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**LS Industrial Systems Co., Ltd.**

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Leading Innovation, Creating Tomorrow

LS LED LIGHTING - Lemmings



**LED LIGHTING**

LS Industrial Systems

**LS** Industrial Systems

**PLANET**  
THE POWER LINE ADVANCED NETWORK



## YOU CAN SEE, FEEL AND CONTROL THE LIGHT

LED lightning, brighter, longer and more environment-friendly than existing apparatuses,  
From now on, LED lighting will illuminate everywhere around us.

### New level of LED Lighting offered by LS - **Lemmings**

LS Industrial systems, No. 1 vendor in industrial electronics/electrics, now presents LED DIMMING technology designed by PLANET, its subsidiary with top LED technology in Korea.

**Lemmings** will transform the world more beautiful and convenient with its new design and PLC (Power Line Communication) technology.

LS Industrial systems will create a new world of LED Lighting with **Lemmings**.

( Lemmings is a lighting apparatus with beautiful design and remote controllability thanks to patented PLC technology of LS Industrial systems which has acquired diverse patents on it )

#### What is **Lemmings**?

Lemmings, a compound word of LED + DIMMING, is the LED Lighting Brand of LS which offers total solution of LED lighting and LED lighting control.



- Awarded the 'TOP Company of the Year' by the Korea CEO Association for two consecutive times
- Received the Korean Quality Grand Award of the Korean Standards Association
- Reliable after-sales service (unlimited service during the warranty period)

## Contents

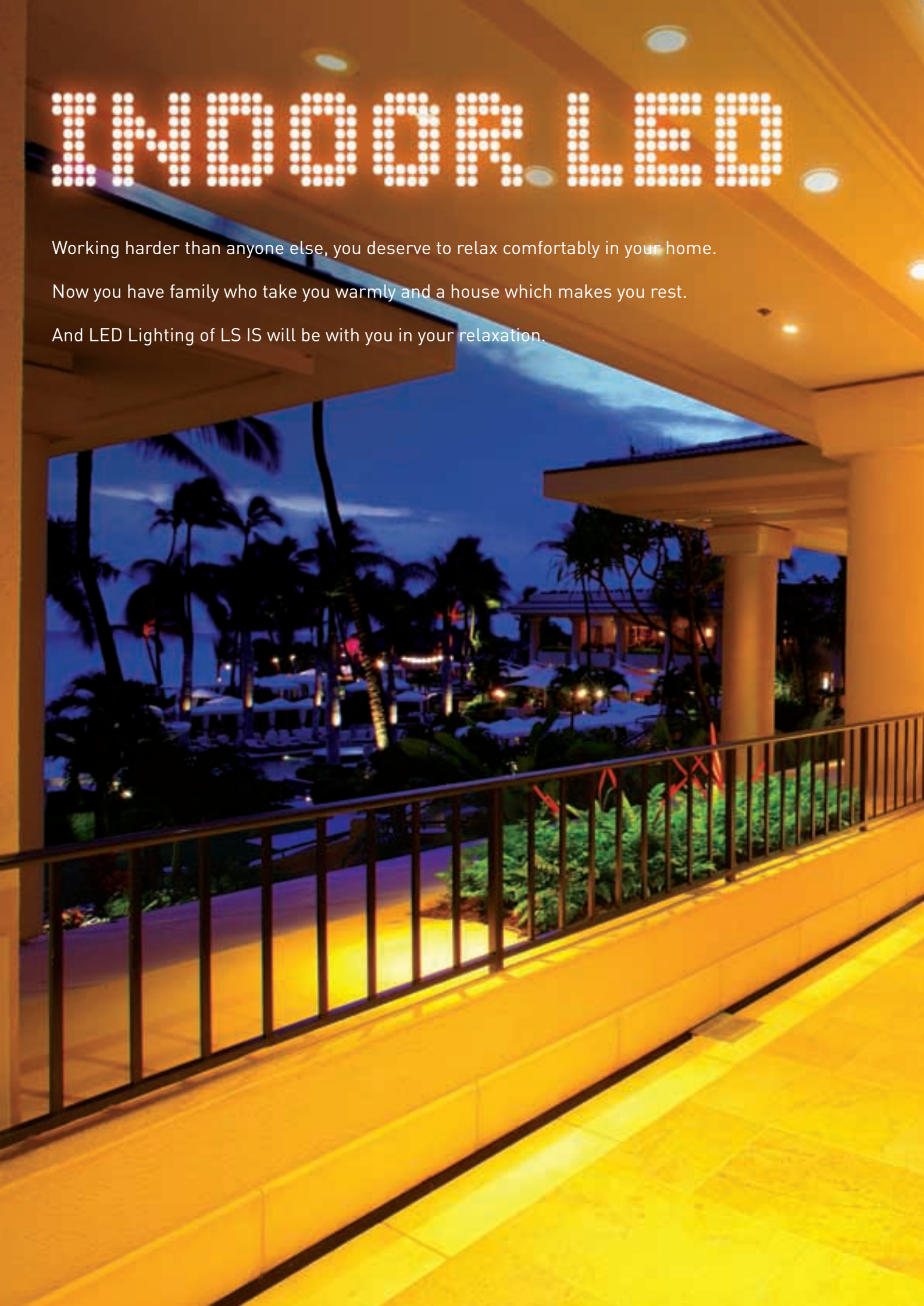
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# WELCOME LED

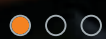
Working harder than anyone else, you deserve to relax comfortably in your home.

Now you have family who take you warmly and a house which makes you rest.

And LED Lighting of LS IS will be with you in your relaxation.







Working harder than anyone else, you deserve to relax comfortably in your home. Now you have family who take you warmly and a house which makes you rest. And LED Lighting of LS IS will be with you in your relaxation.

# INDOOR LED FEATURES

## Features of LS Indoor LED

### It has different design.

#### Exceptional design

- Luxurious and voluptuous design
- Aesthetical design thanks to Color Coordination
- Received Good Design Award 2009 in Japan
- Awarded iF Design Award 2010

#### Digital & Network Control

- Color temperature control and dimming control
- Network Control & Block/ Auto Dimming
- Integrated lighting control system based on PLC technology

#### Design of enhancing lighting efficiency and light distribution

- Excellent lighting efficiency and light distribution thanks to lens structure and cover design
- Excellent lighting efficiency

### LS IS has various patents related to LED products.

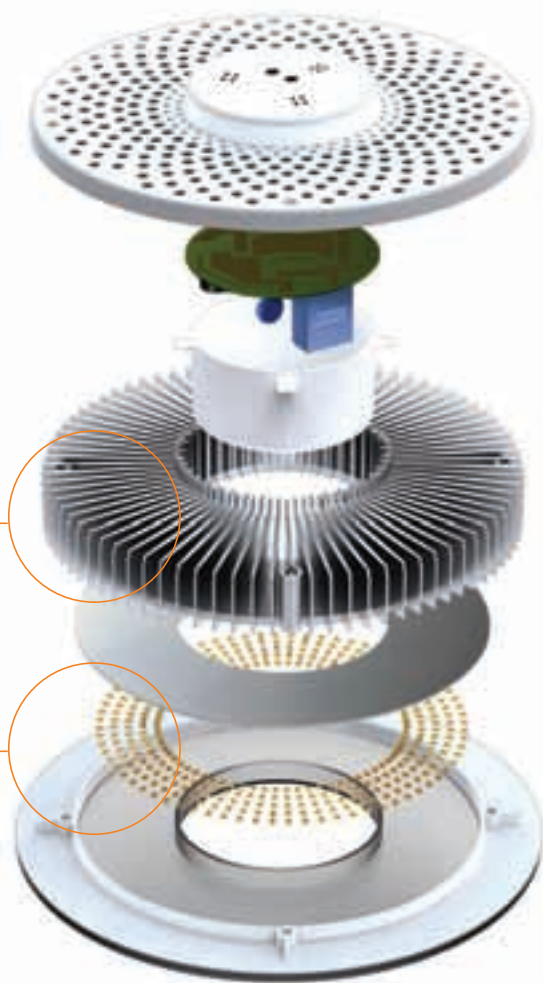


#### Patents related to heat sink

| Date of Application | Patent Number   | Name   |
|---------------------|-----------------|--|
| November 17, 2008   | 10-2008-0114113 | Heat sink structure of LED Lamp                  |
| November 17, 2008   | 10-2008-0114119 | Heat sink structure of LED Lamp                  |
| November 17, 2008   | 10-2008-0114149 | Heat sink structure of LED Lamp using convection |

#### Patents related to lighting

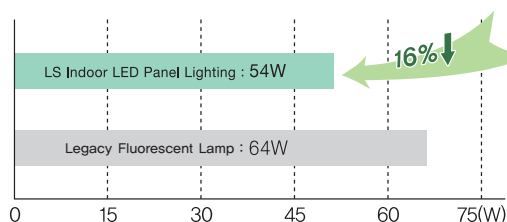
| Date of Application | Patent Number   | Name                      |
|---------------------|-----------------|---------------------------|
| November 17, 2008   | 10-2008-0114127 | Light Emitting Diode Lamp |
| November 17, 2008   | 10-2008-0114132 | Light Emitting Diode Lamp |
| November 17, 2008   | 10-2008-0114146 | Anti-glare lamp           |



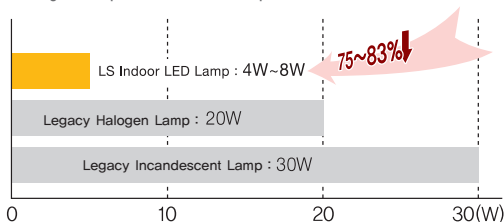
### Long lamp life and low power consumption.

LED Lamp is also very effective in energy-savings as its power consumption is about 80% less than existing lightings

Comparison of Power Consumption between Fluorescent Lamp (64W) and LED Panel Lighting (54W)



Comparison of Power Consumption between Incandescent Lamp (30W) / Halogen Lamp (20W) and LED Lamp (5W)





## LED Lamp has different image control functionalities.

- Excellent lighting efficiency / lighting distribution thanks to lens structure / cover design
- High lighting efficiency: 55 – 75 lm/w      • Anti-glare design

## You can easily replace existing lightings with LED Lamp.

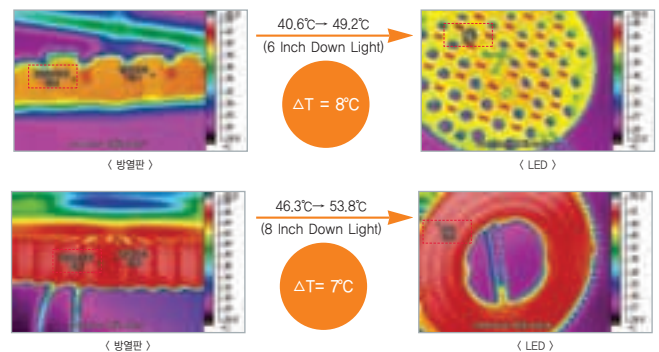
- Replace local lightings such as fluorescent lamps (32Wx2), incandescent lamps, CFL or Halogen lamps.
- Replace existing lamps while using existing E26/27 / GU5.3 bases

## LED Lamp has different heat sink design.

### Innovative heat sink structure / design

- Honeycomb heat sink structure  
: Improve heat dissipation up to 50%.
- Guaranteed long life thanks to excellent heat sink structure and high efficiency capacitor
  - Digital UI / Network Control such as Dimming, Color Temperature, Color
  - Patented Network Interface Technology such as PLT / AL-Bus

[ Optimized Radiation Design with less than 10°C of temperature difference between LED and heat sink ]



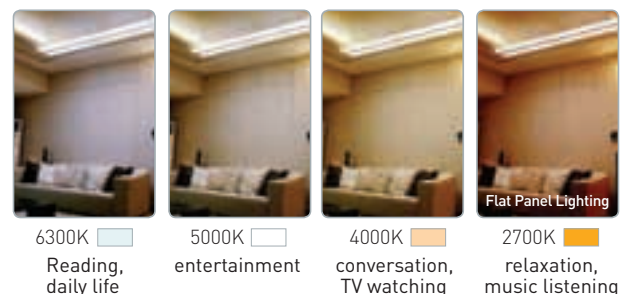
## You can adjust light intensity freely with dimming technology.

- Easy to adjust light intensity step-by-step by using diverse remote controls.
- Economic aspect : energy-savings
- Minimum intensity : 3%, 8%, 20%, 40%, 60%, 80%, 100%



## You can easily adjust color temperature.

You can control color temperature and light intensity according to your sensibility, environment and taste



## LED Lamp is environment-friendly, as it has no harmful material.

This is an environment-friendly with no toxic materials such as mercury or lead. As this product emits no electromagnetic waves or harmful UV ray for your health and environment, you can use it without worry.

# INDOOR LED LINE UP

## Type of Indoor LED display

MR16 / BULB / LAMP / DOWNLIGHT



3.5W / 4W / 6W



7.5W



5W / 8W / 15W



3inch / ~ 4.3W



6inch / 18W



8inch / 28W



12inch / ~ 80W





## FLAT PANEL



300×300mm / 600×600mm / 300×1,200mm / Module Type

## TUBE



600, 1,200mm / 15W, 21W, 26W



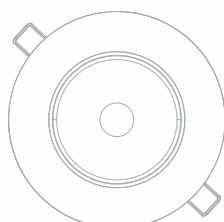
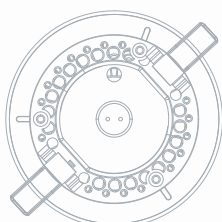
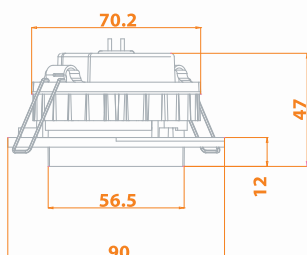
# INDOOR LED LED DOWNLIGHT

## DOWNLIGHT 3"

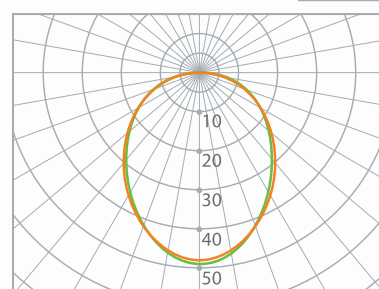
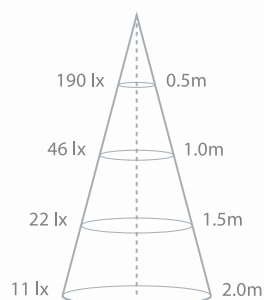
- Long lifetime(LED & Power/Control circuit),  
- Capacitor less(DC Type) & High efficiency capacitor(AC Type)
- Convection type heat radiation
- Various Color Design
- Recessed down Light(4~4.3W) - Replace conventional lamp 15W



Color Variation



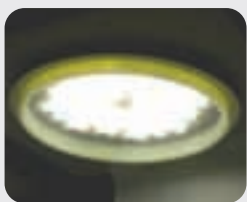
| Model                       | PD3DC                     | PD3AC                |
|-----------------------------|---------------------------|----------------------|
| Product Code                | LLDL03-A04DC              | LLDL03-A04AC         |
| Rated Voltage (V)           | DC 12V                    | AC 100~240V / 5~60Hz |
| Power Consumption (W)       | 4W                        | 4.3W                 |
| Dimension (mm)              | ø70×47mm                  | ø70×65mm             |
| Luminance Flux (lm)         | 220 lm                    | 237 lm               |
| Luminance efficiency (lm/W) | 55 lm/W                   |                      |
| View angle (°)              | 90°                       |                      |
| Color rendition             | 75 ↑                      |                      |
| Hole size (ø)               | ø70                       |                      |
| Color Temperature (K)       | 3,000K / 5,500K Available |                      |



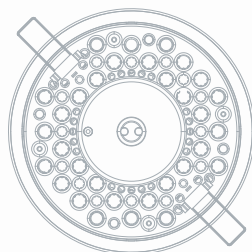
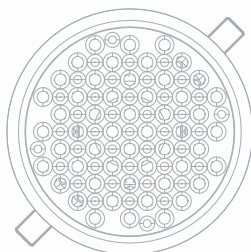
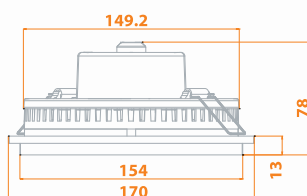
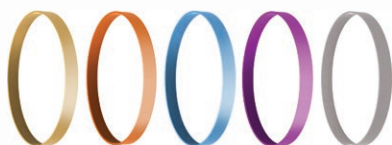


# DOWNLIGHT 6"

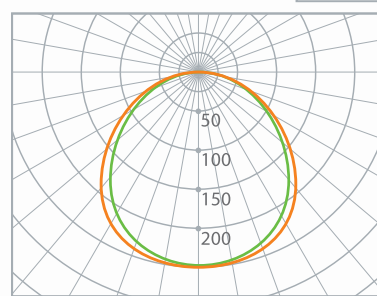
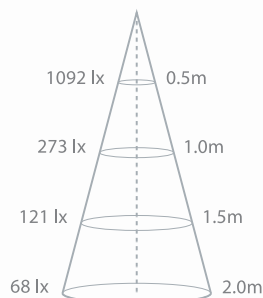
- Long lifetime(LED & Power/Control circuit) - No Use Capacitor
- Convection type heat radiation
- Slim type structure
- Prevent direct glare affecting the occupants
- Recessed down Light(18W) - Replace conventional lamp 26W



## Color Variation



|                             |                           |
|-----------------------------|---------------------------|
| Model                       | PD6AC                     |
| Product Code                | LLDL06-K18AC              |
| Rated Voltage (V)           | AC 220V / 60Hz            |
| Power Consumption (W)       | 18W                       |
| Dimension (mm)              | ø149.2×78mm               |
| Luminance Flux (lm)         | 1,080 lm (5,700K기준)       |
| Luminance efficiency (lm/W) | 60 lm/W                   |
| View angle (°)              | 90°                       |
| Color rendition             | 75 ↑                      |
| Hole size (ø)               | ø150                      |
| Color Temperature (K)       | 3,000K / 5,700K Available |



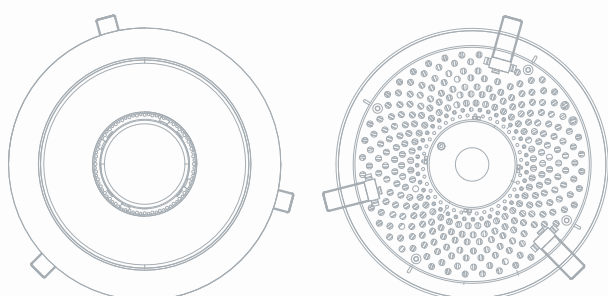
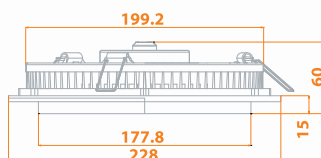
# INDOOR LED LED DOWNLIGHT

## DOWN LIGHT 8"

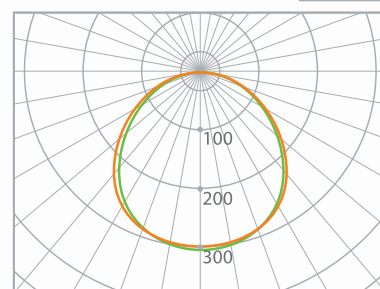
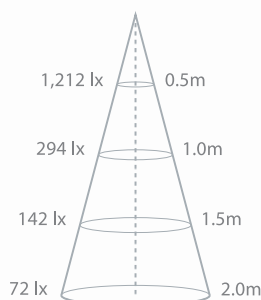
- Long lifetime(LED & Power/Control circuit) - No Use Capacitor
- Convection type heat radiation
- Ultra slim & smart design
- Recessed down Light(28W)
  - Replace 40-60W conventional lamp



### Color Variation



|                             |                           |
|-----------------------------|---------------------------|
| Model                       | PD8AC                     |
| Product Code                | LLDL08-K28AC              |
| Rated Voltage (V)           | AC 220V / 60Hz            |
| Power Consumption (W)       | 28W                       |
| Dimension (mm)              | ø199.2×60mm               |
| Luminance Flux (lm)         | 1,680 lm (at 5,700K)      |
| Luminance efficiency (lm/W) | 60 lm/W                   |
| View angle (°)              | 90°                       |
| Color rendition             | 75 ↑                      |
| Hole size (ø)               | ø200                      |
| Color Temperature (K)       | 3,000K / 5,700K Available |



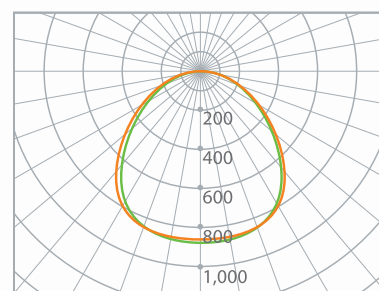
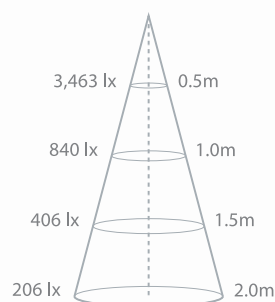
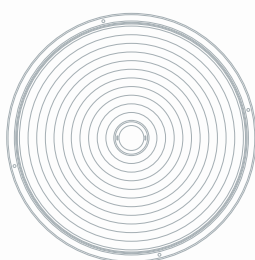
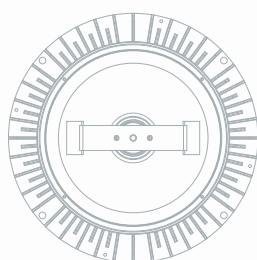
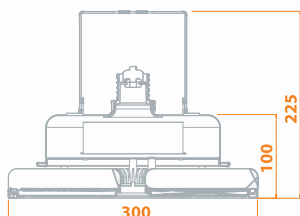


# DOWN LIGHT 12"

- Long lifetime(LED & Power/Control circuit) - No Use Capacitor
- Convection type heat radiation
- Ultra slim & smart design
- Recessed down Light(56/80W) - Replace 80~120W conventional light
- Use for industrial & Building



| Model                       | PHC12                     | PHC12                |
|-----------------------------|---------------------------|----------------------|
| Product Code                | LLDL12-K56AC              | LLDL12-K80AC         |
| Rated Voltage (V)           | AC 220V / 60Hz            | AC 220V / 60Hz       |
| Power Consumption (W)       | 56W                       | 80W                  |
| Dimension (mm)              | ø300×100mm                | ø300×100mm           |
| Luminance Flux (lm)         | 3,920 lm (at 5,700K)      | 5,600 lm (at 5,700K) |
| Luminance efficiency (lm/W) | 70 lm/W                   |                      |
| View angle (°)              | 90°                       |                      |
| Color rendition             | 75 ↑                      |                      |
| Hole size (ø)               | ø70                       |                      |
| Color Temperature (K)       | 3,000K / 5,700K Available |                      |



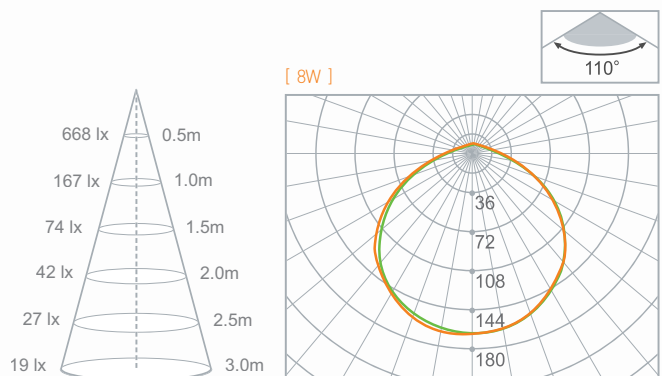
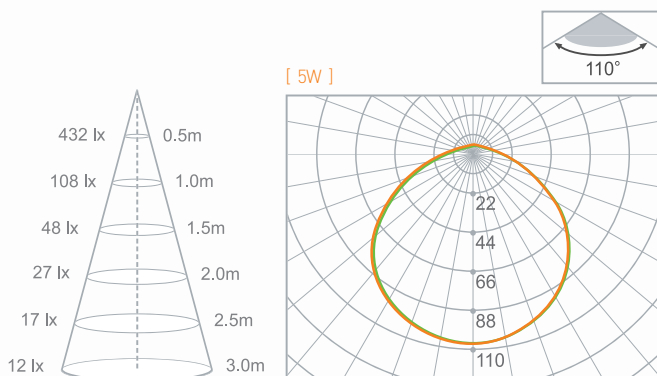
# INDOOR LED LED LAMP

## LAMP 5W/8W

- High Efficiency Certification(Korea)
- Convection type heat radiation
- iF Design Award 2009
- Replace Halogen / incandescent lamp
- RoHS Compliance



| Model                       | LNB70-05C301A  | LNB70-08C301A  |
|-----------------------------|----------------|----------------|
| Product Code                | LLP16-K05ACC   | LLP20-K08ACC   |
| Rated Voltage (V)           | AC 220V / 60Hz | AC 220V / 60Hz |
| Power Consumption (W)       | 5W             | 8W             |
| Dimension (mm)              | ø70×124mm      | ø70×134mm      |
| Luminance Flux (lm)         | 325 lm         | 520 lm         |
| Luminance efficiency (lm/W) | 65 lm/W        |                |
| View angle (°)              | 110°           |                |
| Color rendition             | 70~80          |                |
| Color Temperature( K)       | 5,000K         |                |



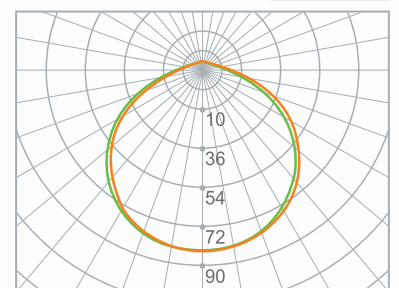
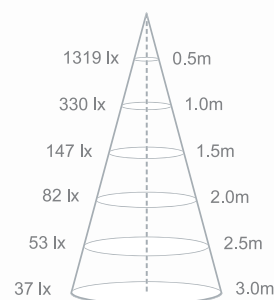
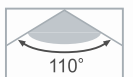


# LAMP 15W

- High Efficiency Certification(Korea)
- Convection type heat radiation
- iF Design Award 2009
- Replace Halogen / incandescent lamp
- RoHS Compliance



|                             |                |
|-----------------------------|----------------|
| Model                       | LNB96-15C301A  |
| Product Code                | LLP30-K15ACC   |
| Rated Voltage (V)           | AC 220V / 60Hz |
| Power Consumption (W)       | 15W            |
| Dimension (mm)              | ø96×149mm      |
| Luminance Flux (lm)         | 1,050 lm       |
| Luminance efficiency (lm/W) | 70 lm/W        |
| View angle (°)              | 110°           |
| Color rendition             | 70~80          |
| Color Temperature (K)       | 5,000K         |



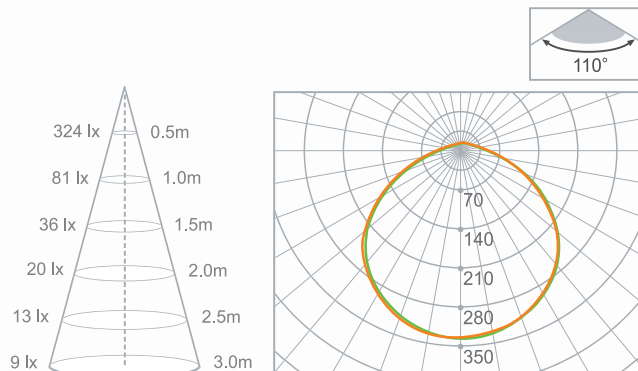
# INDOOR LED LED MR16

## MR16 3.5W

- High Efficiency Certification(Korea)
- iF Design Award 2009
- Slim & Modern Design
- Replace 20~50W Halogen / incandescent lamp
- RoHS Compliance



|                             |               |
|-----------------------------|---------------|
| Model                       | LTM16-03H301A |
| Product Code                | LLMR-A03DCC   |
| Rated Voltage (V)           | AC / DC12V    |
| Power Consumption (W)       | 3.5W          |
| Dimension (mm)              | ø50×48.5mm    |
| Luminance Flux (lm)         | 228 lm        |
| Luminance efficiency (lm/W) | 65 lm/W       |
| View angle (°)              | 110°          |
| Color rendition             | 70~80         |
| Color Temperature (K)       | 5,000K        |





# MR16 4W/6W

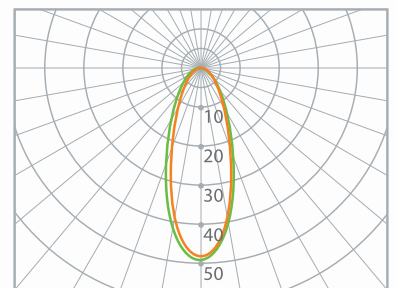
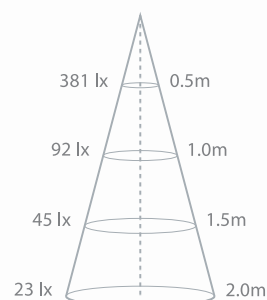
- High Efficiency Certification(Korea)
- Slim & Modern Design
- Replace 20~50W Halogen / incandescent lamp

[ Launching in August, '10 ]



| Model                       | PLMR4DC                   | PLMR6DC    |
|-----------------------------|---------------------------|------------|
| Product Code                | LLMR-K04DC                | LLMR-K06DC |
| Rated Voltage (V)           | AC / DC 12V               |            |
| Power Consumption (W)       | 4W                        | 6W         |
| Dimension (mm)              | ø46×38mm                  |            |
| Luminance Flux (lm)         | 200 lm                    | 330 lm     |
| Luminance efficiency (lm/W) | 50 lm/W                   | 55 lm/W    |
| View angle (°)              | 40°                       |            |
| Color rendition             | 70 ↑                      |            |
| Color Temperature (K)       | 3,000K / 5,700K Available |            |

Using dedicated LED converter is recommended



# INDOOR LED LED BULB

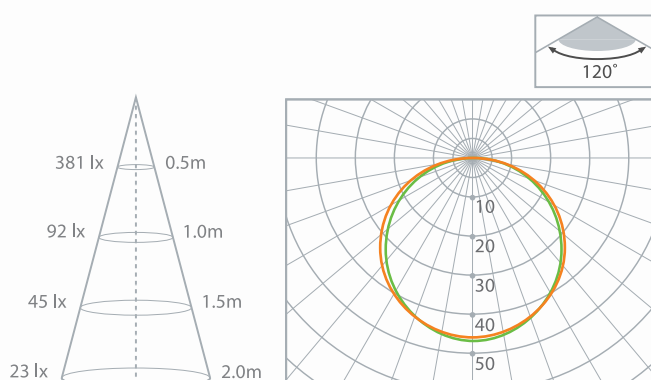
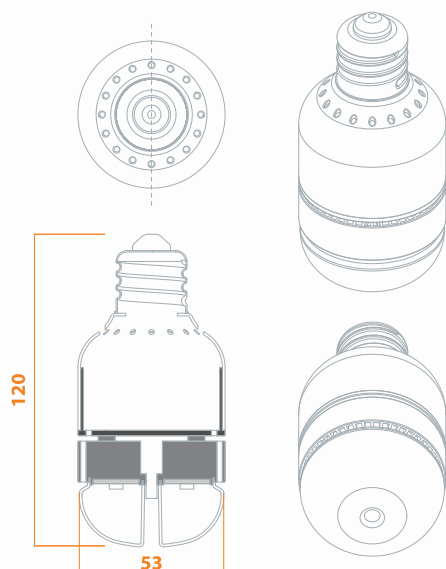
## BULB

- ANY-DIM function is built-in
- Convection type heat radiation
- Slim & Modern Design
- Replace 40~60W incandescent lamp

[ Launching in June, '10 ]



|                             |                            |
|-----------------------------|----------------------------|
| Model                       | PLB2AC                     |
| Product Code                | LLBU-A07AC                 |
| Rated Voltage (V)           | AC 90~264V / 5~60Hz Common |
| Power Consumption (W)       | 7.5W                       |
| Dimension (mm)              | ø70×65mm                   |
| Luminance Flux (lm)         | 413 lm (at 5,700K)         |
| Luminance efficiency (lm/W) | 55 lm/W                    |
| View angle (°)              | 120°                       |
| Color rendition             | 70 ↑                       |
| Color Temperature (K)       | 3,000K / 5,700K Available  |





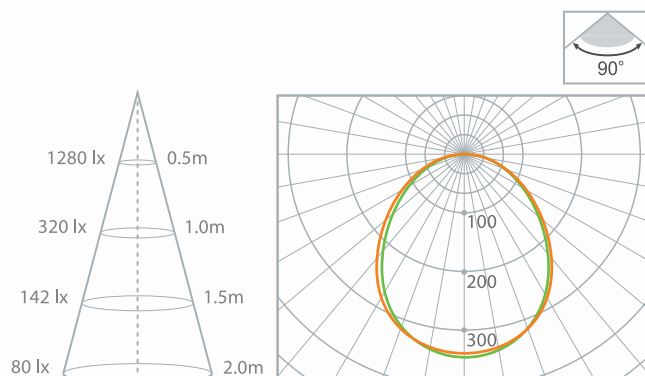
# LED TUBE

## TUBE [ Compatible with ballast ]

- Long lifetime(LED & Power/Control circuit) - No Use Capacitor
- Convection type heat radiation
- Slim Line Design
- Independent power supply
- Using electronic ballast is available



| Model                       | PT600DC                           | PT1200DC      | PT1200DC      |
|-----------------------------|-----------------------------------|---------------|---------------|
| Product Code                | LLT6033-A15DC                     | LLT1233-A21DC | LLT1233-A26DC |
| Rated Voltage (V)           | Depends on ballast output-voltage |               |               |
| Power Consumption (W)       | 15W                               | 21W           | 26W           |
| Dimension (mm)              | ø33.5×580mm                       | ø33.5×1198mm  |               |
| Luminance Flux (lm)         | 900 lm                            | 1,470 lm      | 1,820 lm      |
| Luminance efficiency (lm/W) | 60 lm/W                           | 70 lm/W       | 70 lm/W       |
| View angle (°)              | 90°                               |               |               |
| Color rendition             | 70 ↑                              |               |               |
| Color Temperature (K)       | 3,000K / 5,700K Available         |               |               |

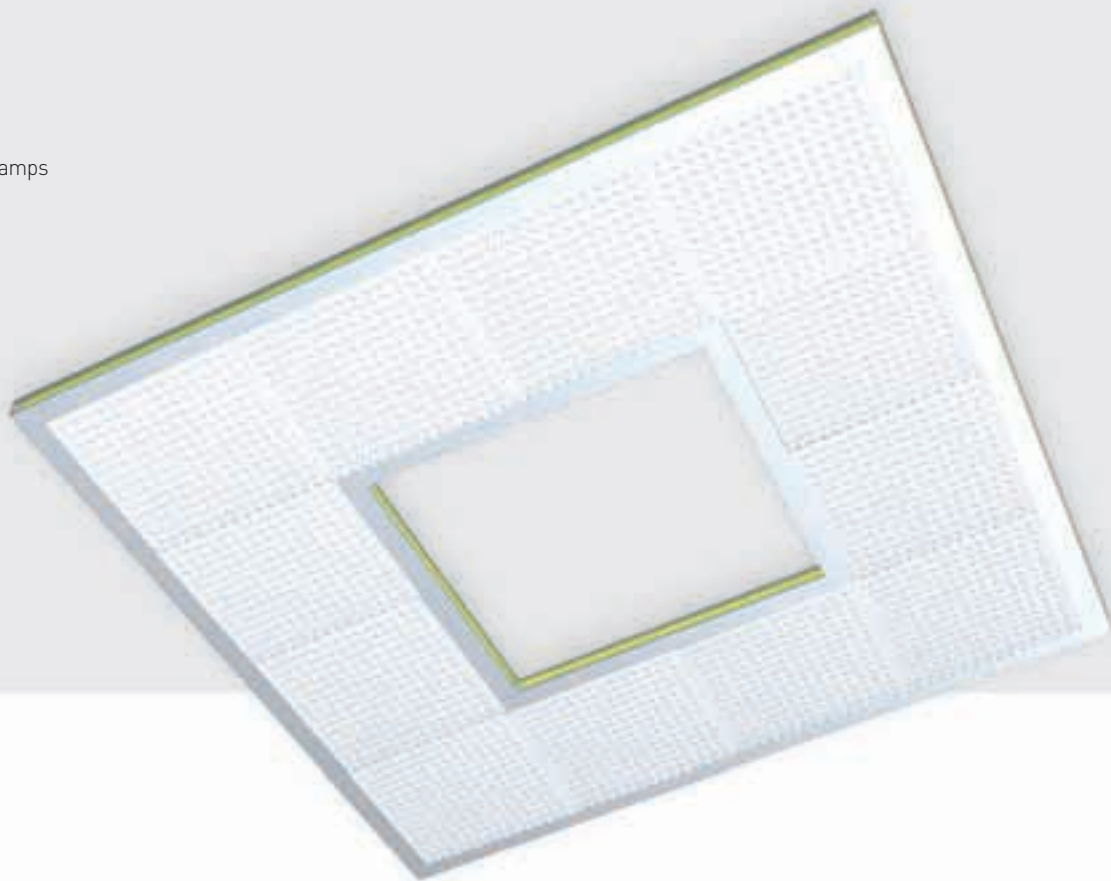


# INDOOR LED LED FLAT PANEL

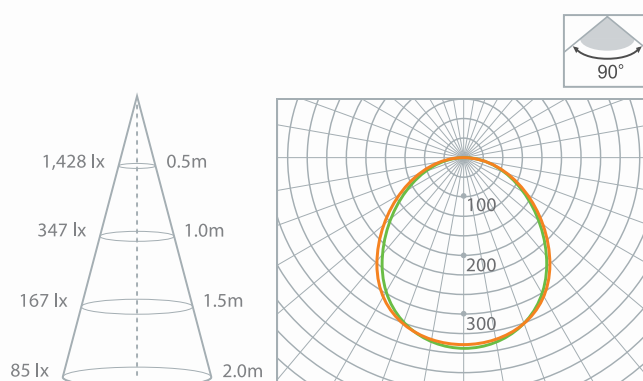
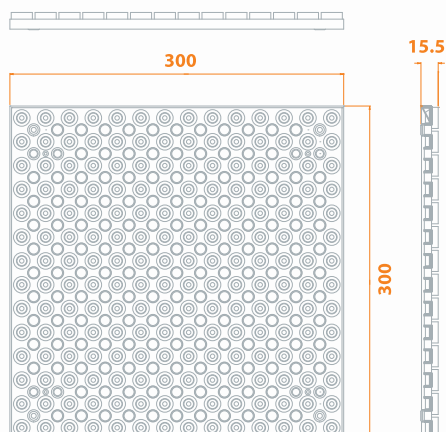
## DIRECT

- Convection type heat radiation
- Ultra slim & smart design
- 300 X 300(mm) Multi-type
- Replace (2~32Wx2) fluorescent lamps

[ Launching in November, '10 ]



|                             |  |
|-----------------------------|--|
| Model                       | PFB  |
| Product Code                | LLFD3030-A18AC                                 |
| Rated Voltage (V)           | AC 100~220V / 5~60Hz                           |
| Power Consumption (W)       | 18W(300X300mm)/64W(600X600mm)/64W(300X1,200mm) |
| Dimension (mm)              | 300×300mm                                      |
| Luminance Flux (lm)         | 825 lm   |
| Luminance efficiency (lm/W) | 55 lm/W  |
| View angle (°)              | 90°  |
| Color Temperature (K)       | 3,000K / 5,700K Available                      |
| Option                      | Dimming function : Optional                    |



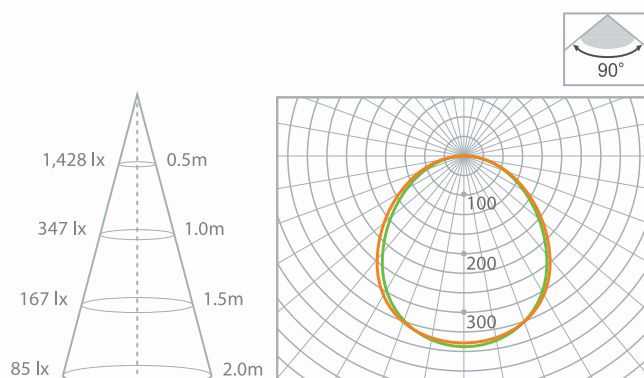
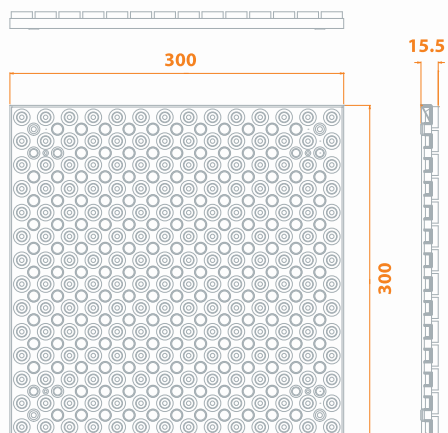
# DIRECT

- Convection type heat radiation
- Ultra slim & smart design
- 300 X 300(mm) Multi-type
- Replace (2~32Wx2) fluorescent lamps

[ Launching in November, '10 ]



| Model                       | PF3B3                                      | PF6B6          | PF3B12         |
|-----------------------------|--|----------------|----------------|
| Product Code                | LLFD3030-A15AC                             | LLFD6060-A48AC | LLFD3012-A48AC |
| Rated Voltage (V)           | AC 100~240V / 60Hz                         |                |                |
| Power Consumption (W)       | 15W  | 48W            | 48W            |
| Dimension (mm)              | 300×300mm                                  | 600×600mm      | 300×1,200mm    |
| Luminance Flux (lm)         | 900 lm                                     | 2,880 lm       | 2,880 lm       |
| Luminance efficiency (lm/W) | 60 lm/W                                    |                |                |
| View angle (°)              | 90°  |                |                |
| Color Temperature (K)       | 3,000K / 5,700K Available                  |                |                |
| Option                      | Dimming/Changing color function : Optional |                |                |

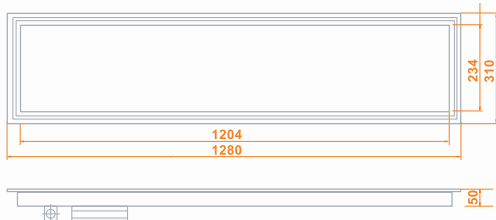
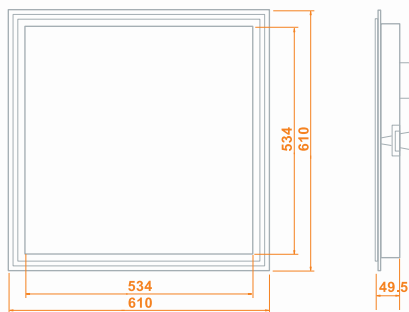




# INDOOR LED LED FLAT PANEL

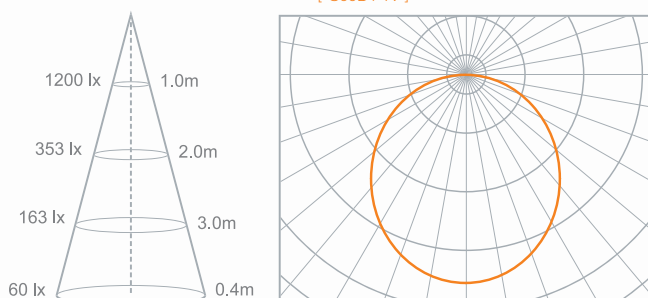
## DIRECT

- Dimming control is available by using Infrared Remote Control (Optional)
- High color rendition
- Less glare compared to traditional fluorescent lighting, comfortable atmosphere

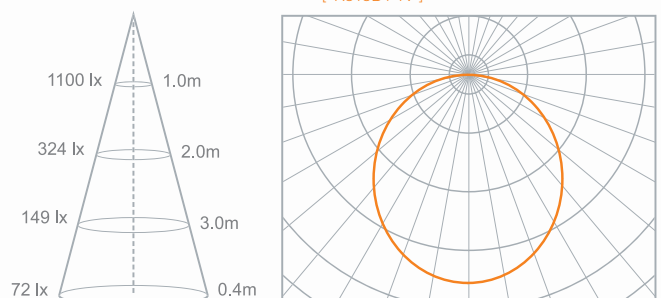


| Model                       | S66D1-N           | R313D1-N         |
|-----------------------------|-------------------|------------------|
| Product Code                | LLFD6060-A54ACCD  | LLFD3012-A54ACCD |
| Rated Voltage (V)           | AC 95~240V / 60Hz |                  |
| Power Consumption (W)       | 54W               |                  |
| Dimension (mm)              | 600×600mm         | 300×1200mm       |
| Luminance Flux (lm)         | 3,618lm           |                  |
| Luminance efficiency (lm/W) | 67 lm/W           |                  |
| Color rendition             | 80~90             |                  |
| Color Temperature (K)       | 5,500K~6,500K     |                  |

[ S66D1-N ]

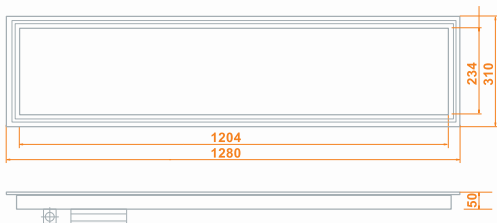
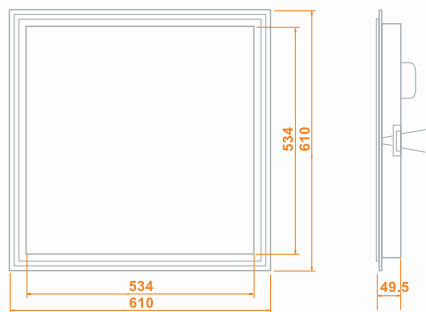
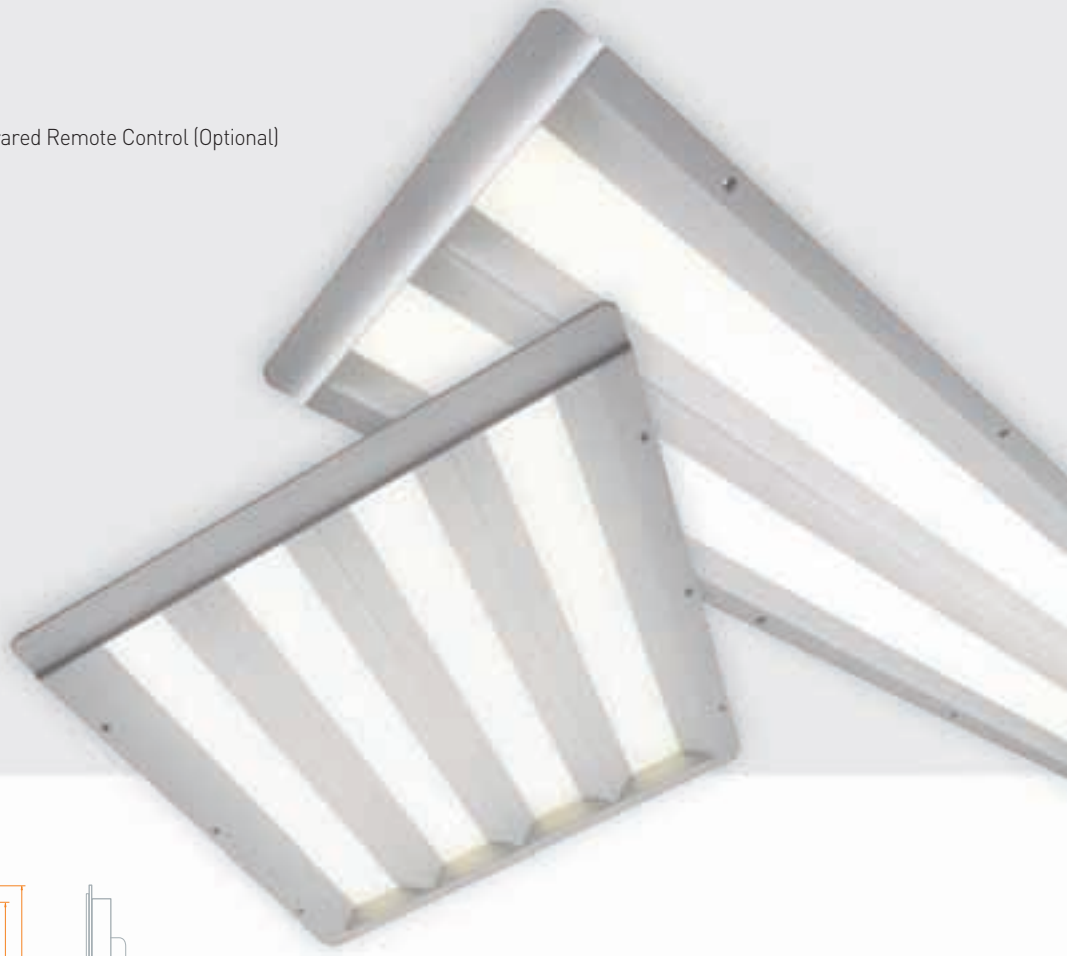


[ R313D1-N ]



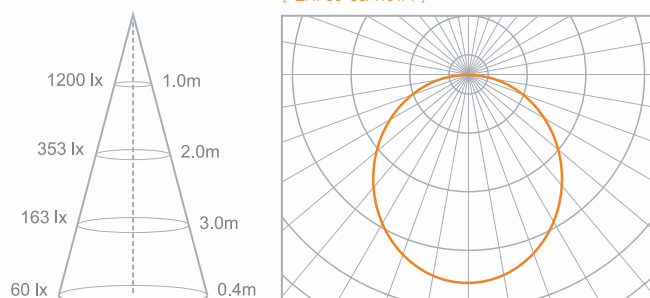
# LOUVER

- Dimming control is available by using Infrared Remote Control (Optional)
- High color rendition
- Replace (2~32Wx2) fluorescent lamps

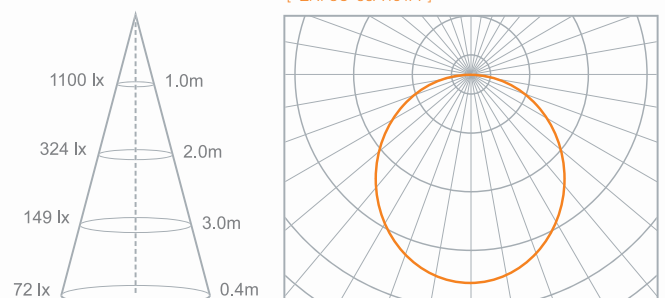


|                             |                    |                  |
|-----------------------------|--------------------|------------------|
| Model                       | LRF66-55A401A      | LRF3C-55A401A    |
| Product Code                | LLFL6060-A55ACCD   | LLFL3012-A55ACCD |
| Rated Voltage (V)           | AC 100~240V / 60Hz |                  |
| Power Consumption (W)       | 55W                |                  |
| Dimension (mm)              | 600×600mm          | 300×1200mm       |
| Luminance Flux (lm)         | 4,235lm            |                  |
| Luminance efficiency (lm/W) | 77 lm/W            |                  |
| Color rendition             | 80~90              |                  |
| Color Temperature (K)       | 5,000K~5,400K      |                  |

[ LRF66-55A401A ]



[ LRF3C-55A401A ]

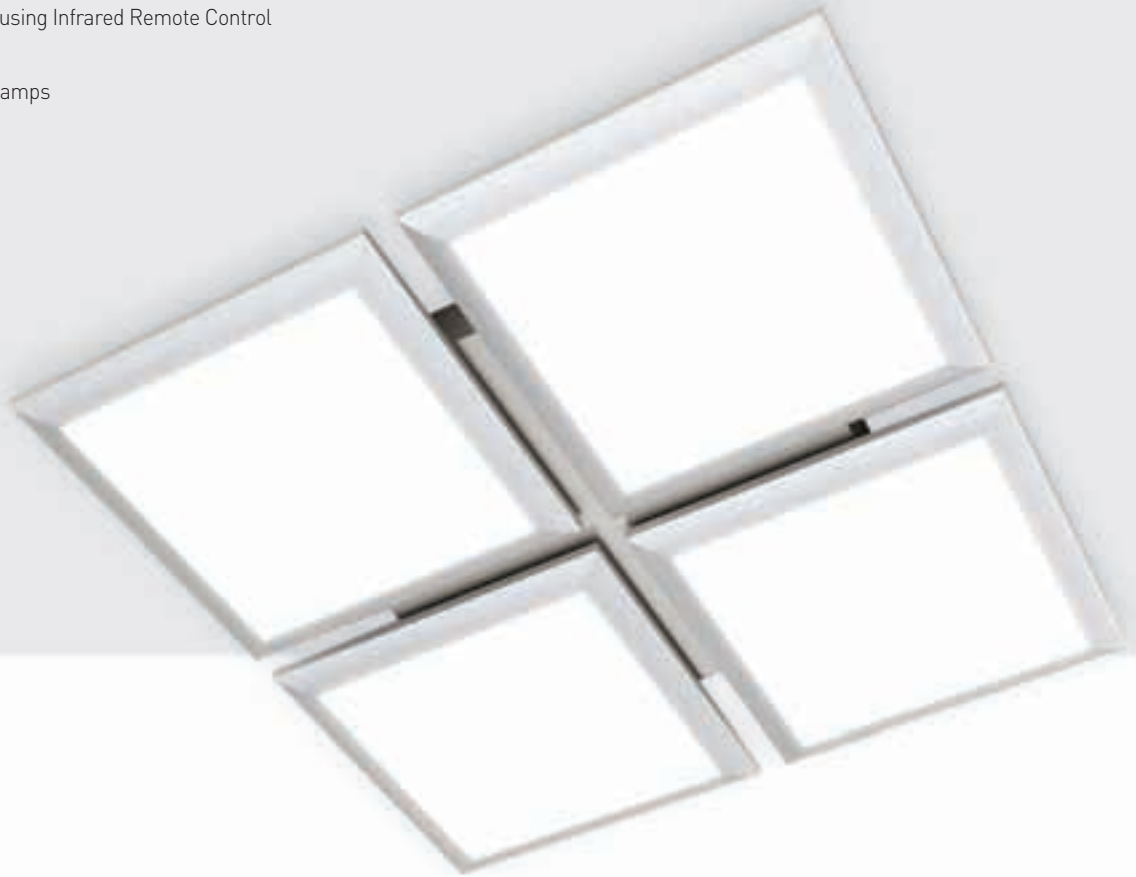


# INDOOR LED LED FLAT PANEL

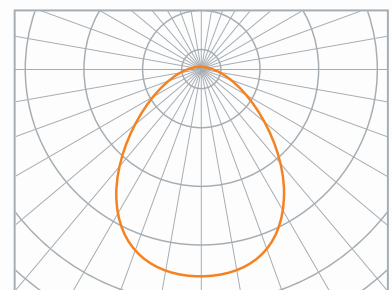
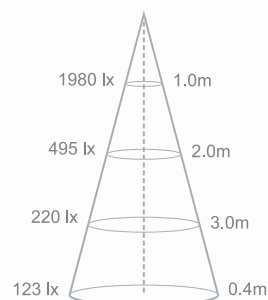
## EDGE

- Dimming control is available by using Infrared Remote Control
- High color rendition
- Replace (2~32Wx2) fluorescent lamps

[ Launching in October, '10 ]



|                             |                   |
|-----------------------------|-------------------|
| Model                       | LRF66-85AC01A     |
| Product Code                | LLFE6060-A85ACD   |
| Rated Voltage (V)           | AC 95~240V / 60Hz |
| Power Consumption (W)       | 85W               |
| Dimension (mm)              | 600×600mm         |
| Luminance Flux (lm)         | 3,100 lm          |
| Luminance efficiency (lm/W) | 48 lm/W           |
| Color rendition             | 70~90             |
| Color Temperature (K)       | D, N, W, L        |

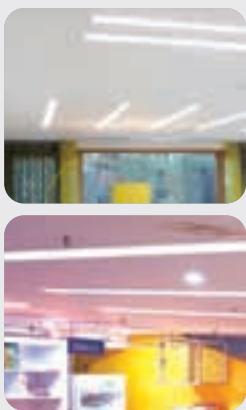




# EDGE

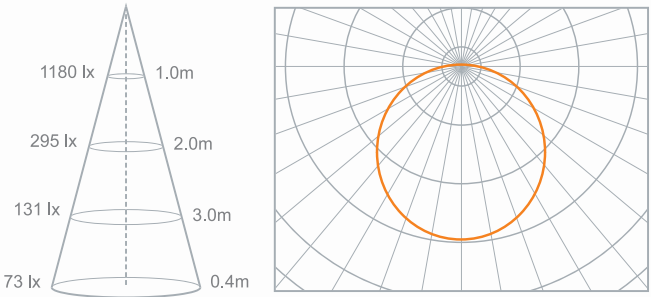
- Dimming control is available by using Infrared Remote Control
- High color rendition
- Replace (2~32Wx2) fluorescent lamps

[ Launching in October, '10 ]

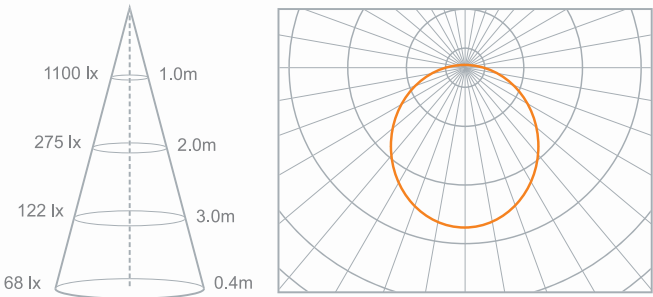


|                             |   |                 |
|-----------------------------|---|-----------------|
| Model                       | LRF3C-88AC011                           | LRF33-36AC011   |
| Product Code                | LLFE3012-A88ACD                         | LLFE3030-A36ACD |
| Rated Voltage (V)           | AC 100~240V / 60Hz                      |                 |
| Power Consumption (W)       | 88W                                     | 36W             |
| Dimension (mm)              | 314×1180mm                              | 307×307mm       |
| Luminance Flux (lm)         | 2,800 lm                                | 1,200 lm        |
| Luminance efficiency (lm/W) | 31 lm/W                                 | 33 lm/W         |
| Color rendition             | 70~90                                   |                 |
| Color Temperature (K)       | D, N, W, L (Color Temperature, Dimming) |                 |

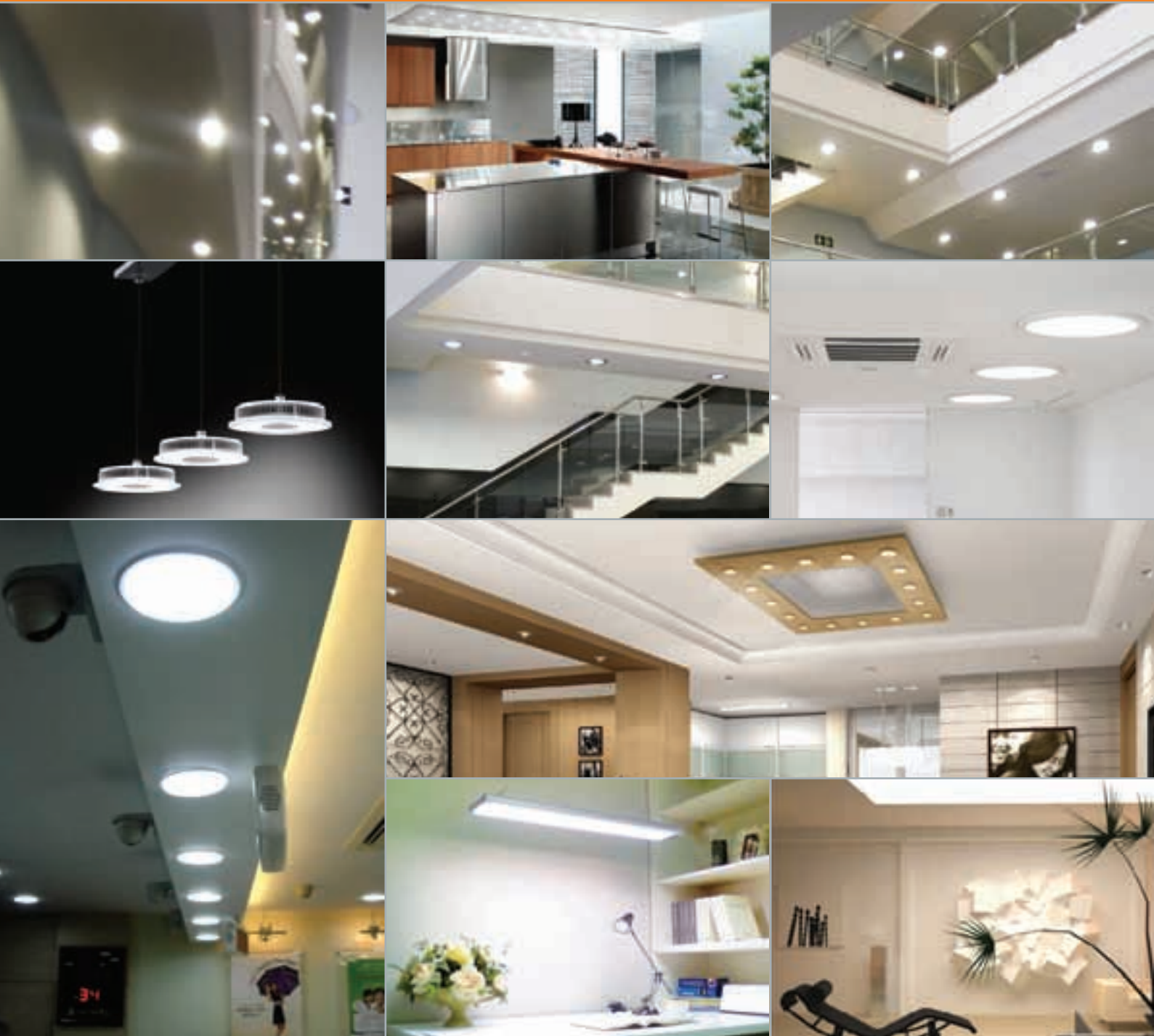
[ LRF3C-88AC011 ]

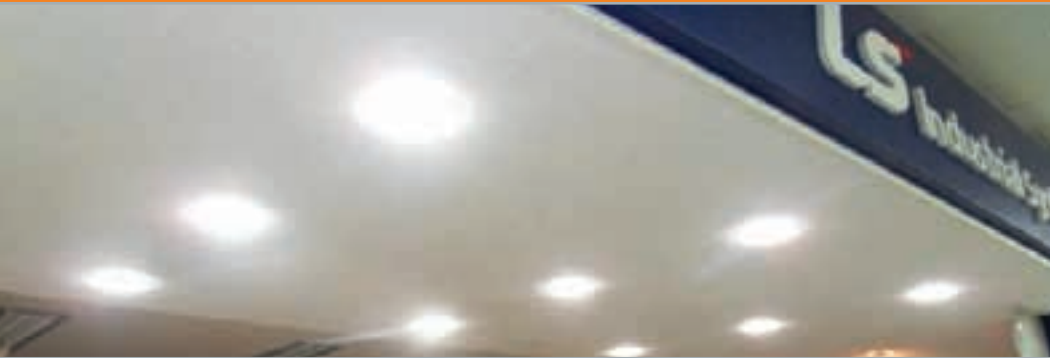


[ LRF33-36AC011 ]



# INDOOR LED APPLICATION

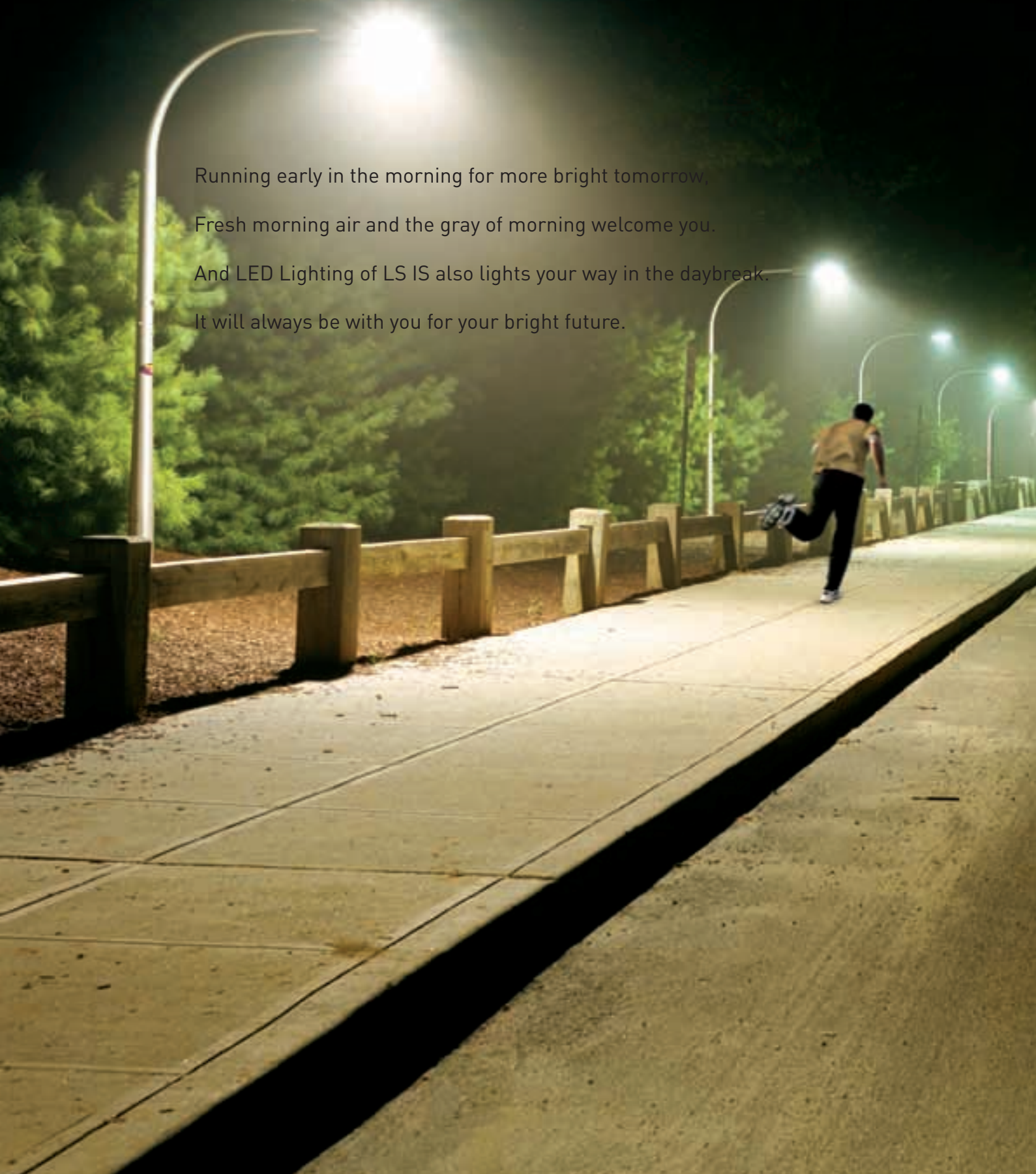


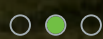




# OUTDOOR LED

Running early in the morning for more bright tomorrow,  
Fresh morning air and the gray of morning welcome you.  
And LED Lighting of LS IS also lights your way in the daybreak.  
It will always be with you for your bright future.





Outdoor LED of LS can control light intensity remotely with its dimming control and PLC technology.



# OUTDOOR LED FEATURE

## Features of LS Outdoor LED

LS Outdoor LED is on a different level.

### LS Outdoor LED will replace existing lighting apparatuses.

LS Outdoor LED is convenient and economical, as it will replace existing streetlights, security lights, and park lightings while using existing poles. LS IS boasts world-class differentiated technology with its lighting module with wide, balanced light distribution and excellent system efficiency.

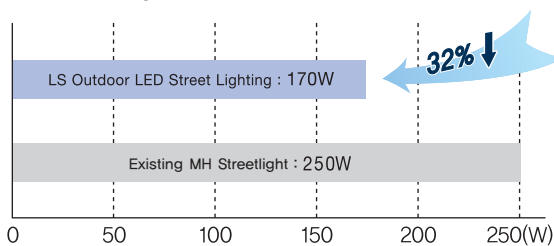


### Long lamp life, Low power consumption.

With more than 35,000 hours of lamp life, you can save cost of maintenance/repairing.

LED Lamp is also very effective in energy-savings as its power consumption is about 80% less than existing lightings.

Comparison of Power Consumption between existing Streetlight (250W) and LED Street Light (170W)



### LED Lamp is environment-friendly, as it has no harmful material.

This is an environment-friendly with no toxic materials such as mercury or lead. As this product emits no electromagnetic waves or harmful UV ray for your health and environment, you can use it without worry.

### You can freely select diverse options.

- Support remote control and integrated management via network (Auto Dimming)
- Additional functionalities such as security or multimedia based on IT (CCTV, Speaker, Sensor)
- Implement sensitive lighting using its Event Lighting function

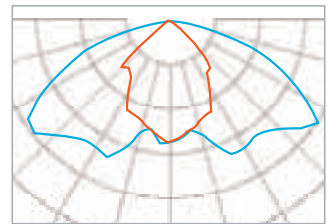
※ Some options may be not available by product type.





## Advantages of LS Street Lighting Module

- Realize Batwing light distribution thanks to optimized lens design
- Integrated lens module adaptable to street lighting condition
- Watertight design of module
- Design variation using module
- Easy to maintain and repair (Replace faulty module only)
- ESD Protection-4000V HBM
- High system efficiency
- 8 x 1W LED/Module



## It meets the street light intensity requirement of the KS specification.

LS Outdoor LED Lighting satisfies the KS street lighting class (M1 – M5) for the sake of the safety of pedestrians and drivers.

### 〈 Reference 〉 KS Street Light Intensity Criteria for Drivers

( KS C 7658 : 2009 Requirement for the safety and performance of LED streetlights and security lights )

| Street Illumination Class | Average Light Intensity by Paved Road Class<br>$E_{avg}(lx)$ (Minimum Allowable Variation) |         |      | Luminance Uniformity<br>(Minimum Allowable Variation) |   |
|---------------------------|--|---------|------|---|---|
|                           | R1   | R2 & R3 | R4   | Overall Uniformity<br>( $UE_0$ ) $E_{min}/E_{avg}$    | Longitudinal Uniformity<br>( $UE_1$ ) $E_{min}/E_{max}$ |
| M1                        | 20,0   | 29,0    | 25,0 | 0,4   | 0,7   |
| M2                        | 15,0   | 22,0    | 19,0 | 0,4   | 0,7   |
| M3                        | 10,0   | 14,0    | 13,0 | 0,4   | 0,5   |
| M4                        | 8,0  | 11,0    | 9,0  | 0,4   | -   |
| M5                        | 5,0  | 7,0     | 6,0  | 0,4   | -   |

## Service space

For pedestrian roads, driveways, parks



This Art Contest for private and public corporations is supervised by the Organizing Committee of International Public Design Award (IPDA) under the auspices of the Korea Public Design Regional Foundation (authorized by the Ministry of Public Administration and Security), and products awarded GPD (Good Public Design) would be registered as the Excellent Products for Governmental Procurement.

# OUTDOOR LED LINE UP

## Type of Outdoor LED display

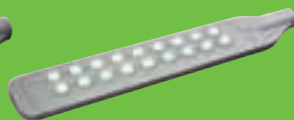
STREET / PARK LIGHTING



6 Module / 60W



12 Module / 120W



18 Module / 170W



8 Module / 80W



56W / 80W







## FLOOD LIGHTING



80W / 100W / 120W



165W



130W



80W



24W



255W

## EXPLOSION LIGHTING



56W / 80W





OUTDOOR LED

# LED STREET

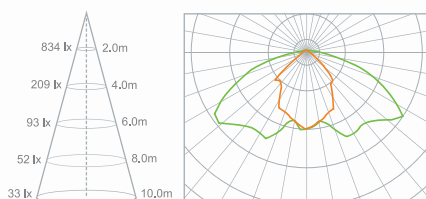
## STREET

- 'Good public design 2009' award
- Expected to register 'Good government Product' in 2010(Korea)
- Slim & smart design
- Replace 150~250W street light

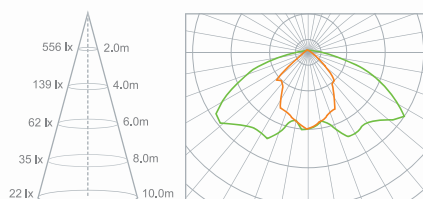


| Model                       | LRR20-A7A401A   | LRR10-A3A401A   | LRR08-70A401A   |
|-----------------------------|-----------------|-----------------|-----------------|
| Product Code                | LLST-A170ACC    | LLST-A120ACC    | LLST-A60ACC     |
| Rated Voltage (V)           | 100~240V / 60Hz | 100~240V / 60Hz | 100~240V / 60Hz |
| Power Consumption (W)       | 170W            | 120W            | 60W             |
| Dimension (mm)              | 1,246×300×115   | 985×300×115     | 724×300×115     |
| Luminance Flux (lm)         | 12,500 lm ↑     | 8,800 lm ↑      | 4,440 lm ↑      |
| Luminance efficiency (lm/W) | 74 lm/W         |                 |                 |
| View angle (°)              | 120°            |                 |                 |
| Color Temperature (K)       | 5500~6500K      |                 |                 |

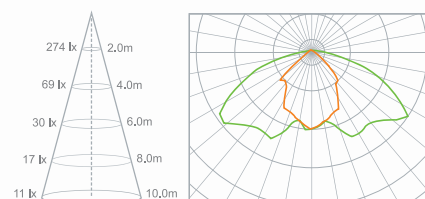
[ LRR20-A7A401A ]



[ LRR10-A3A401A ]



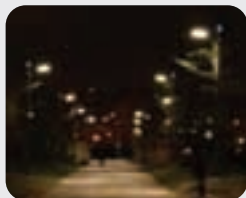
[ LRR08-70A401A ]



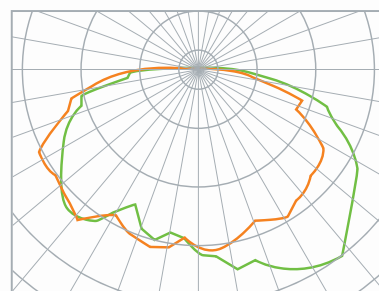
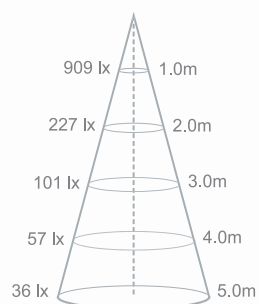
# LED PARK

## PARK

- Slim & smart design
- Replace 100~150W park light



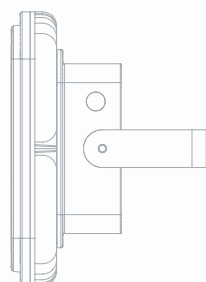
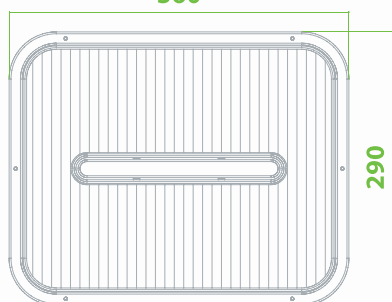
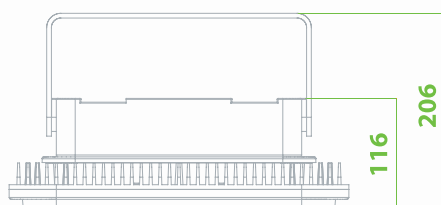
|                             |                 |
|-----------------------------|-----------------|
| Model                       | LRP58-98A4012   |
| Product Code                | LLPA-A80ACC     |
| Rated Voltage (V)           | 100~240V / 60Hz |
| Power Consumption (W)       | 80W             |
| Dimension (mm)              | ø580×110mm      |
| Luminance Flux (lm)         | 5,920 lm ↑      |
| Luminance efficiency (lm/W) | 74 lm/W         |
| View angle (°)              | 120°            |
| Color Temperature (K)       | 5500~6500K      |



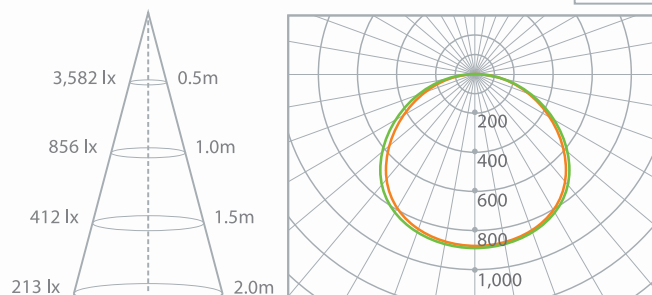
# OUTDOOR LED LED FLOOD

## WALLMOUNT

- Slim & smart design
- High luminance efficiency
- Replace 80~120W conventional light



|                             |                           |            |
|-----------------------------|---------------------------|------------|
| Model                       | PHR36B29                  |            |
| Product Code                | LLWA-K56AC                | LLWA-K80AC |
| Rated Voltage (V)           | 220V / 60Hz               |            |
| Power Consumption (W)       | 56W                       | 80W        |
| Dimension (mm)              | 360x290x206mm             |            |
| Luminance Flux (lm)         | 3,920 lm                  | 5,600 lm   |
| Luminance efficiency (lm/W) | 70 lm/W                   |            |
| View angle (°)              | 90°                       |            |
| Color rendition             | 75+                       |            |
| Color Temperature (K)       | 3,000K / 5,700K Available |            |

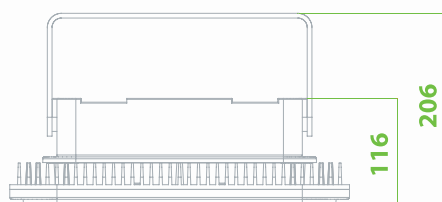




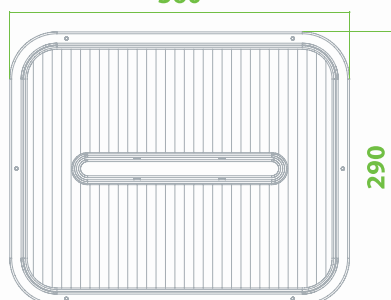
# FLOOD 80W/100W/120W

- High luminance efficiency
- Replace 100~200W conventional flood light

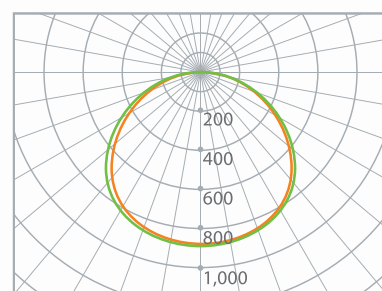
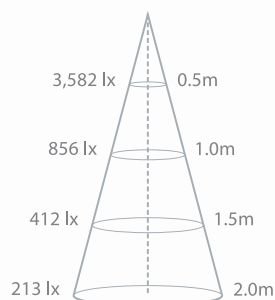
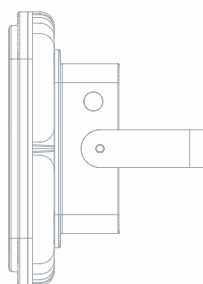
[ Launching in October, '10 ]



360



290

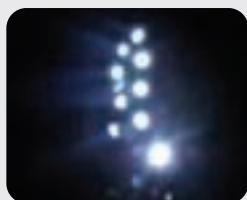


|                             |                   |              |              |
|-----------------------------|-------------------|--------------|--------------|
| Model                       | PFL36B29          |              |              |
| Product Code                | LLFLO-A80AC       | LLFLO-A100AC | LLFLO-A120AC |
| Rated Voltage (V)           | AC 90~264V / 60Hz |              |              |
| Power Consumption (W)       | 80W               | 100W         | 120W         |
| Dimension (mm)              | 360×290×206mm     |              |              |
| Luminance Flux (lm)         | 5,600 lm          | 7,000 lm     | 8,400 lm     |
| Luminance efficiency (lm/W) | 70 lm/W           |              |              |
| View angle (°)              | 25°               | 40°          | 60°          |
| Color rendition             | 75 ↑              |              |              |
| Color Temperature (K)       | 5,700K            |              |              |

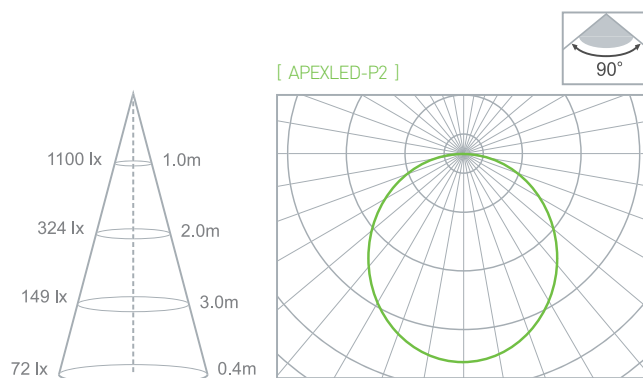
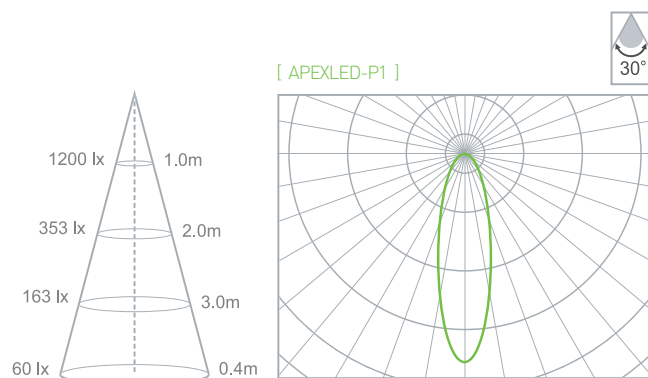
# OUTDOOR LED LED FLOOD

## FLOOD 165W/130W

- Eco-friendly product
- glare prevention
- Waterproof and dustproof(IP66 Class)
- Replace 400W conventional flood light



| Model                       | APEXLED-P1           | APEXLED-P2    |
|-----------------------------|----------------------|---------------|
| Product Code                | LLFLO-K165ACC        | LLFLO-A130ACC |
| Rated Voltage (V)           | AC 100/220V          | AC 90~240V    |
| Power Consumption (W)       | 165W                 | 130W          |
| Dimension (mm)              | ø380×400mm           | ø380×400mm    |
| Luminance Flux (lm)         | 9,800 lm             | 8,000 lm      |
| Luminance efficiency (lm/W) | 60 lm/W(Without Pan) | 62 lm/W       |
| View angle (°)              | 30°                  | 90°           |
| Color Temperature (K)       | 6400K                |               |

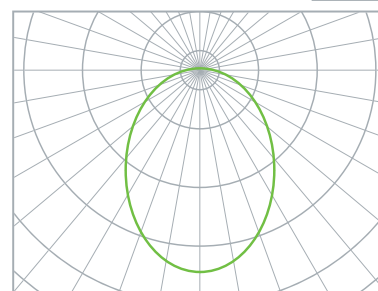
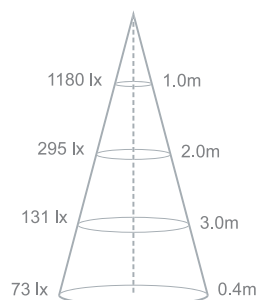


# FLOOD 80W/24W

- Patient for LED Heat radiation
- Waterproof and dustproof(IP40/IP66)
- Replace 400W conventional flood light



| Model                       | APEXLED-P7           | APEXLED-P8    |
|-----------------------------|----------------------|---------------|
| Product Code                | LLFLO-K80ACC         | LLFLO-A24ACC  |
| Rated Voltage (V)           | AC 100/220V          | AC 100~220V   |
| Power Consumption (W)       | 80W                  | 24W           |
| Dimension (mm)              | 270×270×250mm        | 245×205×135mm |
| Luminance Flux (lm)         | 4200m                | 1600m         |
| Luminance efficiency (lm/W) | 60 lm/W(Without Pan) | 67 lm/W       |
| View angle (°)              | 60°                  | 60°           |
| Color Temperature (K)       | 6400K                |               |

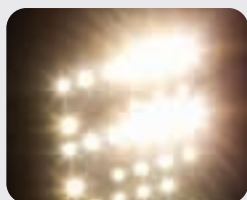




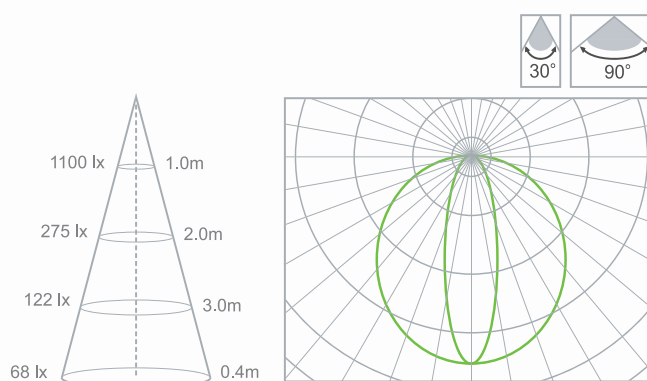
# OUTDOOR LED LED FLOOD

## REASON 255W

- Eco-friendly product
- Use for airport, stadium, army
- Waterproof and dustproof(IP66)
- Replace 1,500W conventional flood light



|                             |                      |
|-----------------------------|----------------------|
| Model                       | REASON               |
| Product Code                | LLFLO-A255ACC        |
| Rated Voltage (V)           | AC 100~200V          |
| Power Consumption (W)       | 255W                 |
| Dimension (mm)              | 475×547mm            |
| Luminance Flux (lm)         | 14,500 lm            |
| Luminance efficiency (lm/W) | 60 lm/W(Without Pan) |
| View angle (°)              | 30°~90°              |
| Color Temperature (K)       | 6300K                |

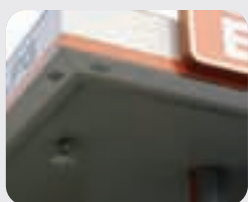


# LED EXPLOSION

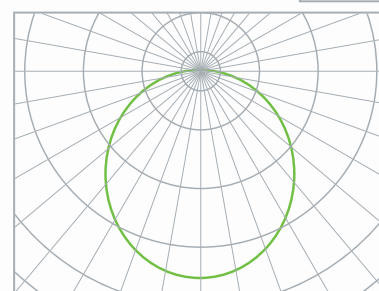
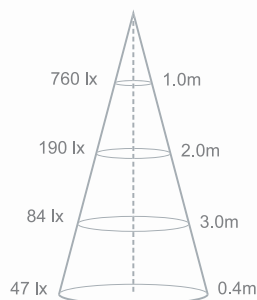
## EXPLOSION 56W/80W

- Long lifetime(LED & Power/Control circuit) - No Use Capacitor
- Convection type heat radiation
- Slim type structure
- Use for gas station / chemical plant

[ Launching in November, '10 ]



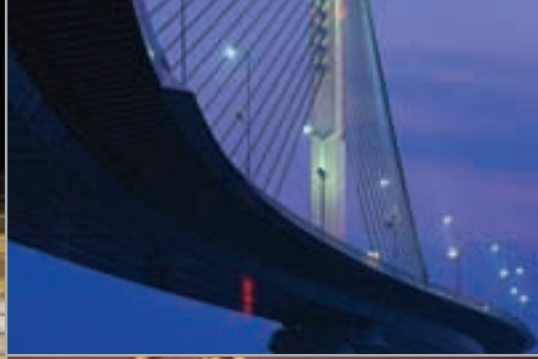
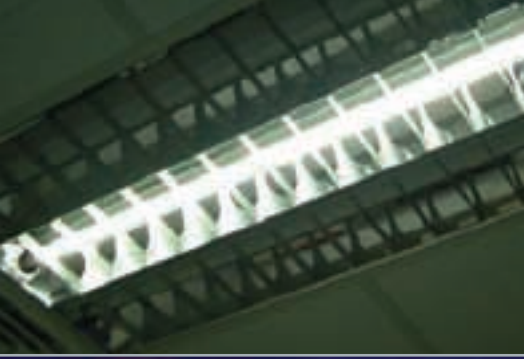
|                             |                           |            |
|-----------------------------|---------------------------|------------|
| Model                       | PEX12                     |            |
| Product Code                | LLEX-K56AC                | LLEX-K80AC |
| Rated Voltage (V)           | AC 220V / 60Hz            |            |
| Power Consumption (W)       | 56W                       | 80W        |
| Dimension (mm)              | 300×100mm                 |            |
| Luminance Flux (lm)         | 3,920 lm                  | 5,600 lm   |
| Luminance efficiency (lm/W) | 70 lm/W                   |            |
| View angle (°)              | 90°                       |            |
| Color rendition             | 75 ↑                      |            |
| Color Temperature (K)       | 3,000K / 5,700K Available |            |



# OUTDOOR LED APPLICATION







# Image LED

In the dazzling lights of the extravagant city, you are always giving off light.

As you are always with LED Lighting of LG IS which illuminates  
the city like brilliant jewels

In the city which makes you look more dazzling and show off more brilliantly.

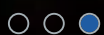


Image LED of LS IS supports 167,000 colors.

Image LED of LS IS can display images with any color.







# IMAGE LED FEATURE

## Features of LS Outdoor LED

### Control 167,000 real colors

A new next-generation color control technology which used in all luxury lighting apparatuses around the world. This new technology expresses any image in 167,000 colors, and applies white color adjustment to accommodate any color temperature change [Patent No. 10-0658776]



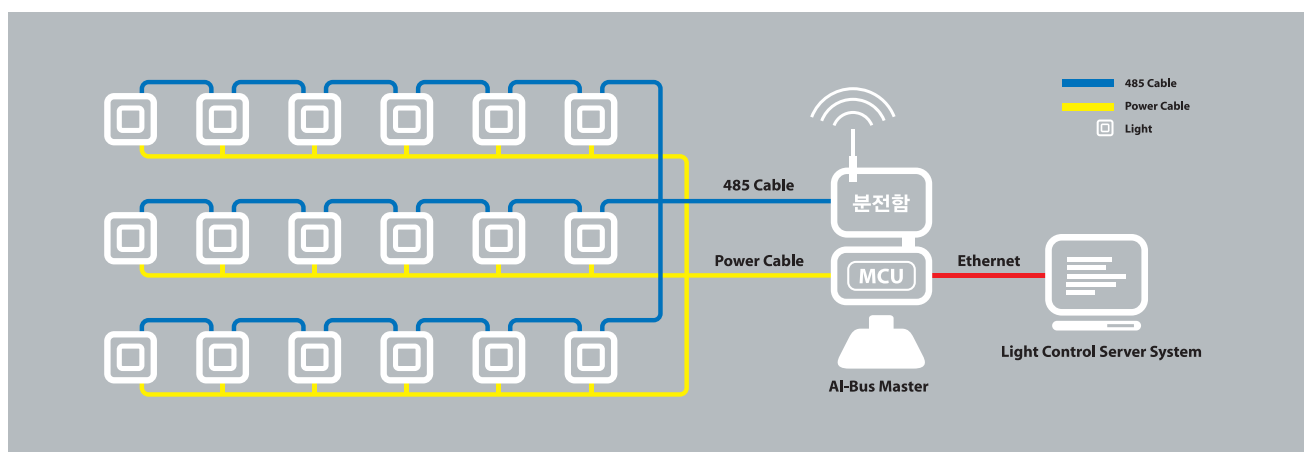
### Offer convenient networking controlling technology.

Without need of entering fixed IP address to each device, this innovative network control technology creates a network configuration and allocates addresses automatically to individual devices in the network. This new technology will save time and installation cost considerably [Patent No. 10-0870733]

This address-less lighting control technology with RS-485 Interface can turn on/off each lighting apparatus individually or in group.

### New Technology AL-Bus Algorithm [Patent No. 10-0870733]

- Remarkable stability in communications
- Automatic address allocation function guarantees ease of installation / operation / maintenance
- Interactive communication



### Different image control functionality.

Key new technology, a new paradigm of LED illumination of the 21st century, of rendering video images of a PC in LED lighting panel in full color (applying for a patent)

# IMAGE LED LINE UP

## Type of Image LED display

### IMAGE LED Products



LAINI



DUARA



ZINI



BOKY



## Image LED Server

- 350(L) × 440(W) × 88(H)
- AL-Bus Protocol
- USB Interface
- 100V~240V, 50/60Hz
- 10Kg



## Signal Processor

- 220(L) × 355(W) × 44(H)
- AL-Bus Protocol
- Data Input : USB Interface
- Data Output : XLR 3Pin
- 100V~240V, 50/60Hz
- 2.5Kg



## Z Controller

- 95(L) × 100(W) × 30(H)
- AL-Bus / DMX 512 Protocol Compatible
- DC 18V~28V
- 0.19 Kg



## Control Software





## LAINI

Line Pixel Image LED  
225mm, 450mm, 675mm, 900mm

- 225 : SMD High RGB LED 0.36W 10EA
- AL-Bus Protocol / DMX512 Compatible
- DC 18V-28V



## DUARA

Round Point Pixel Image LED  
Dimension :  $\varnothing 175 \times H74$

- SMD High RGB LED 0.36W 10EA
- AL-Bus Protocol / DMX512 Compatible
- DC 18V-28V



## ZINI

Round Point Pixel Image LED  
Dimension :  $\varnothing 97 \times H100$

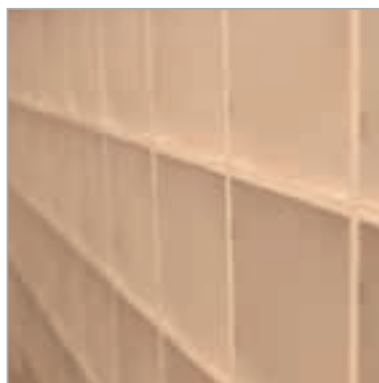
- SMD High RGB LED 0.36W 4EA
- AL-Bus Protocol / DMX512 Compatible
- DC 18V 18V-28V



## BOKY

Square Point Pixel Image LED  
BOKY 5(50mm  $\times$  50mm),  
10(100mm  $\times$  100mm), 15(150mm  $\times$  150mm) 3 type

- BOKY 10 : SMD High RGB LED 0.36W 16EA
- AL-Bus Protocol / DMX512 Compatible
- AC 100V-240V, 50 / 60Hz



# IMAGE LED APPLICATION



Media Wall\_Good morning city Shopping Mall



Canopy \_ Aquarium in Hae-un dae, Busan



Bitplex\_Wangshipri subway station



Media wall\_Nineplus Shopping mall



Media wall \_Music show (MBC TV station)



Exhibition Sign\_LG Innotek exhibition



Media object&wall\_LG Innotek exhibition



Media object\_sculpture in chung-gae chun