into the product, remove them.**
It can cause a safety accident such as electric shock and product damage.
- **Do not install the product where the ceiling is uneven.**
It can cause the product to fall down, resulting in product damage and injury.
- **If the lamp goes off abnormally after the product is installed, check the product according to the troubleshooting procedure.**
Disassembling the product arbitrarily can cause electric shock.
- **Have two people install or repair the product if possible.**
The product can fall over and cause an injury.

⚠ CAUTION

- **After installing or repairing the product, make sure that the product is installed correctly without any gap between the exterior surface and the ceiling. If there is a gap, rotate the product to check the gap.**
- **After installing the product, check if there are any alien particles on the surface of the product.**
- **Do not wipe the product with flammable substance such as alcohol, benzene and acetone that can degrade the surface of the product.**

Model name nomenclature (Front)



Model name nomenclature (Front)

D **4** **A** **0** **08** **1** **E** **D** **F** **1**

Beam Angle

Rated Voltage

LED PKG
Maker

Serial Number

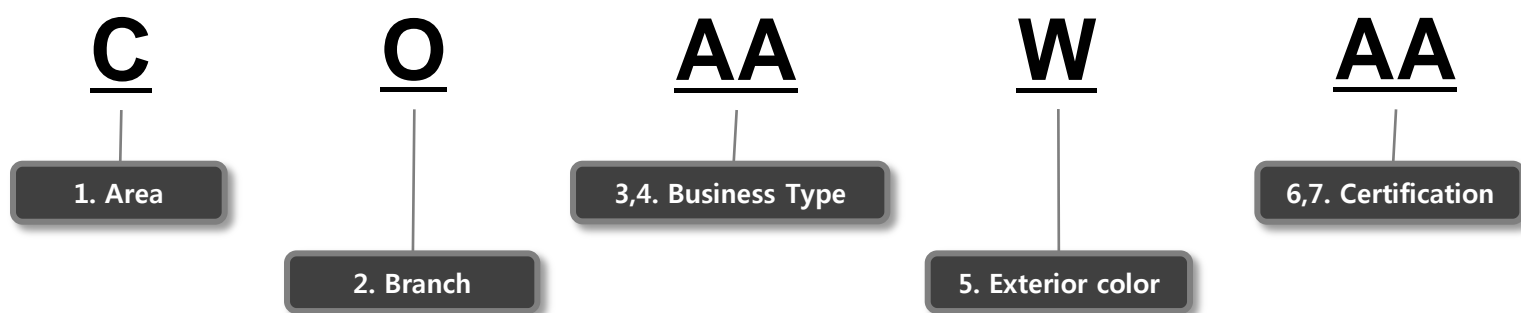
A : Cree
 B : LiteOn
 C : Citizen
 D : Innatek
 E : Lumileds
 F : ILJIN
 G : LG Chem
 U : UOT- ALEF
 H : Seoul Semi

0~9 : Applied according to
the sequential
development
history

Angle[°]	$20\frac{1}{2} \leq 20$	$20 < 20\frac{1}{2} \leq 40$	$40 < 20\frac{1}{2} \leq 60$	$60 < 20\frac{1}{2} \leq 80$
Model Code	A	B	C	D
Angle[°]	$80 < 20\frac{1}{2} \leq 100$	$100 < 20\frac{1}{2} \leq 120$	$120 < 20\frac{1}{2} \leq 140$	$140 < 20\frac{1}{2}$
Model Code	E	F	G	H

Voltage (VAC)	Hz	Model Code
100V	50/60Hz common	A
110V	50/60Hz common	B
120V	50/60Hz common	C
220V	50/60Hz common	D
230V	50/60Hz common	E
100 - 240V	50/60Hz common	F
220 - 240V	50/60Hz common	G
120 - 277V	50/60Hz common	H
277V	50/60Hz common	J

Model name nomenclature (Back)



CODE	Type	Language	Description
1	Area	English	Each area represents a letter written in English should
			A : Korea B : North America C : Europe D : Asia
2	Branch	English	Area (Branch) a letter written in English indicating the referred patients
			K : Korea Branch
3, 4	Business Type	number	00 : B2C / B2B / B2G 01 : B2C / B2B 02 : B2G 03 : B2C 04 : B2B
5	Exterior Color	English	Appearance (body parts) referred to the color of the English abbreviation If you duplicate the colors indicated with different alphabet letter.
			A : Brown B : Blue E : Beige L : Black P : Pink R : Red
6, 7	Certification	Number	01 : High Efficiency (Only Korea) 02 : KS (Only Korea) 03 : KC (Only Korea) 04 : High Efficiency / KS (Only Korea)

Product specification

● General specification

This specification applies to all LED flat light models.

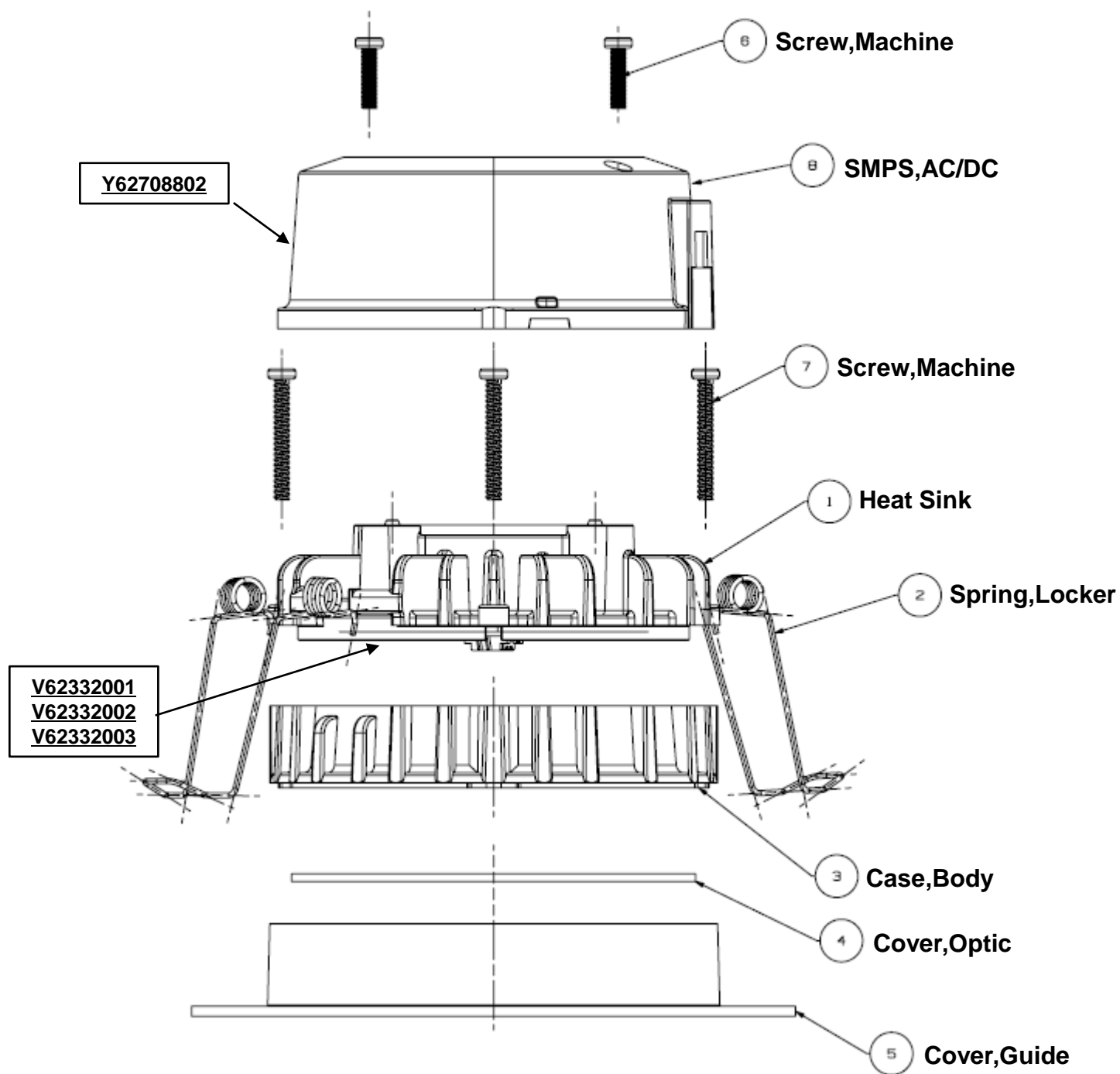
1. Electric specification (4" 8W)

Item	Test Conditions	Min.	Typ.	Max.	Criteria
Input voltage (V, rms)	AC	100	230	240	Rated voltage $\pm 10\%$ (230V)
Input current (A, rms)	AC	0.027	0.034	0.096	
Input power (W, rms)	AC (All)	7.2	8	8.64	Criteria : 8W + 8%, -10%
Input frequency (Hz)	AC	47	50	53	Rated Frequency ± 3 Hz
Power factor	AC	0.85			Rated Voltage : AC 230V, 50Hz
Output voltage (V, rms)	DC	28.00	29.50	30.68	By LED PKG characteristics change (bin mixing $\pm 4\%$)
Output current (A, rms)	DC	0.191	0.205	0.219	Converter output Tolerance $\pm 7\%$
Output power (W, rms)	DC	5.34	6.04	6.71	
Efficiency (%)	AC (All)	75			

2. Product specification

Classification	4 inch			Unit
Watts	8			W
Light Output	520	540	560	lm
Lumens per Watt	65	67	70	lm/W
Light Color	3000	4000	5000	K
Color Accuracy (CRI)	> 80			
Beam Angle	100			°(angle)
Size	Φ120 × 88(H)			mm
Product Weight	358			g
Input Voltage	AC 230 (AC 100 – 240)			V
Input Frequency	50			Hz
Method of Power Input	Single Phase Three Wiring System			
Dimming	0 - 10V			
Operating Temperature	-20 ~ 50			°C
Power Factor (PF)	> 0.85			

Exploded view



Service Part List

No.	Name	Applicable model	Part No.
1	LED Assembly	D4A0081EDF1.C0AAWAA	EAV62332001
		D4A0083EDF1.C0AAWAA	EAV62332002
		D4A0085EDF1.C0AAWAA	EAV62332003
		D4A0081EDF2.C0AAWAA	EAV62332001
		D4A0083EDF2.C0AAWAA	EAV62332002
		D4A0085EDF2.C0AAWAA	EAV62332003
2	SMPS, AC/DC	D4A0081EDF1.C0AAWAA	EAY62708802
		D4A0083EDF1.C0AAWAA	
		D4A0085EDF1.C0AAWAA	
		D4A0081EDF2.C0AAWAA	
		D4A0083EDF2.C0AAWAA	
		D4A0085EDF2.C0AAWAA	

Installation environment

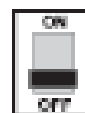
[●:can be installed, ▲: contact manufacturer, X: can not be installed]

Classification		8W
Installation environment	Temperate range (°C)	-20 ~ 50 °C
	Humidity range (%)	95% RH <
	Indoor installation (Fixed facing downward)	●
	Working plant	●
	Indoor gymnasium	●
	Warehouse building	●
	High rise building (Indoor)	●
	Large building (Indoor)	●
	Open square, playground	-
	Park	-
	Large billboard	-
	Large wall	-
	Bridge	-
	Hot and humid environment	▲
	Location where gas is used	X
	Location with vibration	▲
	Location with metallic dust	▲
	Area difficult for A/S	▲
	Wireless LAN	●

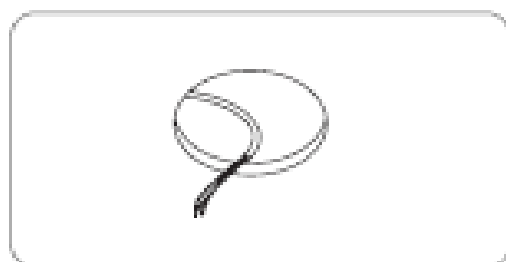
Installation method

Installation

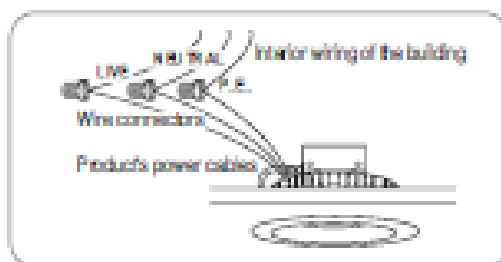
- ⚠** Make sure to turn off the main power switch off the installation space before connection.
Connect so that the colors of the 3 power cables match.
(LIVE: BROWN, NEUTRAL: BLUE, P.E.: GREEN/YELLOW)



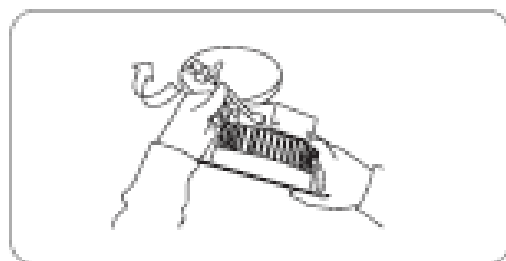
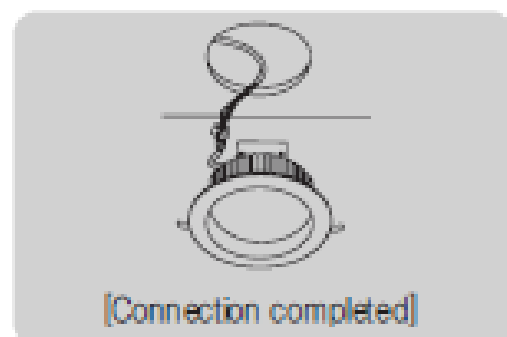
POWER



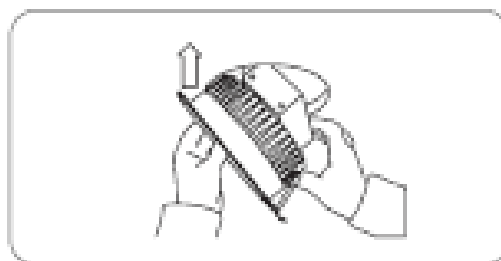
- 1** Drill and prepare the ceiling so that it can accommodate the product.
* Refer to page 3 for product size.



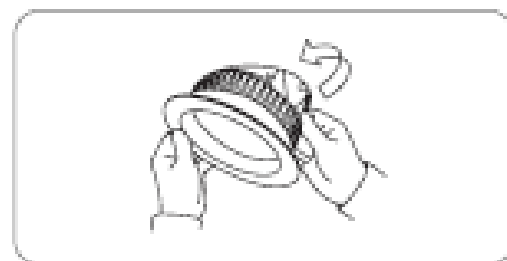
- 2** Connect the 3 product cables to the interior wiring of the building. For wire connectors, use standardized products.
* The 4 inch product is used for Single-phase two-wire system. (Without P.E.)



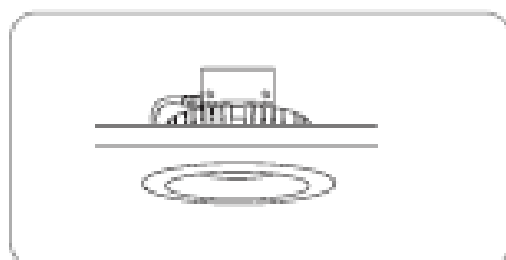
- 3** Tuck up a spring of the product and then hang it on the ceiling.



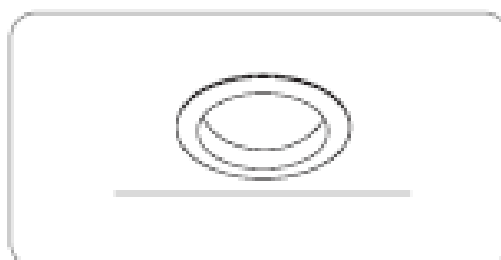
- 4** Insert the power cable in such a way that the power cable does not get tangled between the ceiling surface and the product.



- 5** Sufficiently lift the product so that the spring can be inserted on the other side.



- 6** Check to see if the product's exterior surface is installed on the ceiling so that there is no gap between them.



- 7** Turn the power switch on to verify that the product is working properly.

- * During the use of connector socket, if the power leads forced in, it may not be lighted due to defect contact.



-Connector Socket-

- * When this luminaire is connected to branch circuit, installation engineer must use the connector that meets the glow-wire test of 650°C (in case of France, 850°C) or higher.

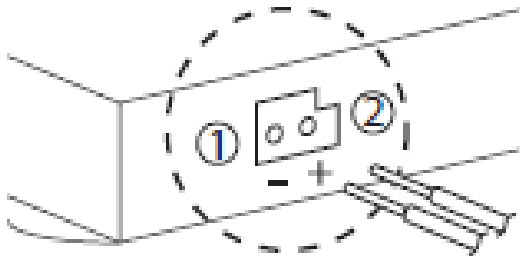
Dimming Cable Connection

Dimming Terminal Connection

⚠ To dim the lamps, a compatible dimmer should be used.

The use of incompatible dimmers will result in damage to the products.

Before installing dimmers, verify the compatible dimmer list with your local LGE sales representative.



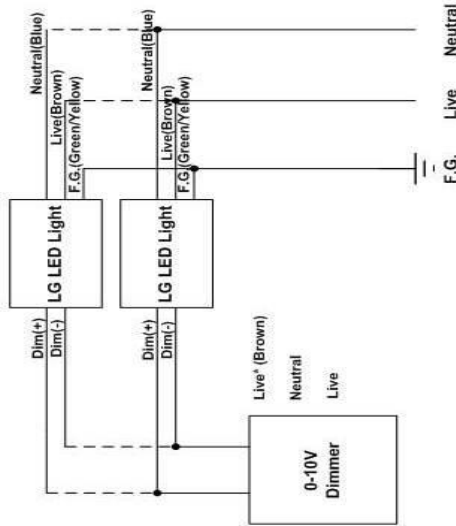
Pin No.	Output Name
1	GND
2	0-10V

- * Wire dimming function is included, 0-10V
- * Please use wire with designated thickness, (24-20AWG)
- * Be careful of the polarity for correct dimming control.
- * Maximum number of products to be connected to 1 dimming controller: 14
(Compatible dimmer: 5743 09(Legrand))

Dimming Wiring Diagram and Capability

LG LED product Wiring Diagram for Dimming Capability

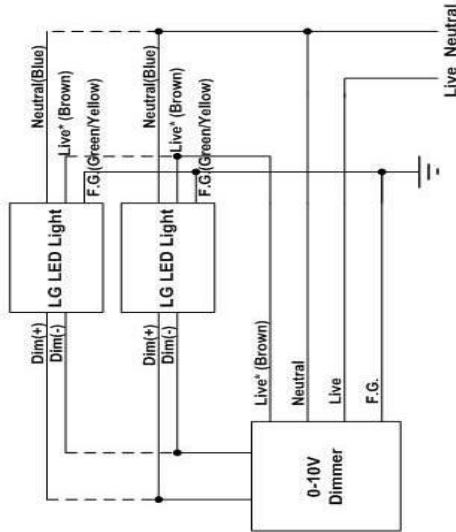
Wiring Diagram 1
Dimming Only Wiring



$I_{LED, Source}$: Max. LED Light Source Current
 $I_{Dimmer, Sink}$: Max. Dimmer Sink Current
 N : Max. # LED lights

$$N * I_{LED, Source} \leq I_{Dimmer, Sink}$$

Wiring Diagram 2
Dimming With ON/OFF Control



$I_{LED, Source}$: Max. LED Light Source Current
 $I_{Dimmer, Sink}$: Max. Dimmer Sink Current
 $N1$: Max. # LED lights(1)

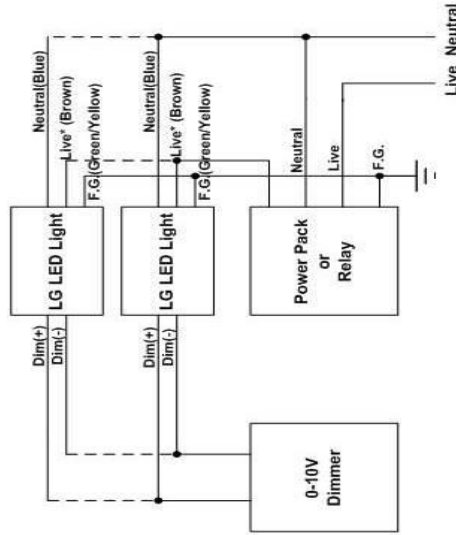
$$N1 * I_{LED, Source} \leq I_{Dimmer, Sink}$$

P_{LED} : LED Light Power
 $P.F._{LED}$: LED Light Power Factor
 VA_{Dimmer} : Dimmer Apparent Power
 $N2$: Max. # LED lights(2)

$$N2 * P_{LED} / P.F._{LED} \leq VA_{Dimmer}$$

N : Max. # LED lights
 $N = \text{Min.}(N1, N2)$

Wiring Diagram 3
Dimming With ON/OFF Control Via Relay



$I_{LED, Source}$: Max. LED Light Source Current
 $I_{Dimmer, Sink}$: Max. Dimmer Sink Current
 $N1$: Max. # LED lights(1)

$$N1 * I_{LED, Source} \leq I_{Dimmer, Sink}$$

P_{LED} : LED Light Power
 $P.F._{LED}$: LED Light Power Factor
 VA_{Relay} : Power Pack/Relay Apparent Power
 $N2$: Max. # LED lights(2)

$$N2 * P_{LED} / P.F._{LED} \leq VA_{Relay}$$

N : Max. # LED lights
 $N = \text{Min.}(N1, N2)$

Incorrect Application and Use

※ The following lists incorrect applications/uses.

Please be careful during installation and use in following cases as they can result in electric shock, injury or skin burn.

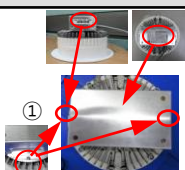
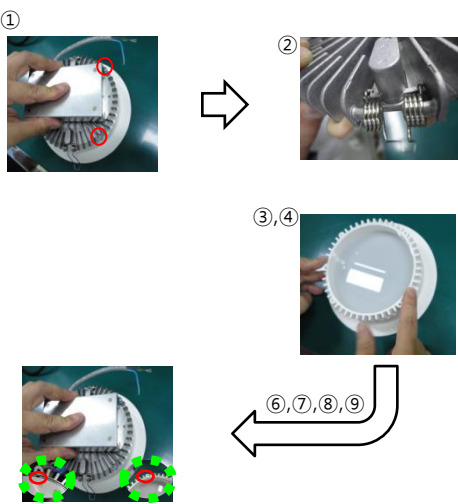
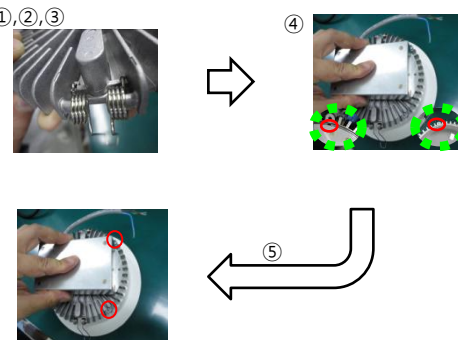
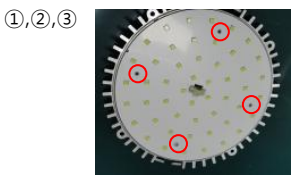
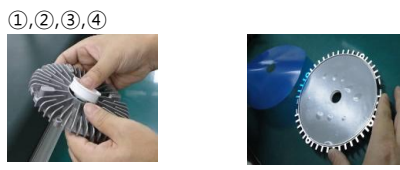
No.	Incorrect application and use	Expected risk
1	Using product after there was an impact to the product, for example, from dropping	Fire / Electric shock
2	Using the product after configuring below the rated current capacity	Fire / Electric shock
3	Using the product after disassembling or reconfiguring the product arbitrarily	Fire / Electric shock
4	Installing the product in an environment where water can penetrate into the product Using for underwater lighting purpose (Underwater view, search light, fishing, promotional event etc.)	Electric shock
5	Using the product without sufficiently drying or repairing the product after the product has been submersed in water	Fire / Electric shock
6	Using the product with excessive power voltage variance. ($\pm 10\%$ or more)	Fire / Electric shock
7	Using the product with only the power cable connected and without grounding the product properly	Electric shock
8	Using the product with excessively bent or damaged power cord	Fire / Electric shock
9	Do not insert pin, coin or metallic wire into the interior/exterior holes on the casing	Fire / Electric shock
10	Using the product while exposed to flammable material nearby	Fire / Electric shock
11	Disassembling the product while in use	Fire / Electric shock
12	Repairing and disassembling the product by unqualified technician	Fire / Electric shock
13	When cleaning, repairing or brushing the product without disconnecting the power	Electric shock
14	Using for purposes other than lighting. (Heating food, drying clothes, heating etc.)	Fire / Electric shock
15	Moving the product by holding parts other than the main unit. (Moving the product by holding the reflector etc.)	Injury
16	Moving the product carelessly without considering the weight	Injury
17	Using the product near the heating device	Fire / Explosion
18	Using the product in frequently flooding location	Electric shock
19	Using the product with the power cord arbitrarily cut	Fire / Electric shock
20	Installing and using the product in a humid or wet location	Fire / Electric shock
21	Using the product underwater	Electric shock

Troubleshooting

No.	Problem	Checkpoint	Resolution
1	Lighting does not work or flickers	① Check AC power cable	• Connect the power
		② Check DC power cable connection	• Connect the DC power cable
		③ Check after replacing LED assembly	• Replace LED assembly
		④ Check after replacing SMPS	• Replace SMPS
		⑤ If abnormal after checking above	• Replace product
2	Cannot adjust the brightness	① Check connector for dimming connection	• Replace connector for dimming connection
		② Check 0~10V interface cable	• Replace 0~10V interface cable
		③ Check after replacing SMPS	• Replace SMPS
		④ If abnormal after checking above	• Request to replace dimmer
3	Gap between product and ceiling after the installation	① Check if inner side of the ceiling where product is assembled is even	• Rotate product to move spring to location without gap
		② Check if the spring is missing from the heat sink	• After disassembling the product, reinstall the product after assembling the spring on the heat sink
		③ Check if the tension of the spring is sufficient	• Replace spring
		④ Check the deformation of cover and guide	• Replace cover and guide
		⑤ If abnormal after checking above	• Connect facility personnel or call center
4	Weld line or alien particle is visible on the surface of cover and guide after the installation	① Check the surface of the product (Scratch, flow mark etc.)	• Replace cover and guide
5	Hot spot is visible	① Check after replacing cover and optic	• Replace cover and optic
		② Check after replacing LED assembly	• Replace LED assembly
		③ If abnormal after checking above	• Replace product

※ SMPS is supplied by LG and is replaced on 1:1 product basis.

Part replacement method

Part	Picture	Direction
SMPS		<ol style="list-style-type: none"> ① Use electric or manual driver to loosen 2 M3*6 machine screws assembled on SMPS and heat sink. ② Replace the SMPS.
Case, Body Cover, Optic Cover, Guide		<ol style="list-style-type: none"> ① Use the electric driver to loosen the M3*30 tapping screw assembled on the heat sink and main unit (Case body, cover guide). (M3*30 4 screws) ② Disassemble the heat sink from the case body. ③ Disassemble the case body from the cover guide. ④ Disassemble the cover optic from the cover guide. ⑤ Remove the part to replace and replace it with a new part. ⑥ Place the cover optic on the cover guide. ⑦ Place the case body on the cover guide. ⑧ Align the case body groove to that of the heat sink and place the heat sink on top of the case body. ⑨ Use the electric or manual driver to tighten the M3*30 tapping screw to assemble the heat sink and main unit (Case body, cover guide). (M3*30 4 screws)
Spring		<ol style="list-style-type: none"> ① Use the electric driver to loosen the M3*30 tapping screw assembled on the heat sink and main unit (Case body, cover guide). (M3*30 3 screws) ② Disassemble the heat sink from the case body. ③ Separate the heat sink and the spring, and replace the spring. (2 springs) ④ Align the case body groove to that of the heat sink and place the heat sink on top of the case body. ⑤ Use the electric or manual driver to tighten the M3*30 tapping screw to assemble the heat sink and main unit (Case body, cover guide). (M3*30 4 screws)
LED Assembly		<ol style="list-style-type: none"> ① Use the electric driver to loosen the M3*30 tapping screw assembled on the heat sink and main unit (Case body, cover guide). (M3*30 4 screws) ② Disassemble the heat sink from the case body ③ Disassemble the LED PCB from the heat sink. (M2*4 4 locations) ④ Replace the LED PCB with a new one. If the insulator is damaged, replace it as well.
Base Assembly, Rear		<ol style="list-style-type: none"> ① Use the electric driver to loosen the M3*30 tapping screw assembled on the heat sink and main unit (Case body, cover guide). (M3*30 4 screws) ② Disassemble the heat sink from the case body. ③ Disassemble the LED PCB from the heat sink. (M2*4 4 locations) ④ Replace heat sink, bush or insulator with a new part.