

LDT LIGHTING SYSTEM

1. Introduction to LDT Lighting System

The LDT lighting system is an advancement of LED lightings. It solves the problem of high heat emission of normal LED lightings and has an average life of 50000 hours. It solves not only the problem of the high heat emission, but also the narrow light amplitude problems of the normal LED lightings, which is a solution that the LED industry has been looking for right from the beginning.

The advantage of LDT Lighting System:

- Long life Endurance
- Low Power Consumption
- Low heat emission
- Wide Divergence angle
- Adjustable Color and Color Temperature
- Water Proof
- Dust Proof
- Electricity Safety
- Environmentally friendly
- Easy to install and repair

2. The mechanism of LDT Lighting System

The LDT system is an enhancement of LED lighting. It is a combination of LED lighting, Light Guide, Light Reflector and Light radiator. The improvement of material and design strengthen the Luminaries Efficiency and extend the Divergence Angle. Also, the Low Power Consumption of LDT system reduces heat emission.

2.1 LED Lighting

Light-emitting diode (LED) is the core of the lighting system. It decides the Luminous Efficacy, Energy Efficiency, Extraction Efficiency, Color, Color Temperature, and Life Endurance of the Lighting. As a result, the selection of LED for the LDT lighting system is critical, especially considers on its Luminaries Efficiency, Heat Emission, Life Endurance and Color.

2.2 Light Guide

The specified material adjust the light guide and reflection, with extremely low Luminaries Efficiency reduction of LED, the LDT lighting system extends the divergence angle from traditional LED lightings.

2.3 Reflector

The specified reflector is the heart of the LDT Lighting System. It improves the Luminaries Efficiency and prolongs the Life Endurance of the system.

2.4 Radiator

The radiator of LDT system reduces thermal efficiency from normal LED lightings. The average temperature of LDT system is about 40-50°C.

3. Figures and Comparison

a. High Luminaries Efficiency

The luminous efficacy of LDT system is about 160 Lumens per Watt (lm/W), and the luminous efficacy of Normal LED light is about 90 lm/W. Comparing LDT to other lighting systems, its luminous efficacy is 3 times of Compact Fluorescent Light; 4.5 times of Fluorescent Light; and 16 times of Normal Light Bulb. However, comparing Normal LED light to the above lighting systems, its luminous efficacy is just 1.7 times of Compact Fluorescent Light; 2.6 times of Fluorescent Light; and 9 times of Normal Light Bulb.

Lighting System	LDT System	Normal LED	Compact Fluorescent Light	Fluorescent Light	Light Bulb
Luminous Efficacy (lm/W)	160 lm/W	90 lm/W	55 lm/W	80 lm/W	20lm/W
Energy Efficiency (%)	90%	90%	85%	85%	100%
Luminaries Efficiency (%)	90%	90%	90%	60%	60%
Extraction Efficiency (%)	90%	90%	90%	60%	60%
Actual Luminaries Efficiency (%)	116.6 lm/W	65.6 lm/W	37.9 lm/W	24.5 lm/W	7.2 lm/W
Life Endurance (Hours)	50000 Hours	10000 Hours	2000 Hours	2000 Hours	2000 Hours

To sum up, the Actual Luminaries Efficiency of a 5W LDT-LED light is similar to a 9W LED light or a 15W Compact Fluorescent Light.

b. Long Life Endurance

The life endurance of Compact Fluorescent Light is about 2000 hours. Under the calculation of 10 hours lighting per day, the life endurance of Compact Fluorescent Light is about 200 days. Under the same calculation, the life endurance LDT is about 5000 days

(13.7 years), and Normal LED light is about 1000 days (2.7 years). As a result, The life endurance of LDT is 25 times longer than Compact Fluorescent Light, and 5 times longer than Normal LED lights.

c. Low Power Consumption

The power consumption of Normal LED lights is 40% of Compact Fluorescent Light and 80% of Light Bulb. However, the power consumption of LDT system is 60% of Compact Fluorescent Light and 90% of Light Bulb. Therefore, the power consumption of a 5W

LDT system equals to a 9W Normal LED, a 15W Compact Fluorescent Light or a 70W Light Bulb.

Lighting System	5W LDT System	9W Normal LED	15W Compact Fluorescent Light	70W Light Bulb
Power Consumption (kW)	1825 kW	3285 kW	5475 kW	25550 kW
Electricity Charges (RMB)	1460 RMB	2628 RMB	4380 RMB	20440 RMB

The chart below is under a calculation of 100 lights and 10 lighting hours per day in 1 year. The electricity charge is 0.8 RMB per kW.

-
- Comparing LDT System to LED, LDT-LED saves 1168 RMB per year.
 - b. Comparing LDT System to Compact Fluorescent Light, LDT saves 2920 RMB per year.
 - c. Comparing LDT System to Light Bulb, LDT saves 18980 RMB per year.

Total saving amount of electricity charge:

4. Usage and Prospect of LDT Lighting System

The present usage of LDT lighting system targets to indoor and outdoor lighting, which include: domestic lighting, indoor and outdoor advertising, and traffic lights. The characters of slim, easy installation and adjustable color and color temperature can extend its market to interior design. Besides, the characters of low power consumption, low heat emission and long life endurance are perfectly suitable for Advertising Products such as billboard and massive exterior lightings.