

MCS Light LP-700 series

IP67, PSE, RoHS



- For those who are seeking a wide range of bright lighting outdoors and indoors.
- For those who are seeking waterproof LED lighting that provides the necessary illumination where necessary.

mcs
MICRO CONTROL SYSTEMS

MICRO CONTROL SYSTEMS LTD.

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< Do you feel unsatisfactory with fluorescent lighting and conventional LED lighting? >

A typical light is a fluorescent light. It is used for a long time in lighting such as interior light, outdoor light, general road light and underpass light. Recently, from the viewpoint of ecology and environmental conservation, it is rapidly turned into LED light using LED devices.

A LED element is a point light source and emits intense light. In order to reduce light glare for LED lights, a milky white cover is used. As the result, diffused light similar to fluorescent lamps is obtained. Illumination using diffused light has high illuminance just below the lights. However, its illuminance capability is insufficient for long distances longer than 10 m and for wide range illumination.

MCS has developed a new lens that has developed our proprietary lens technology using for machine tool lighting (LP-4x series). This lens is named LW (Long Wide) lens because it enables long distance and wide range illumination. Based on this LW lens technology and lighting design technology, we can provide "the necessary illuminance where necessary".

MCS (Micro Control Systems) Co., Ltd. has realized new lighting to perform the needs of the customers. ※Patent acquisition

< Seeking more far, more wide illumination>

- By using original LW (Long Wide) lenses, long distance / wide range illumination is realized.
- We provide the necessary illuminance where we need it. This prevents light nuisance.
- MCS lights ensure waterproof / immersion resistance against rainy outdoor environment, indoor environment where water is used and high humidity environment (IP 67 level).
- MCS lights are suitable for the light of food Processing. When the fluorescent lamp breaks, it becomes small glass pieces. As MCS lights use plastic cover, they are safe.
- The light is made thinner so that it will not be obstructed at the installation site.

MCS light characteristics

【High illuminance / Low power consumption】

MCS lights are suitable for replacing 20 W, 40 W fluorescent lights. We can offer high illumination lighting. The light distribution characteristics and light diffusion characteristics can be designed according to customer's requirements.

【 Long durability】

60,000 hours at the 70% value of initial illuminance. The lifetime is more than four times of the fluorescent light durability.

【Security function】

To ensure safe evacuation even in case of a power outage, security light function is also available.

【Distribution lighting】

With the MCS proprietary lens, we can provide designed light distribution characteristics of irradiation light according to the purpose of use and customer's request.

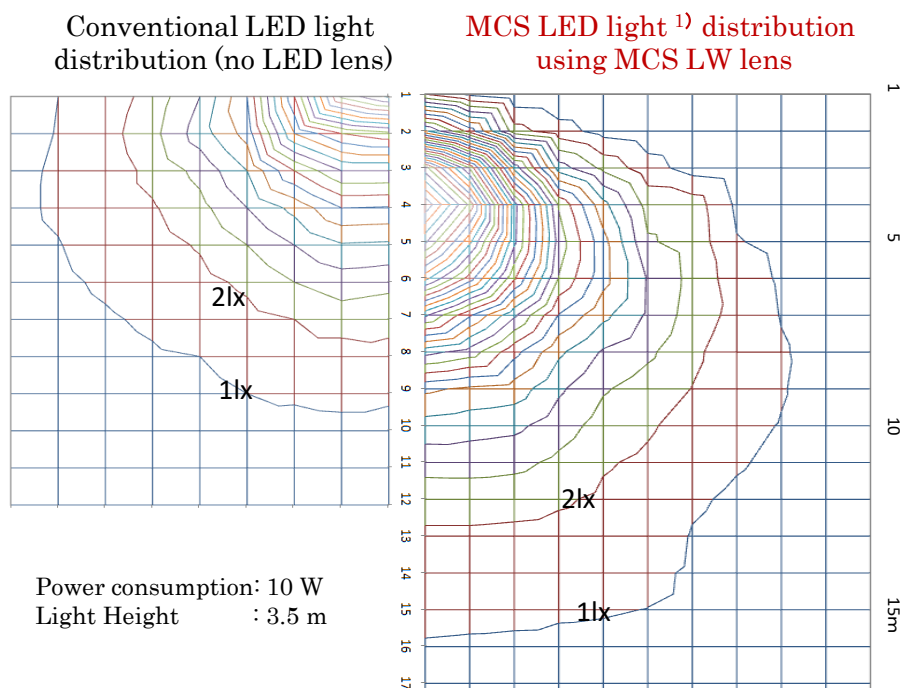
【Diffuse lighting】

For customers who wish to use diffuse lighting similar to fluorescent lights, we also can provide LED light equipment similar to fluorescent lights and LED light equipment without LED lens.

< Farther away, wider, illumination distribution >

By using the LW lens, it can illuminate farther and wider regions. The illuminance distributions (with optical simulation) of the light without lens and the MCS light with LW lens are shown in Fig. 1.

Compared to the light without lenses, MCS light using the LW lens can extend the light flux from the LED to farther and wider region. The light distribution characteristics can be designed considering installation conditions.



1) Clear cover specification (LP-770, 771)

Fig.1 Light distribution comparison for LED light(no lens) and MCS light using LW lens.

<Light distribution comparison for LED light (no lens) and MCS light using LW lens>

Characteristics Illuminance area (S)	LW lens S_{LW}	No lens S_0	Aria ratio S_{LW}/S_0
Illuminance area above 1 lux	94m^2	51m^2	1.8
Illuminance area above 2 lux	56m^2	28m^2	2

- By using the new LW lens, the illuminance area above 1 lux or more is 94 m^2 which is 1.8 times wider than that without lens.
- According to the LW lens, the illuminance area of 2 lux or more is 56 m^2 , which is twice as wide as the no lens light.
- By using the LW lens, light emanated from the LED light source can reach to far away area.

< Necessary illuminance where is needed >

By using LW (Long Wide) lens technology, we can achieve "the necessary illuminance" where is needed. We can control the irradiation shape by changing the lens optical parameters of the LW lens.

Also, by controlling the light axis of the lens, you can change the irradiation direction and change the position of the irradiation area as shown in Fig. 2. As the result, it is possible to design lighting distribution according to your desired location.



Fig. 2 Examples of irradiation area with LW lens.

<Comparison between the ordinary street light and LW lens street light>

Figure 3 (a) shows an example of conventional street lighting. Generally, the illumination shape is a circular shape as shown in the figure. The illuminance is high near the immediate vicinity of the lighting device, and a dark area appears in the area between the two street lights.

Figure 3 (b) shows an example in which the LW lens is applied as an illumination of the street light. The rectangular illumination shape like the road traffic width can be obtained by adjusting the lens parameters. Therefore, it can illuminate without waste. As the result, more bright lighting is obtained even with low power consumption.

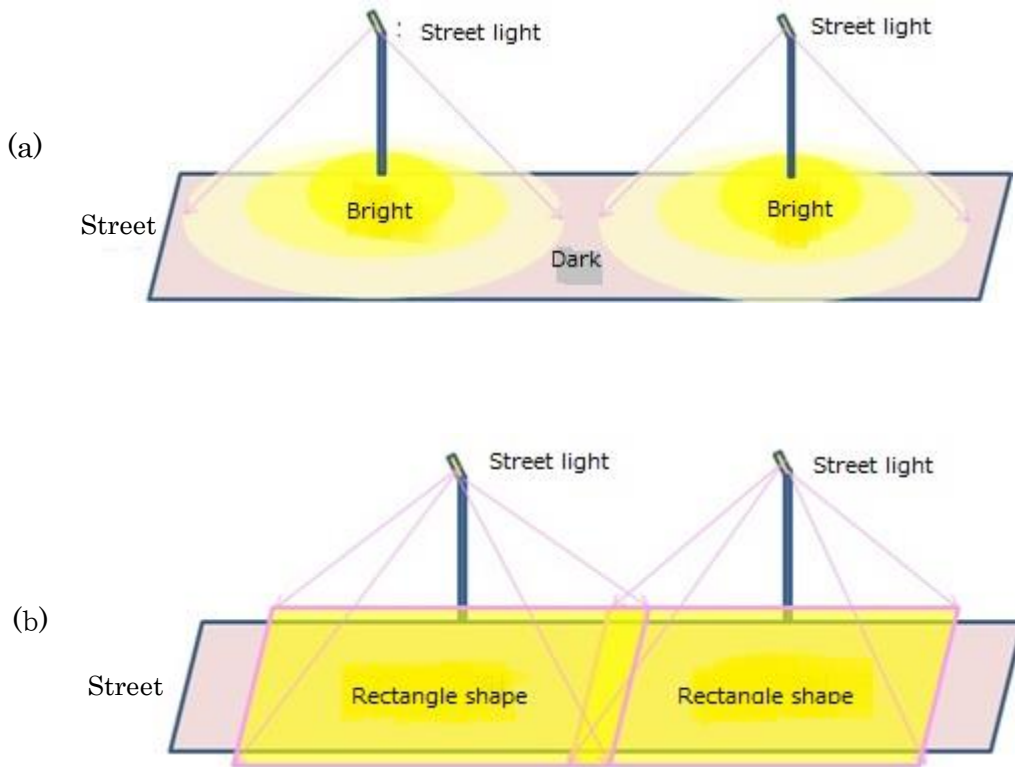


Fig. 3 Comparison between ordinary street light(a) and light with LW lens (b).

< Countermeasure against light nuisance of light leakage from street light >

Recently, "light nuisance" caused by street light leakage is becoming a problem due to the rise of residents' consciousness to the environment. As shown in Fig. 4, the leakage light from the street light may enter the apartment area (Fig. 4a) or the private residence area (Fig. 4b) and become a light leakage problem.

These causes are due to light leakage from light sources such as street lights. When fluorescent lighting or ordinary LED lighting are used, "Leaked light" is irradiated in all directions at 360 degrees.

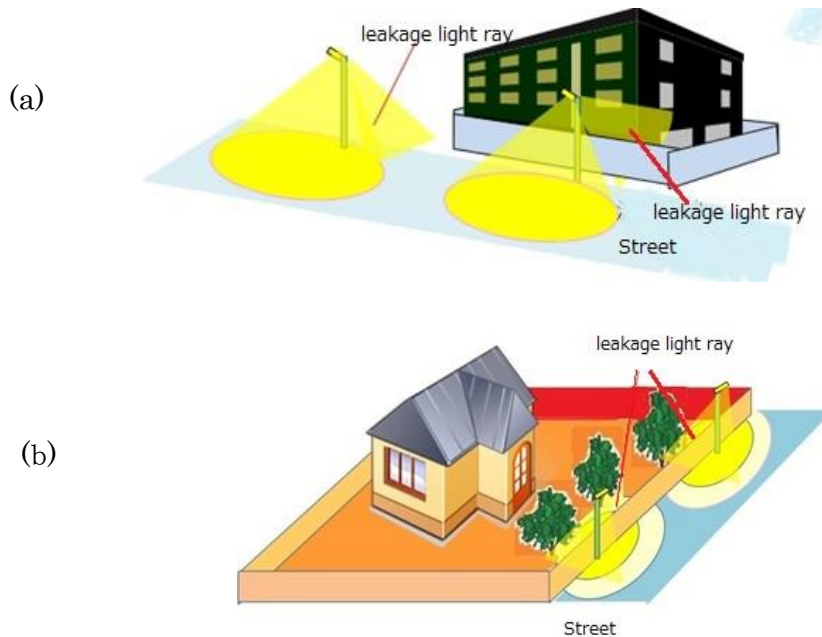


Fig. 4 Leakage light in condominiums and personal houses.

Figure. 5 shows the new street lighting using the LW lens. Along the road, the irradiation shape is rectangular, and the optical axis of the LW lens is adjusted so that the ray does not enter the housing area. According to the street light installation conditions "light hazard" can be avoided.

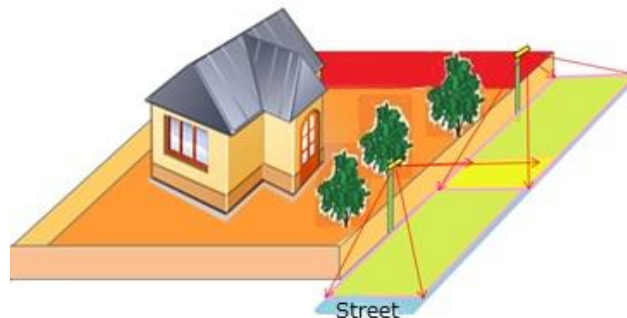


Fig. 5 Light hazard free illumination using LW lens

< Application of LW lens to underpass lighting >

Figure 6 is a visual simulation state of illuminance when conventional fluorescent lamps are used in a underpass tunnel. The illuminance just under the lamps is high, but it is dark in the middle area between the lamps. When we look at the dark area from the bright area, we feels visually more darker.

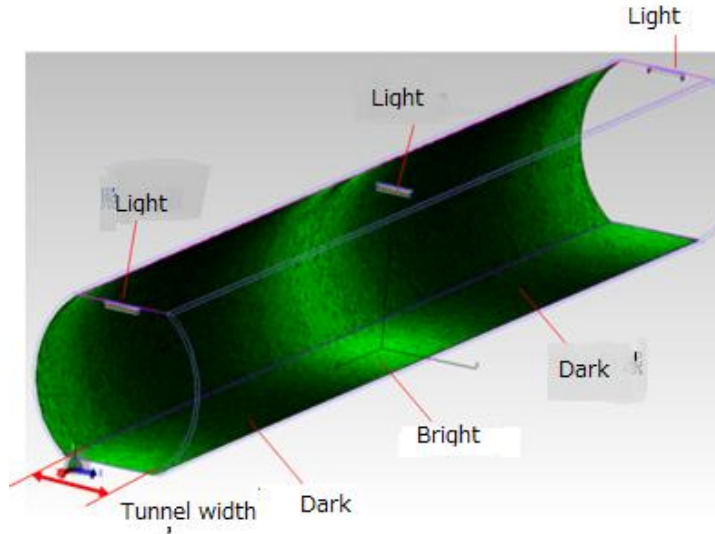


Fig. 6 Illuminance distribution for ordinary florescent lamps

Figure 7 shows the illuminance distribution when the MCS lights using LW lens are used under the same power consumption condition as the fluorescent lamp of Fig.6

By using the LW lens, the luminous flux can be prevailed to far area. As the result, the illuminance inside the tunnel becomes uniformly bright. The darkest intermediate area also becomes brighter.

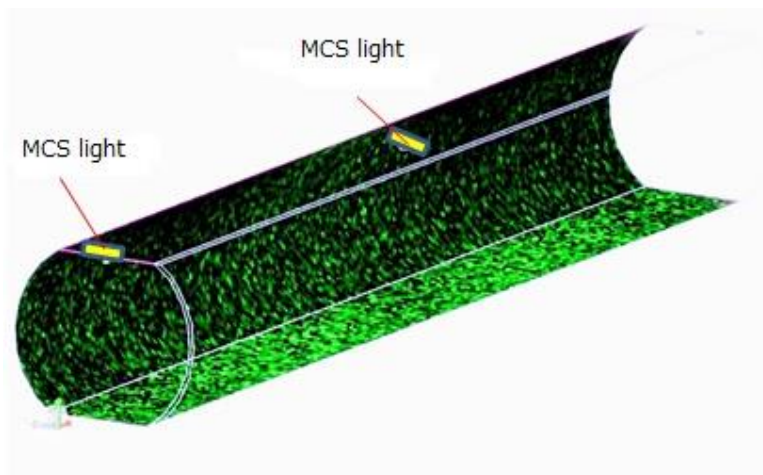


Fig. 7 illuminance distribution with MCS light

■ LP-750

20W

Standard light

Distribution • Diffusion

IP67

RoHS



Power supply : AC 100~200V

PSE

Standard light

Batteries are not built in.

Distribution • Diffusion

Using LW lens to distribute light, we offer light suppressed glare.

Application examples

It can be used in high humidity and rainy environment.
Ex. Underground tunnel lighting, food factory lighting, fishery processing plant lighting, outdoor lighting.

■ LP-751

20W

Security light

Distribution • Diffusion

IP67

RoHS

Built-in battery



Power supply : AC 100~200V

PSE

Security light

Rechargeable battery is built in, it is always charged and operates as a standard light.
It lights automatically when power failure occurs and continue lighting for about 30 minutes.

Distribution • Diffusion

Using LW lens to distribute light, we offer light suppressed glare. It can be adapted to work environment.

Application examples

It can be used in high humidity and rainy environment.
Underground tunnel lighting, food factory lighting, fishery processing plant lighting, outdoor lighting.

LP-750 Specification values

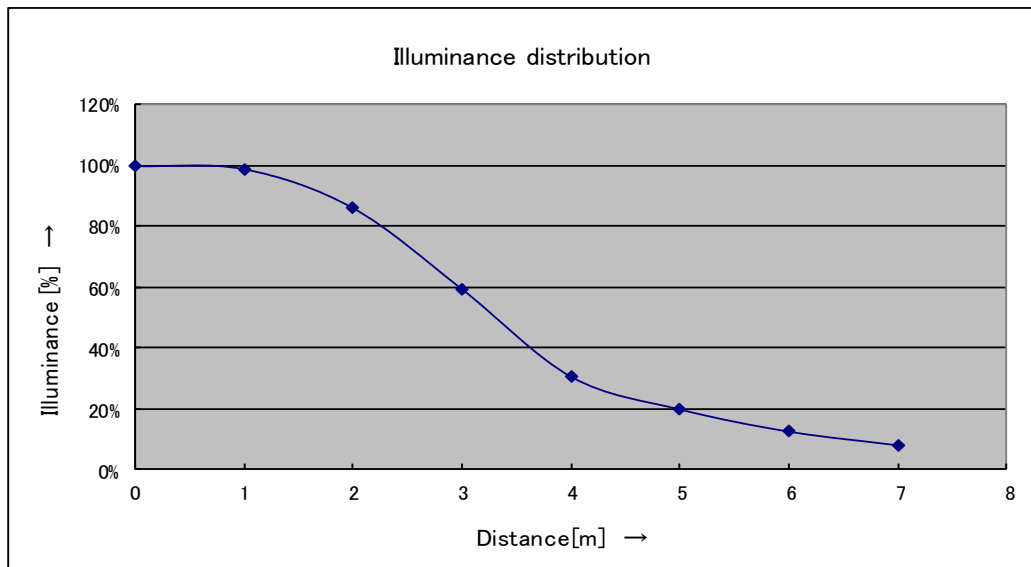
General specification. Hood and housing are united

Rated input voltage	AC100/200V 50/60Hz
Consumption current	AC100V below 210mA AC200V below 120mA
Power factor	Above 80%
Operating voltage range	AC90~257V
Power consumption	19.5W (AC200V)
Operating temperature range	-10~45°C
Withstand voltage	AC1500V 1 min.
Insulation resistance	Above 100MΩ DC500V (between body – input terminal)
Temperature rise	Below 85°C
Weight	Below 3.0kg (including hood)
Protection grade	IP67
Material	Hood : Stainless Body : Polycarbonate ※ Refer to the external view of the cable used.

Optical characteristics

Term	characteristics
Luminescent color	Day white 4600K~5600K
Light flux	1500 lm
Chromaticity coordinate value	(x,y)=(0.330,0.318),(0.330,0.360),(0.361,0.385),(0.356,0.351)
Illuminance	Beneath height 2.4m above 20 lx Height 2.4m, at 3m above 16 lx

Illuminance distribution



LP-751 Specification values

General specification. Hood and housing are united.

Rated input voltage	AC100/200V 50/60Hz
Consumption current	AC100V below 300mA AC200V below 180mA
Power factor	Above 80%
Operating voltage range	AC90~257V
Power consumption	26W (AC200V)
Operating temperature range	-10~35°C
Withstand voltage	AC1500V 1 min. (Between body and input)
Insulation resistance	Above 100MΩ DC500V (between body – input terminal)
Temperature rise	Below 85°C
Weight	Below 4.5kg (including hood)
Protection grade	IP67
Material	Hood: Stainless, Body: Polycarbonate ※ Refer to the external view of the cable used.

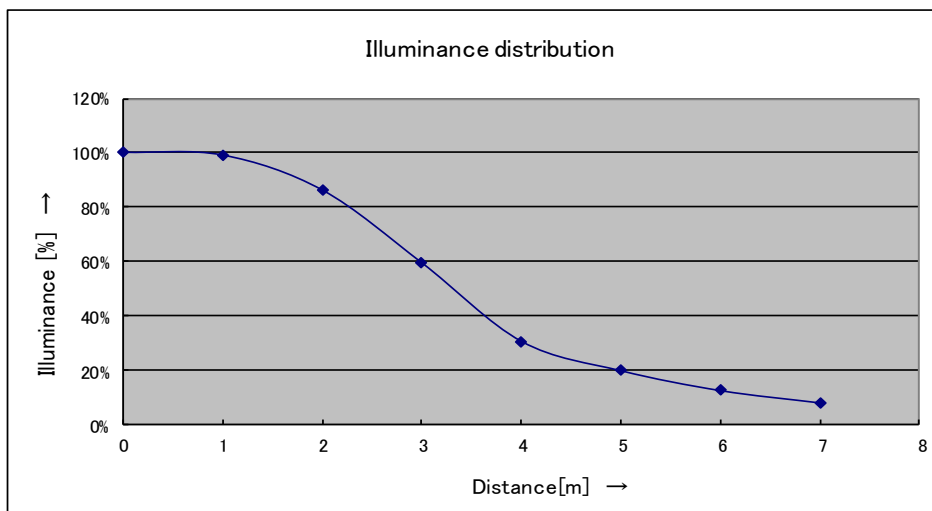
Power storage characteristics

Term	Characteristics
Backup time	More than 30 minutes
Recovery charge	More than 16 hours

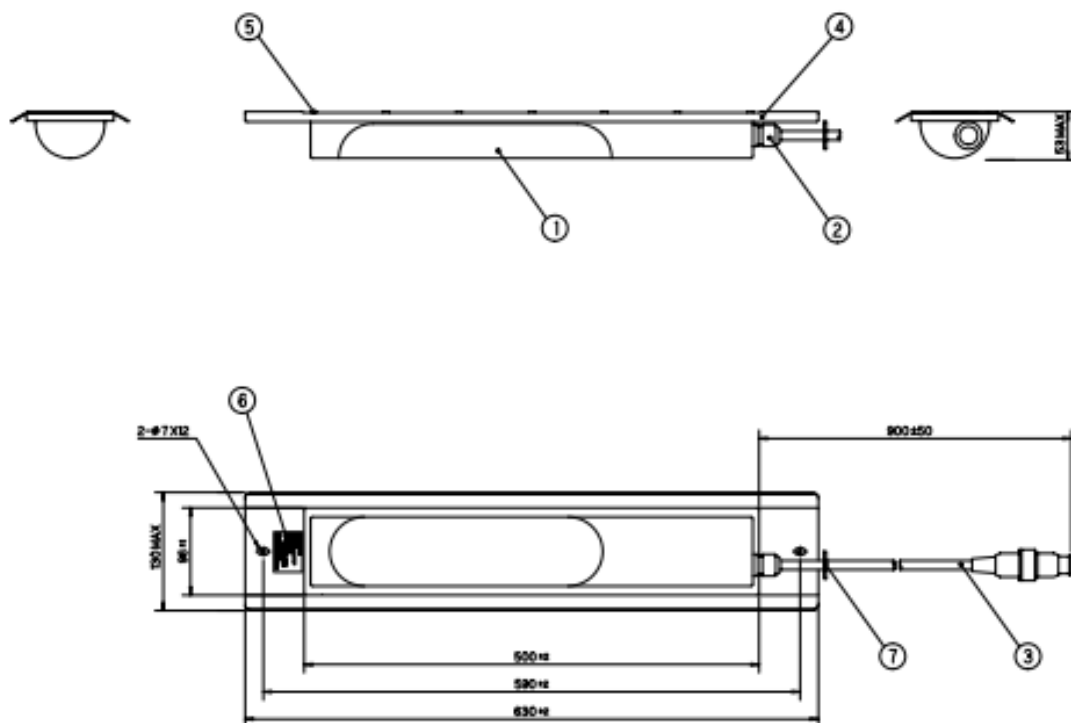
Optical Characteristics

Term	Characteristics
Luminescent color	Day white 4600K~5600K
Light flux	1500 lm
Chromaticity coordinate value	(x,y)=(0.330,0.318),(0.330,0.360),(0.361,0.385),(0.356,0.351)
Illuminance	Beneath height 2.4m above 20 lx Height 2.4m, at 3m above 16 lx

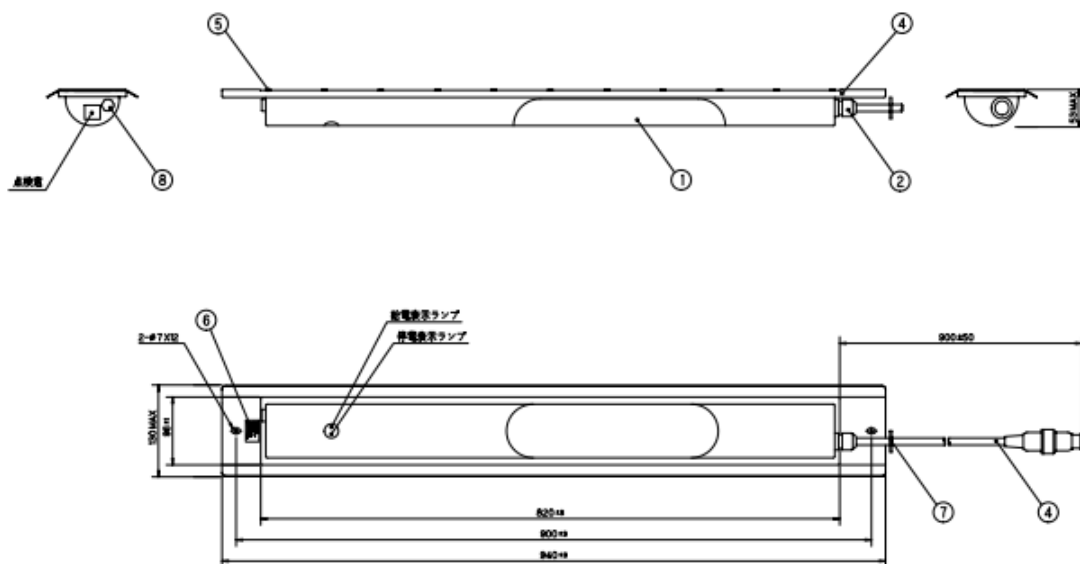
Illuminance distribution



LP-750 external dimensions



LP-751 external dimensions



■ LP-760

30W

Standard light

Distribution • Diffusion

IP67

RoHS



Power supply: AC 100~200V

PSE

Standard light

Batteries are not built in.

Distribution • Diffusion

Using LW lens to distribute light, we offer light suppressed glare.

Application examples

It can be used in high humidity and rainy environment.
Ex. Underground tunnel lighting, food factory lighting, fishery processing plant lighting, outdoor lighting.

■ LP-761

30W

Security light

Distribution • Diffusion

IP67

RoHS

Built-in battery



Security light

Rechargeable battery is built in, it is always charged and operates as a standard light.

It lights automatically when power failure occurs and continue lighting for about 30 minutes.

Distribution • Diffusion

Using LW lens to distribute light, we offer light suppressed glare. It can be adapted to work environment.

Application examples

It can be used in high humidity and rainy environment.
Underground tunnel lighting, food factory lighting, fishery processing plant lighting, outdoor lighting.

LP-760 specification values

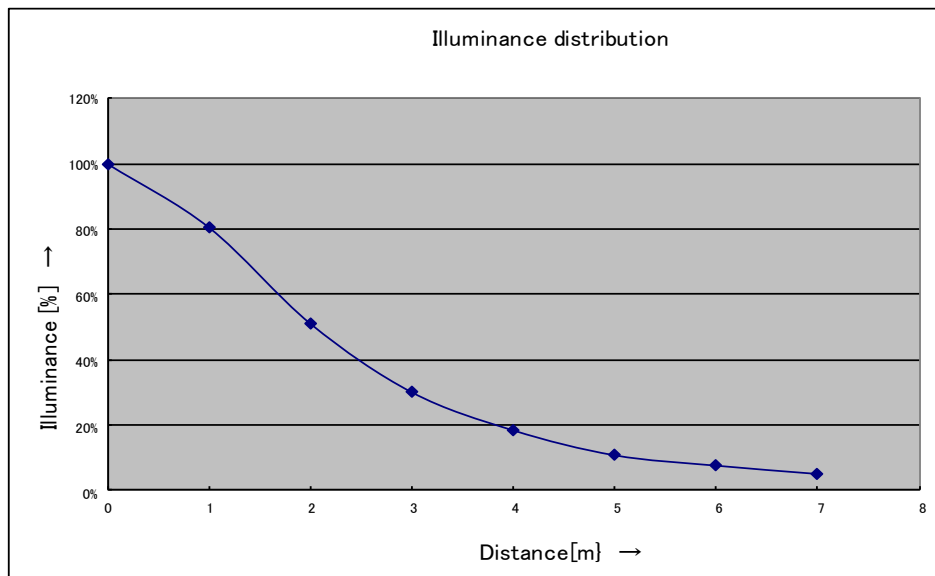
General specification. Hood and housing are united

Rated input voltage	AC100/200V 50/60Hz
Consumption current	AC100V below 310mA AC200V below 170mA
Power factor	Above 80%
Operating voltage range	AC90~257V
Power consumption	30W (AC200V)
Operating temperature range	-10~45°C
Withstand voltage	AC1500V 1 min.
Insulation resistance	Above 100MΩ DC500V (between body – input)
Temperature rise	Below 85°C
Weight	Below 3.5kg (including hood)
Protection grade	IP67
Material	Hood : Stainless Body : Polycarbonate ※ Refer to the external view of the cable used.

Optical characteristics

Term	characteristics
Luminescent color	Day white 4600K~5600K
Light flux	2250 lm
Chromaticity coordinate value	(x,y)=(0.330,0.318),(0.330,0.360),(0.361,0.385),(0.356,0.351)
Illuminance	Beneath height 2.4m above 45lx Height 2.4m, at 3m above 13 lx

Illuminance distribution



LP-761 specification values

General specification. Hood and housing are united.

Rated input voltage	AC100/200V 50/60Hz
Consumption current	AC100V below 440mA AC200V below 230mA
Power factor	Above 80%
Operating voltage range	AC90~257V
Power consumption	37W (AC200V)
Operating temperature range	-10~35°C
Withstand voltage	AC1500V 1 min. (Between body and input)
Insulation resistance	Above 100MΩ DC500V (between body – input)
Temperature rise	Below 85°C
Weight	Below 5.5kg (including hood)
Protection grade	IP67
Material	Hood : Stainless, Body : Polycarbonate ※ Refer to the external view of the cable used.

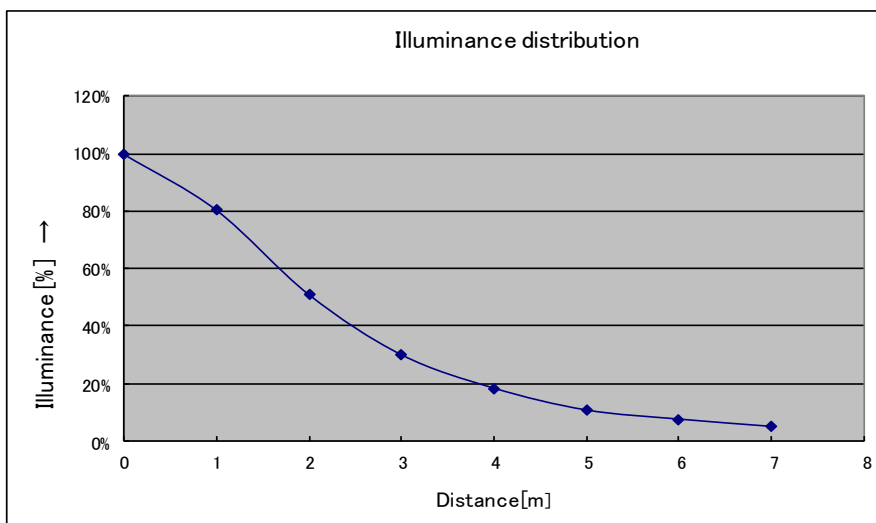
Power storage characteristics

Terms	Characteristics
Backup time	More than 30 minutes
Recovery charge	More than 16 hours

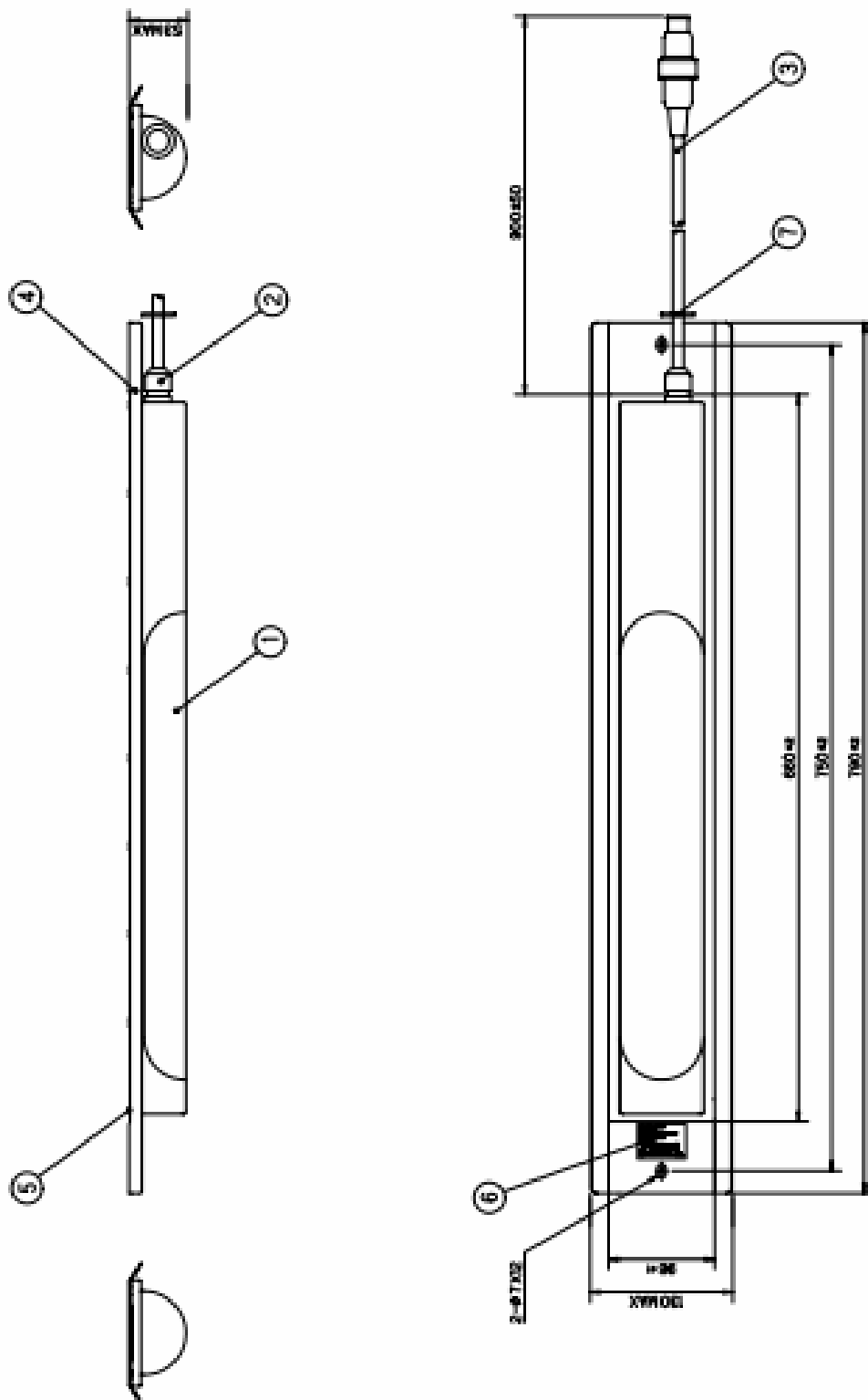
Optical Characteristics

Term	characteristics
Luminescent color	Day white 4600K~5600K
Light flux	2250 lm
Chromaticity coordinate value	(x,y)=(0.330,0.318),(0.330,0.360),(0.361,0.385),(0.356,0.351)
Illuminance	Beneath height 2.4m above 45 lx Height 2.4m, at 3m above 13 lx

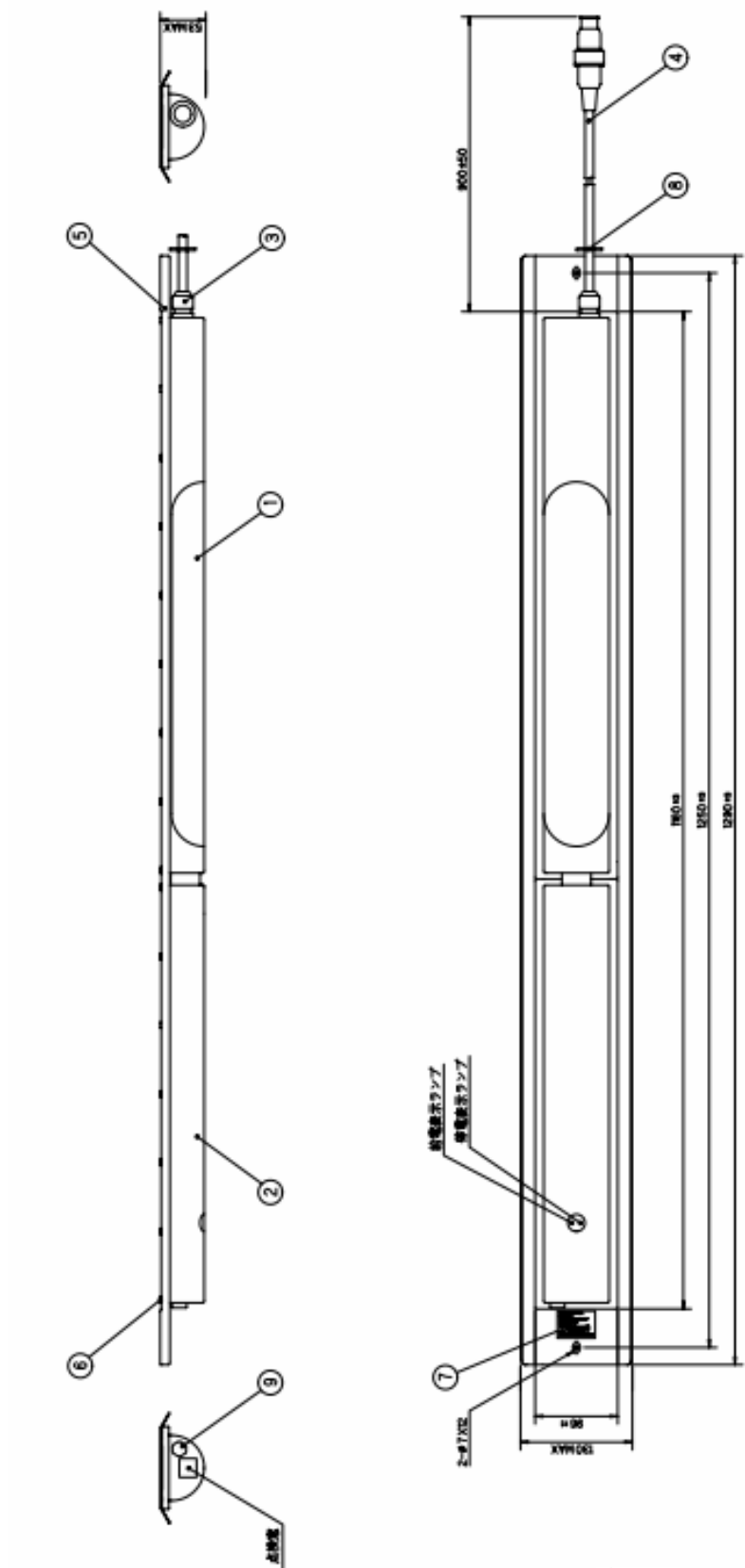
Illuminance distribution



LP-760 external dimensions



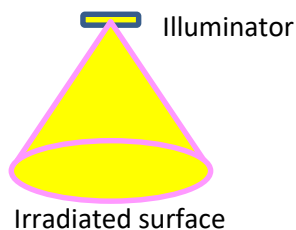
LP-761 external dimensions



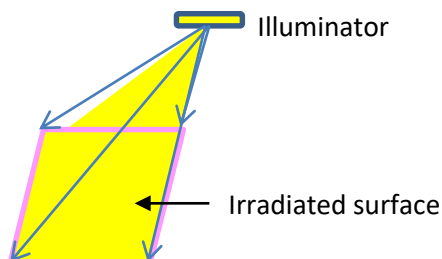
■ LP-770	10W	Standard light	Distribution	IP67	RoHS	
■ LP-771	10W	Security light	Distribution	IP67	RoHS	Built-in battery
■ LP-780	20W	Standard light	Distribution	IP67	RoHS	
■ LP-781	20W	Security light	Distribution	IP67	RoHS	Built-in battery
■ LP-790	30W	Standard light	Distribution	IP67	RoHS	
■ LP-791	30W	Security light	Distribution	IP67	RoHS	Built-in battery



Conventional lighting (Diffusion light type)



LW lens illumination



「necessary lighting where necessary」

Power supply : AC 100~200V

PSE

Clear Cover

In LP-790 and 791, the clear cover is used to maximize the performance of the LED lens characteristics, and it is suitable for long distance and wide range lighting under low power consumption.

Standard light

Battery is not built in.

Security light

Rechargeable battery is built in, it is always charged and operates as a standard light. It lights automatically when power failure occurs and continue lighting for about 30 minutes.

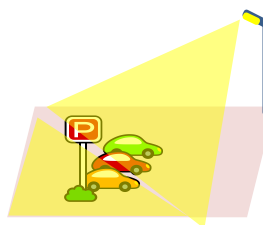
Distribution type

Considering the installation site, we can design the optimum light distribution characteristics according to customer's request.

Application example

It can be used in outdoor environments, and it will light up as security lights at power failure.

The light for street, parking area, park area, tunnel, Underpass, wide warehouse, factory etc.



■ LP-770,771,780,781,790,791 specification values

Model Consumption(w)	Power	Total luminous flux(lm)	Body dimension (with cover) (mm)		
			Length	width	height
LP-770,771	10	750	500	96	50
LP-780,781	19.5	1,500	500	96	50
LP-790,790	26	2,250	660	96	50

Rated input voltage	AC100/200V 50/60Hz
Consumption current	AC100V below 310mA AC200V below 170mA
Power factor	Above 80%
Operating voltage range	AC 90~257V
Power consumption	10W, 20W, 30W (AC200V)
Operating temperature range	-10~45°C
Withstand voltage	AC1500V 1min. (Between body and input)
Insulation resistance	Above 100MΩ, DC500V (between body and input)
Temperature rise	Below 85°C
Weight	Below 3.5kg (including hood)
Protection grade	IP67
Material	Hood : Stainless, Body : Polycarbonate (Clear type) Lens: LW type

Optical Characteristics

Term	characteristics
Luminescent color	Day white 4600K~5600K
Light flux	2250 lm(30W), 1500 lm(20W), 750lm (10W)
Chromaticity coordinate value	(x,y)=(0.330,0.318),(0.330,0.360),(0.361,0.385),(0.356,0.351)
Illuminance	Beneath height 2.4m above 45 lx Height 2.4m, at 3m above 13 lx

■ LP-710	20W	Standard light	Diffusion	IP67	RoHS	
■ LP-711	20W	Security light	Diffusion	IP67	RoHS	Built-in battery
■ LP-720	30W	Standard light	Diffusion	IP67	RoHS	
■ LP-721	30W	Security light	Diffusion	IP67	RoHS	Built-in battery



Power supply : AC 100~200V

PSE

Diffusion type cover

Milky white plastic is used for the lighting cover. Illumination close to fluorescent lights is realized.

Standard light

Battery is not built in.

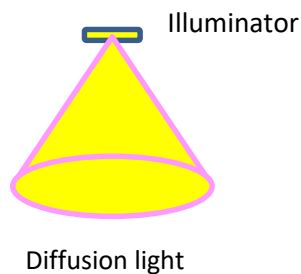
Security light

Rechargeable battery is built in, it is always charged and operates as a standard light. It lights automatically when power failure occurs and continue lighting for about 30 minutes.

Application example

It can be used in high humidity and rainy environment. Underground tunnel lighting, food factory lighting, fishery processing plant lighting, outdoor lighting.

Diffusion lighting



■ LP-710,711,720,721 specification values

Model	Power Consumption (w)	Total luminous flux(lm)	Body dimension (with cover) (mm)		
			Length	width	height
LP-710,711	19.5	1,500	500	96	50
LP-720,721	26	2,250	500	96	50

Rated input voltage	AC100/200V 50/60Hz
Consumption current	AC100V below 310mA AC200V below 170mA
Power factor	Above 80%
Operating voltage range	AC90～257V
Power consumption	19.5W, 26W (AC200V)
Operating temperature range	-10～45°C
Withstand voltage	AC1500V 1分間 (between body and input)
Insulation resistance	Above 100MΩ, DC500V (between body and input)
Temperature rise	Below 85°C
Weight	Below 3.5kg (including hood)
Protection grade	IP67
Material	Hood : Stainless, Body : Polycarbonate (Milky color type) No lens

Optical Characteristics

Term	Characteristics
Luminescent color	Day white 4600K～5600K
Light flux	2250 lm(30W)、1500lm(20W)
Chromaticity coordinate value	(x,y)=(0.330,0.318),(0.330,0.360),(0.361,0.385),(0.356,0.351)
Illuminance	Beneath height 2.4m above 45 lx Height 2.4m, at 3m above 13 lx



ISO9001 ISO14001

MCS has acquired certification of ISO 9001 (quality management system) and ISO 14001 (environmental management system), and we are actively working on quality control and environmental conservation.



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