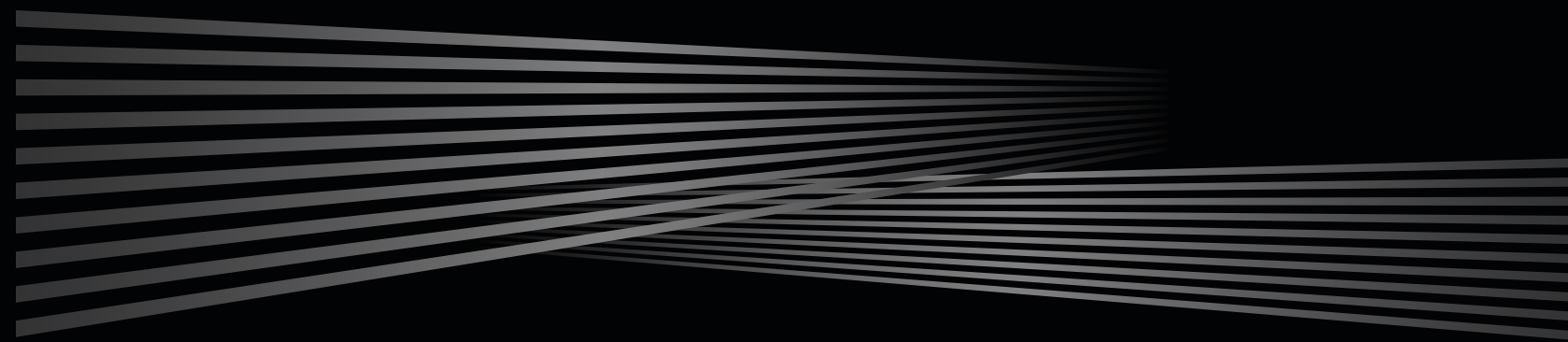


Reliable Energy
Saving Lighting Solutions



SHARP
LED
Eco Lighting Management

SHARP

SHARP-ROXY SALES & SERVICE COMPANY (M) SDN.BHD. (8394-W)
No.1A, Persiaran Kuala Langat, Section 27, 40400 Shah Alam, Selangor Darul Ehsan.
www.sharp.com.my/ledlighting Email: productinfo@my.sharp-world.com

Product Enquiry: Tel: 03-5102 5369
Service Enquiry: Tel: 1800 888 678 (Toll Free) Fax: 03-5102 5329



Sharp LED Technology Leads The Way To A Brighter Future



Why Sharp LED?

Sharp has been at the forefront of LED component development since 1968. In 1970 Sharp introduced the world's thinnest LED chip with the highest brightness. Since then Sharp has incorporated generations of LED advancements into a wide variety of consumer home electronics and B2B lighting.

Today, Sharp LED Eco Lighting Management benefits from this heritage and benchmarks itself as the best long term investment for reliability, quality, safety plus a 3-year warranty!

Why LED lighting?

LED lighting is today's smarter choice. Whether to counter rising tariff costs, minimising maintenance and replacements, improving visibility and workers' comfort, reducing carbon footprint or for aesthetics LED lighting definitely has advantages over incandescent, fluorescent or halogen light sources. Sharp LED Eco Lighting Management will change the way you look at LED lighting forever.



Basically, we do a quality test based on IEC Standards. Additional to this, we confirm material enduring based on Sharp's experiment.



Service tests include Energy Consumption Rate (rated luminous flux/rated power dissipation) based on Japan Luminaires Association guidelines.

LED lighting Features

ENERGY SAVING	<ul style="list-style-type: none"> • LED bulb VS incandescent bulb (54 W) > 80% savings • LED tube VS fluorescent tube (40 W) > 50% saving
LONGER LIFETIME	<ul style="list-style-type: none"> • Up to 36,000 hours (10 yrs x 8 hrs/day) > Less maintenance • No noticeable damage with repeated on/off/dim
ECO-FRIENDLY	<ul style="list-style-type: none"> • ZERO mercury • No UV or IR rays emitted > means no effect to matters exposed to LED light • No UV rays > does not attract insects (comparing to conventional light source), making environment clean and maintaining brightness
LOW TEMPERATURE OPERATION	<ul style="list-style-type: none"> • Instant ON/OFF • Optimum brightness even in low temperature



Before:
Fluorescent 36 W x 3 tubes per casement

After:
LED Tube 18,5 W x 2 tubes per casement

Specifications

Luminous Flux	1,600 lm
Power consumption	18.5 W
Efficiency	86 lm/W
Color Temperature	6000 K
CRI	80
Voltage	100~277 V
Lifetime	30,000 hours (70% of the initial light output)

Reduce energy consumption

Compared with energy consumption of fluorescent tube. LED can reduce 50% energy consumption.

Reduce maintenance

Long lifetime 30,000 hours is 3 times longer than fluorescent tube.

Wide voltage range operation

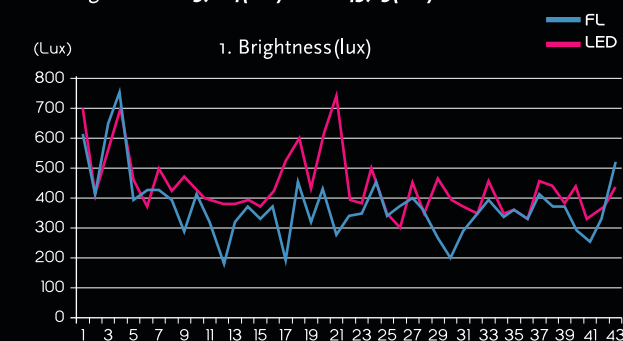
To improve efficiency and safety in your working area.

LED Tube

Category	Model No.	CCT	Luminous Flux	Beam Angle	Wattage	Efficacy	VAC
(4feet/T8/G13)	DL-0TA1U	4,000	1,600	150	18.5	86	220 VAC (50/60 Hz)
	DL-0TA2U	5,000	1,650			89	
	DL-0TA3U	6,000	1,600			86	
(2feet/TB/013)	DL-0TB1U	4,000	750	150	9.0	83	
	DL-0TB2U	5,000	800			89	
	DL-0TB3U	6,000	750			83	
(4feet/T8/G13)	DL-0TAAU	4,000	1,700	150	19.0	89	
	DL-0TABU	5,000	1,750			92	
	DL-0TACU	6,000	1,700			89	
(2feet/TB/013)	DL-0TBAU	4,000	800	150	9.0	89	
	DL-0TBBU	5,000	850			94	
	DL-0TBCU	6,000	800			89	
(4feet/T8/G13)	DL-0TC1U	4,000	2,150	150	22.0	98	
	DL-0TC2U	5,000	2,200			100	
	DL-0TC3U	6,000	2,150			98	

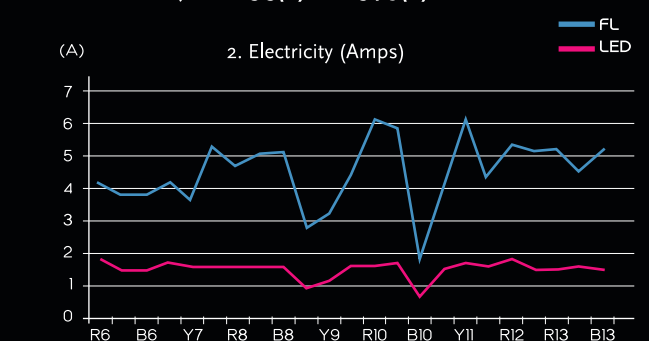
Brightness 17% Up

Average Lux: FL 372.4(lux) LED 437.3(lux)



Electricity 66% Down

Total Electricity: FL 103.3(A) LED 34.9(A)



Break Even Point: 1 year 9 months

Total cost savings (8 years): RM183,000*

[condition] Operation:
12h/day, 3,600 h/year
Electricity charge: RM0.40/kWh

*Payback period may vary depending on the electricity tariff of premise and operation hours.



1. Electricity Fee

(18.5 W x 532 pcs - 36 W x 798 pcs)
÷ 1,000 x 12 h/d x 300 d/y x 0.40 RM/kWh
= RM27,195.84

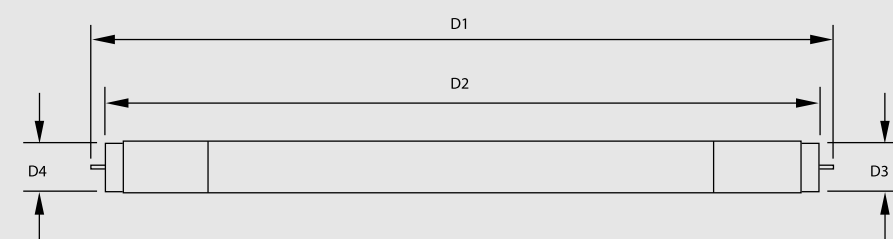
2. CO₂ Emission

(18.5 W x 532 pcs - 36 W x 798 pcs)
x 0.741-CO₂/MWh ÷ 1,000,000 Wh/MWh x 12 h/d x 300 d/y
= 50.38 t-CO₂

		Condition
Power consumption	Fluorescent lamp	36 W
	LED tube	18.5 W
Operation		12 hours (8:00~20:00)
Total Qty		532 pcs(LED)/798 pcs(FL)
CO ₂ emissions index*		0.741t-CO ₂ /MWh

*CDM Baseline (2012)

Outside Dimension

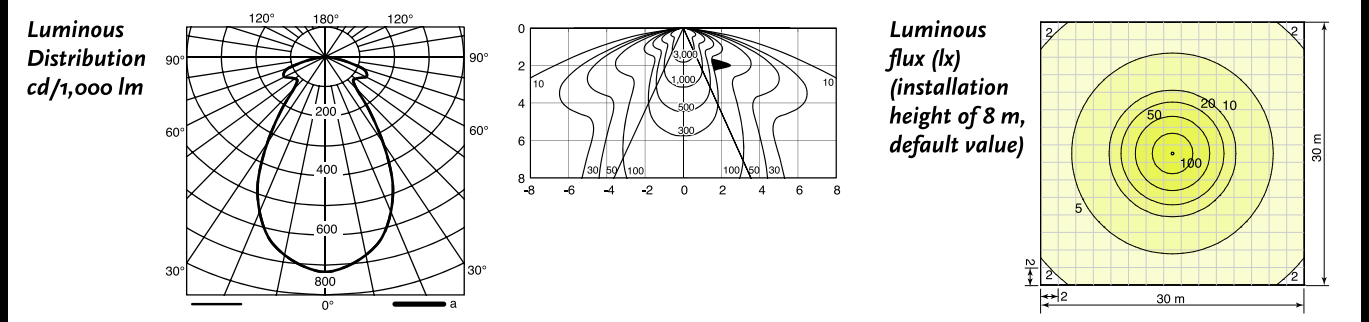


	9 W	9.0 W	18.5 W/19 W/22 W
Tube Length (D1)	602 mm	1,212 mm	1,212 mm
Tube Length (D2)	588 mm	1,198 mm	1,198 mm
Tube Diameter (D3)	φ 27.0 mm	φ 26.0 mm	φ 27.0 mm
Tube Diameter (D4)	φ 25.0 mm	φ 25.0 mm	φ 25.0 mm

LED High-bay Lighting



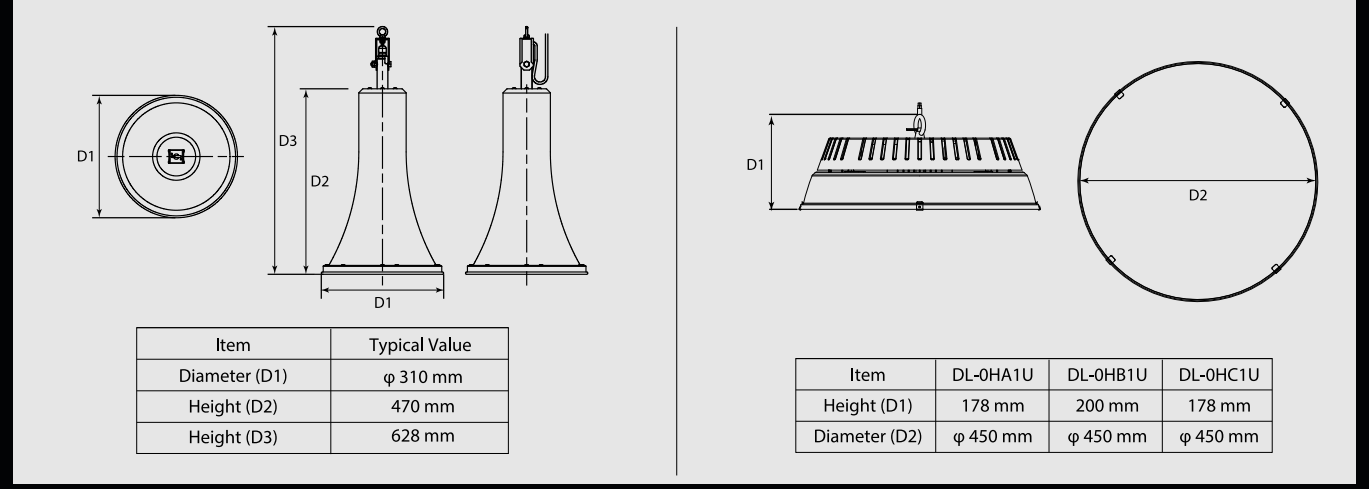
- Reduce energy consumption**
Compared with energy consumption of mercury lamp, LED can reduce 50% energy consumption.
- Reduce maintenance**
60,000/36,000 hours and 5/3 times longer than mercury-vapor lamp.
- Wide voltage range operation**
To improve efficiency and safety in your working area.



LED High-bay

Category	Model No.	CCT	Luminous Flux	Beam Angle	Wattage	Efficacy	Lifetime	VAC
High-bay	DL-EH001E	5,400	23,000	120	222	104	60,000 hours	220 VAC (50/60 Hz)
	DL-EH002E	5,400	22,000	60	222	99	60,000 hours	
	DL-EH003E	5,200	12,300	120	125	98	60,000 hours	
	DL-EH004E	5,200	11,800	60	125	94	60,000 hours	
	DL-0HA1U	5,000	10,000	100	100	100	36,000 hours	
	DL-0HB1U	5,000	20,000	100	200	100	36,000 hours	
	DL-0HC1U	5,000	7,000	100	70	100	36,000 hours	

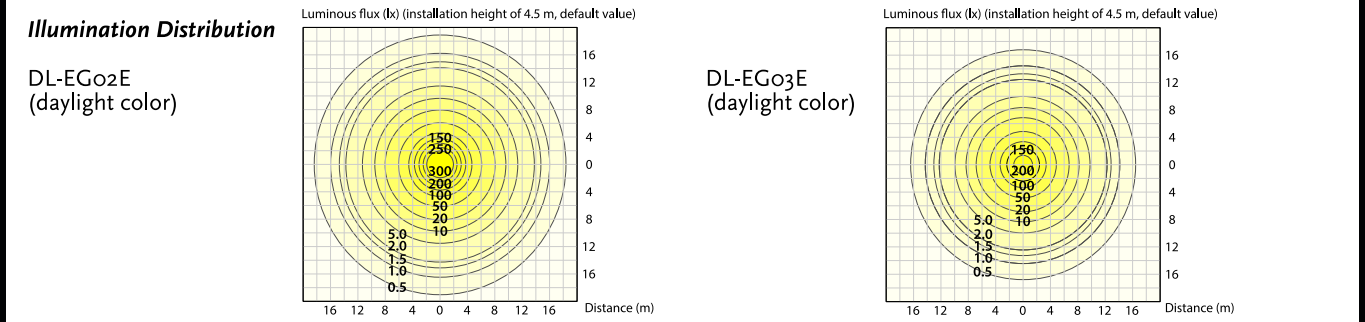
Outside Dimension



LED Canopy Lighting



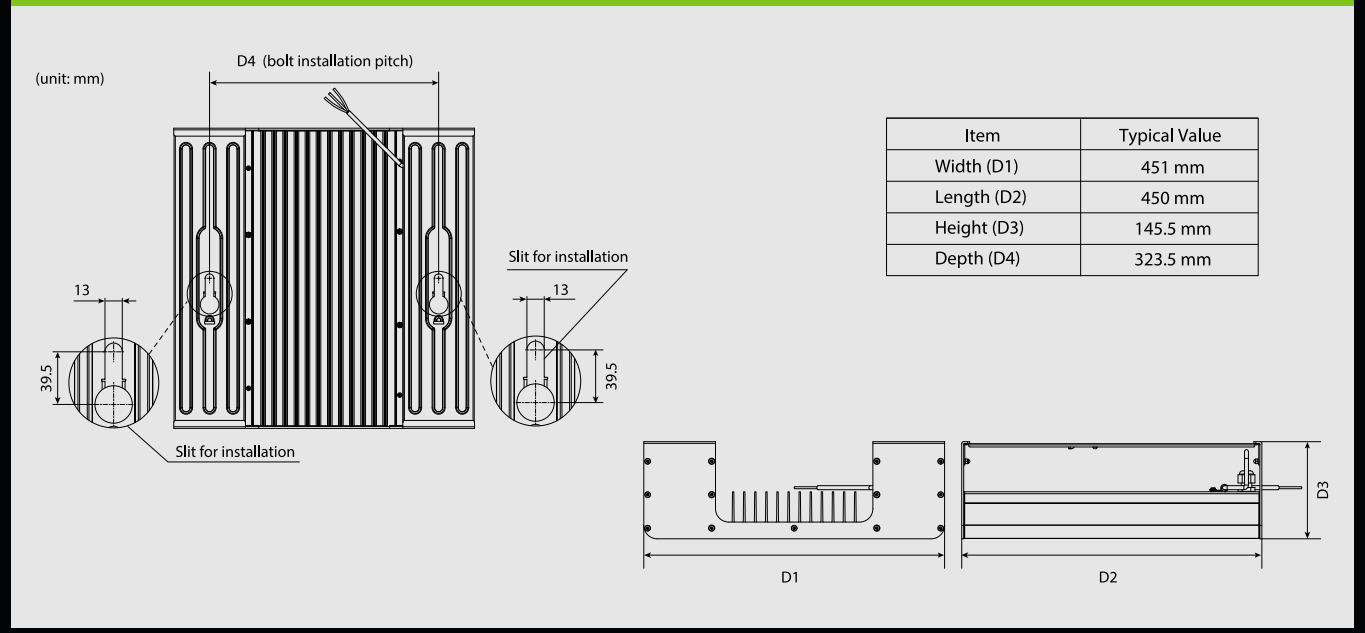
- Reduce energy consumption**
Compared with energy consumption of mercury lamp, LED can reduce 45% energy consumption.
- Reduce maintenance**
60,000 hours and 5 times longer than mercury-vapor lamp.
- Wide voltage range operation**
To improve efficiency and safety in your working area.



LED Canopy

Category	Model No.	CCT	Luminous Flux	Beam Angle	Wattage	Efficacy	VAC
Canopy	DL-EG02E	5,700	24,000	120	234	103	220 VAC (50/60 Hz)
	DL-EG03E	5,700	13,500	120	130	104	

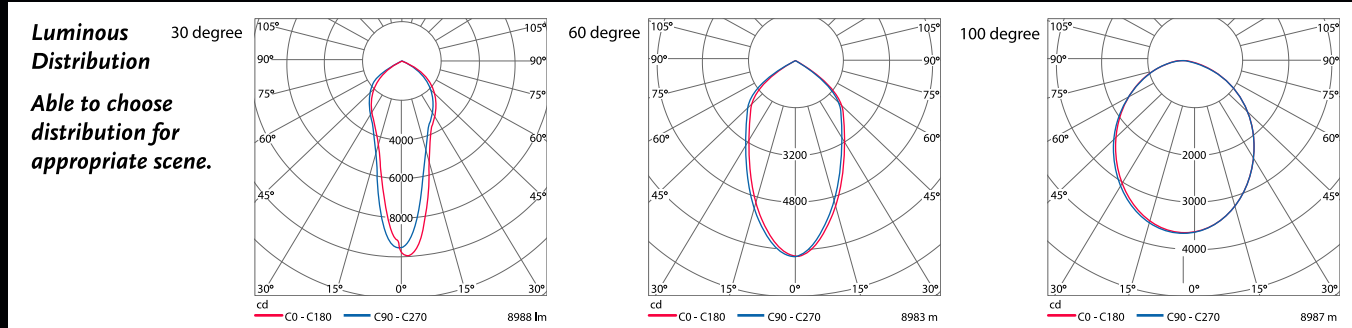
Outside Dimension



LED Flood Lighting



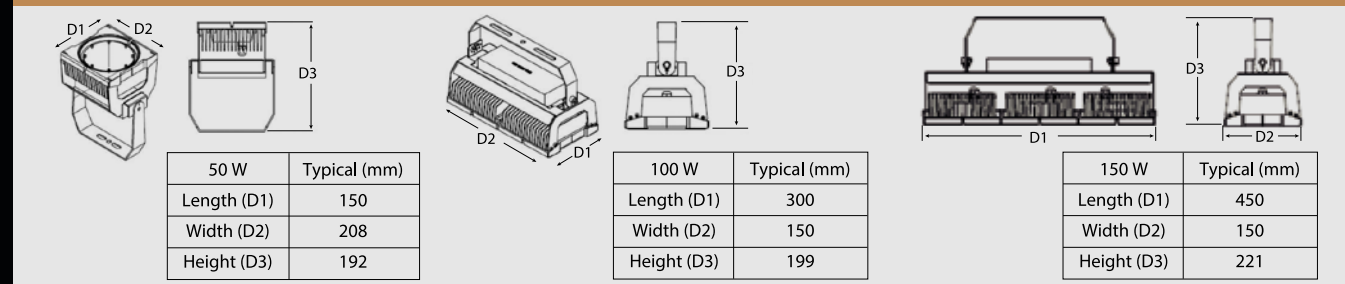
- Reduce energy consumption**
Compared with energy consumption of mercury lamp, LED can reduce 75% energy consumption.
- Reduce maintenance**
Long lifetime 36,000 hours is 3 times longer than mercury-vapor lamp.
- Less attraction of insects**
LED is UV less. So few insects come to lighting. You can keep cleanliness and brightness.



LED Flood Lighting

Category	Model No.	CCT	Luminous Flux	Beam Angle	Wattage	Efficacy	VAC		
Flood Lighting (Single)	DL-0FA3U	3,000	4,000	30	50	80	220 VAC (50/60 Hz)		
	DL-0FA2U	4,000	4,250			85			
	DL-0FA1U	5,000	4,500			90			
	Flood Lighting (Double)	DL-0FE3U	3,000	4,000	60	50		80	
		DL-0FE2U	4,000	4,250				85	
		DL-0FE1U	5,000	4,500				90	
		Flood Lighting (Triple)	DL-0FI3U	3,000	4,000	100		50	80
			DL-0FI2U	4,000	4,250				85
			DL-0FI1U	5,000	4,500				90
Flood Lighting (Double)			DL-0FB3U	3,000	8,000	30		100	80
			DL-0FB2U	4,000	8,500				85
			DL-0FB1U	5,000	9,000				90
	Flood Lighting (Double)		DL-0FF3U	3,000	8,000	60		100	80
			DL-0FF2U	4,000	8,500				85
			DL-0FF1U	5,000	9,000				90
		Flood Lighting (Double)	DL-0FJ3U	3,000	8,000	100		100	80
			DL-0FJ2U	4,000	8,500				85
			DL-0FJ1U	5,000	9,000				90
Flood Lighting (Triple)			DL-0FC3U	3,000	12,000	30	150	80	
			DL-0FC2U	4,000	12,750			85	
			DL-0FC1U	5,000	13,500			90	
	Flood Lighting (Triple)		DL-0FG3U	3,000	12,000	60	150	80	
			DL-0FG2U	4,000	12,750			85	
			DL-0FG1U	5,000	13,500			90	
		Flood Lighting (Triple)	DL-0FK3U	3,000	12,000	100	150	80	
			DL-0FK2U	4,000	12,750			85	
			DL-0FK1U	5,000	13,500			90	

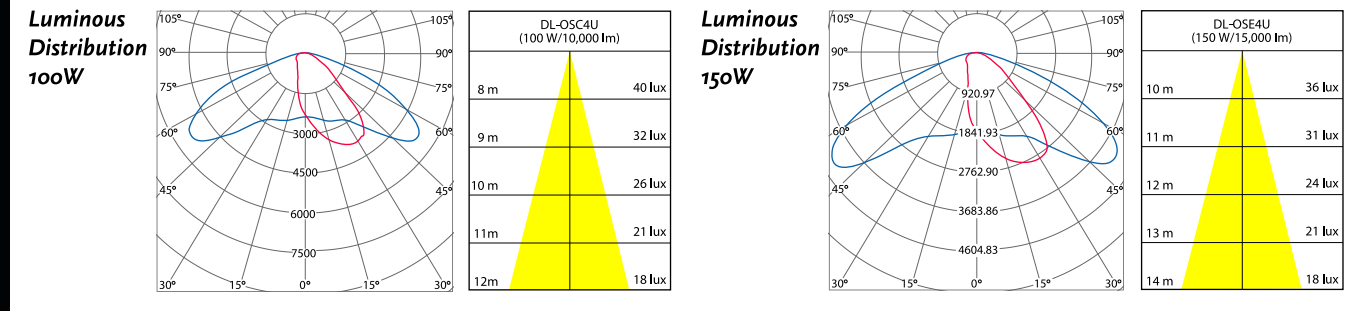
Outside Dimension



LED Street Lighting



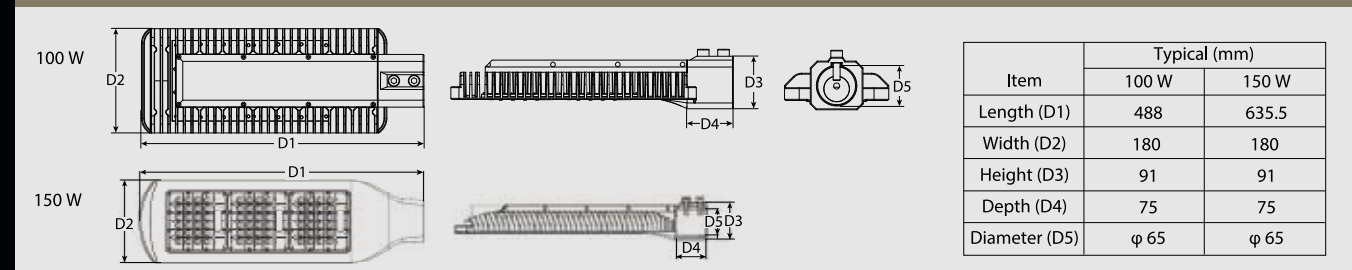
- Reduce energy consumption**
Compared with energy consumption of mercury lamp, LED can reduce 55% energy consumption.
- Reduce maintenance**
Long lifetime 36,000 hours is 3 times longer than mercury-vapor lamp.
- Less attraction of insects**
LED is UV less. So few insects come to lighting. You can keep cleanliness and brightness.



LED Street Lighting

Category	Model No.	CCT	Luminous Flux	Beam Angle	Wattage	Efficacy	VAC
Street Lighting	DL-0SB1U	3,000	6,510	Type II short	70	93	220 VAC (50/60 Hz)
	DL-0SB2U	4,000	6,510			93	
	DL-0SB3U	4,500	7,000			100	
	DL-0SB4U	5,000	7,000			100	
	DL-0SB5U	5,700	7,000			100	
	DL-0SC1U	3,000	9,300		100	93	
	DL-0SC2U	4,000	9,300			93	
	DL-0SC3U	4,500	10,000			100	
	DL-0SC4U	5,000	10,000			100	
	DL-0SC5U	5,700	10,000			100	
	DL-0SE1U	3,000	14,000		150	93	
	DL-0SE2U	4,000	14,000			93	
	DL-0SE3U	4,500	15,000			100	
	DL-0SE4U	5,000	15,000			100	
	DL-0SE5U	5,700	15,000			100	

Outside Dimension



LED Lightings Line-up

	Features	Applications
Tube Lighting (4' / 2')	<ul style="list-style-type: none"> • One-side power supply • Uniform emission • High power factor at 0.95 • Low power total harmonic distortion • Water proof level at IP20 	<ul style="list-style-type: none">  Office  Parking lot  Commercial
High-bay Lighting	<ul style="list-style-type: none"> • Active heat sink system (DL-EH001E ~ 004E) • Lightweight & easy installation • High lumen efficiency (23,000 lm and 104 lm/W) with high CRI • Suitable for environment temp. from -30°C to 40°C • Protection function (Over temp., over voltage, over current and short) 	<ul style="list-style-type: none">  Shopping centre  Warehouse  Factory
Canopy Lighting	<ul style="list-style-type: none"> • Top class efficiency and brightness (104 lm/W and 13,500 lm) • Robust design • Suitable for environment temp. from -30°C to 40°C • Fewer insects attracted • Water proof level at IP23 	<ul style="list-style-type: none">  Warehouse  Petrol station
Flood Lighting (single/double/Triple)	<ul style="list-style-type: none"> • Able to choose beam angle 30°, 60°, 100° • Suitable for temp. from -30°C to 50°C • Water proof level IP65 • Turn on immediately • Fewer insects attracted • Surge protection 4kV (IEC standard) 	<ul style="list-style-type: none">  Garden/outdoor  Building  Shop signboard
Street Lighting	<ul style="list-style-type: none"> • Distribution pattern Type II-short • Water proof level IP66 • Suitable for environment temp. from -30°C to 40°C • Surge protection 10kV • IEC safety class 1 	<ul style="list-style-type: none">  Sidewalks  Roadway







Pocket



Glossary

CORRELATED COLOUR TEMPERATURE (CCT)

Measurement of relative whiteness of light. Unit used is Kelvin.

blue-white		7500 K
		6000 K ('daylight')
white		4100 K ('cool white' fluorescent)
yellow		2700 K (incandescent)
orange		2200 K (HPS)
red		<2000 K

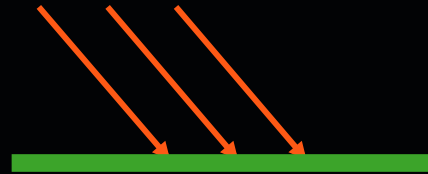
COLOUR RENDERING INDEX (CRI)

Measurement of colour rendering from scale of 1-100, EXCELLENT being 100, POOR being below 60.

CRI	60	70	80	90	100
	Poor	Fair	Good	Excellent	

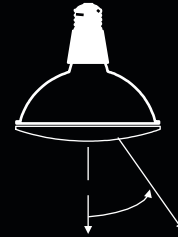
ILLUMINANCE

Amount of light that strikes a surface. Commonly referred to as light level. Measured in foot candles (fc :Imperial), or lux (Metric)



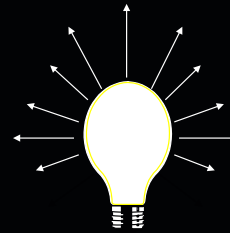
LUMINOUS INTENSITY

The measurement of light intensity in a given direction, measured in candelas (cd)



LUMINOUS FLUX

The measurement of total light source output in all directions, measured in lumens (lm), symbol Phi (Φ)



LIFETIME

We normally define the lifetime of an LED as the time expected for it to drop to 70% of its initial light output.



LUMINAIRE

Description of a complete lighting fixture, with lamp, lenses, etc.

