LTECH

LM-60-24-U2A2
LM-60-12-U2A2

0-10V Push DIM/CCT

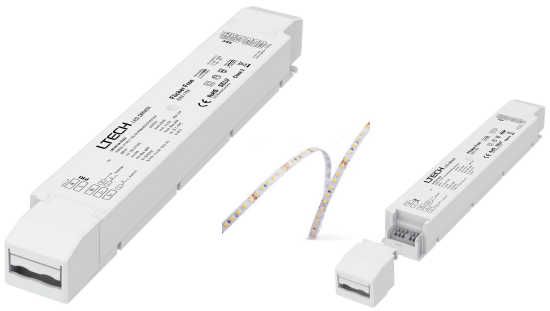
Intelligent Tunable White LED Driver (Constant Voltage)

- Small size and light weight. Adopt SAMSUNG/COVESTRO V0 flame resistant polycarbonate protective housings.
- The clamshell design and screwless type for strain-relief. The design of dismountable end cap allows you to adjust the length of housing depending on your needs.
- Adopt constant power program design and it keeps the same brightness in color temperature adjustment.
- Color temperature range: 2700-6500K.
- With soft-on and fade-in dimming function, enhancing your visual comfort.
- The whole dimming process is flicker-free with high frequency exemption level.
- Dimming from 0~100%, down to 0.1%.
- 2-CH SELV output channel with common anode.
- Automatically recognize 0-10V and 1-10V input signals.
- Ultra-low consumption of 0-10V ports < 0.05mA.
- The secure and reliable design for signal isolation.
- Innovative thermal management technology intelligently protects the power life.
- Overheat, over voltage , overload, short circuit protection and automatic recovery.
- Suitable for indoor light applications of I/II/III type.
- Up to 50,000-hour life time.
- 5-year warranty (Rubycon capacitor).

Dim /CT

Flicker-free
IEEE 1789

Dimmable:
0.1%-100%



E497951 RoHS SELV Class 2

The certification icon represents on-going certification applications only, and final certification qualification is subject to actual products.

0-10V PUSH | Overheat protection | Over voltage protection | Overload protection | Short circuit protection

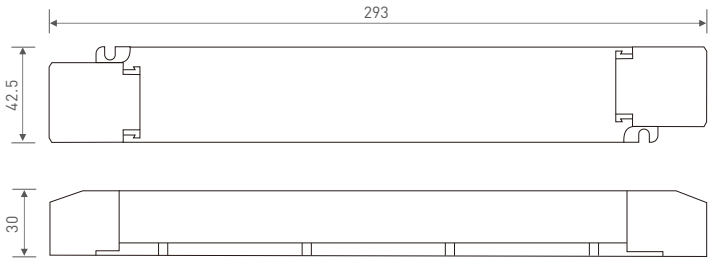
Technical Specs

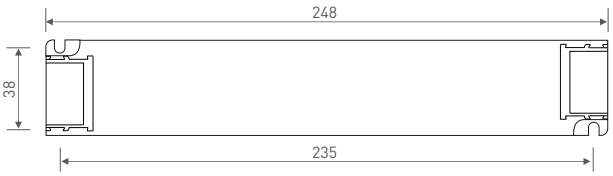
Model		LM-60-24-U2A2	LM-60-12-U2A2
OUTPUT	Output Voltage	24Vdc	12Vdc
	Output Voltage Range	24Vdc±0.5Vdc	12Vdc±0.5Vdc
	Output Current	Max. 2.5A	Max. 5A
	Output Power	Max. 60W	
	Output Power Range	0-60W	
	Strobe Level	High frequency exemption level	
	PWM Frequency	3600Hz	
	Dimming Range	0~100%, down to 0.1%	
	Overload Power Limitation	≥102%	
	Ripple & Noise	Switch ripple≤100mV, noise≤200mV	Switch ripple≤200mV, noise≤400mV
INPUT	Dimming Interface	0-10V(1-10V/10V PWM/RX), Push DIM/CCT	
	Input Voltage	120-277Vac	
	Frequency	50/60Hz	
	Input Current	0.6A/120Vac, 0.35A/230Vac, 0.3A/277Vac	
	Power Factor	PF>0.99/120Vac, PF>0.95/230Vac, PF>0.9/277Vac (at full load)	
	THD	120Vac@THD < 5%, 230Vac@THD < 7%, 277Vac@THD < 10% (at full load)	
	Efficiency (typ.)	91%	90%
	Standby Power Loss	<0.5W	
	Inrush Current	Cold start 45A/230Vac (Test twidth = 840us under 50% Ipeak)	
	Anti Surge	L-N: 2KV	
	Leakage Current	Max. 0.5mA	
ENVIRONMENT	Working Temperature	ta: -20~50°C tc: 85°C	
	Working Humidity	20-95%RH, non-condensing	
	Storage Temperature,Humidity	-40~80°C, 10-95%RH	
	Temperature Coefficient	±0.03%/°C(-20~50°C)	
	Vibration	10~500Hz, 2G 12min/1cycle, 72 min for X, Y and Z axes respectively	
PROTECTION	Overheat Protection	Intelligently adjust or turn off the output current if the PCB temperature ≥110°C, and recover automatically	
	Overvoltage Protection	Shut down the output when non-load voltage≥28V, and recover automatically	Shut down the output when non-load voltage≥14V, and recover automatically
	Overload Protection	Shut down the output when current load≥102%, and recover automatically	
	Short Circuit Protection	Enter hiccup mode if short circuit occurs, and recover automatically	
SAFETY & EMC	Withstand Voltage	I/P-O/P: 3750Vac	
	Isolation Resistance	I/P-O/P: 100MΩ/500VDC/25°C/70%RH	
	Safety Standards	UL America UL8750	
		CUL Canada CSA C22.2 NO. 250. 13	
		CE European Union EN61347-1, EN61347-2-13, EN62384	
	EMC Emission	UL America FCC part 15	
		CE European Union EN55015, EN61000-3-2, EN61000-3-3, EN61547	
	EMC Immunity	EN61000-4-2,3,4,5,6,8,11, EN61547	
	Strobe Test Standard	IEEE 1789	
OTHERS	Gross weight(G.W)	285g±10g	
	Dimensions	293×42.5×30mm(L×W×H)	
	Package size	296×44×33mm(L×W×H)	
	Carton Size	315×230×215mm(L×W×H) 30pcs/ctn 9.35kg±5%/ctn	

* The driver is suitable for connecting resistor current-limiting LED fixture (e.g. LED strip). The inrush current will be dozens of times increased if connecting built-in constant current IC current-limiting LED fixtures, the driver will activate the overloaded protection (hiccups flickering). When you order, please remark controlling the constant current LED fixture (e.g. MR16 lamp, underground light, LED wall washer, constant current LED strip, etc.), so that we can prepare them with special procedures.

Product Size

Unit: mm

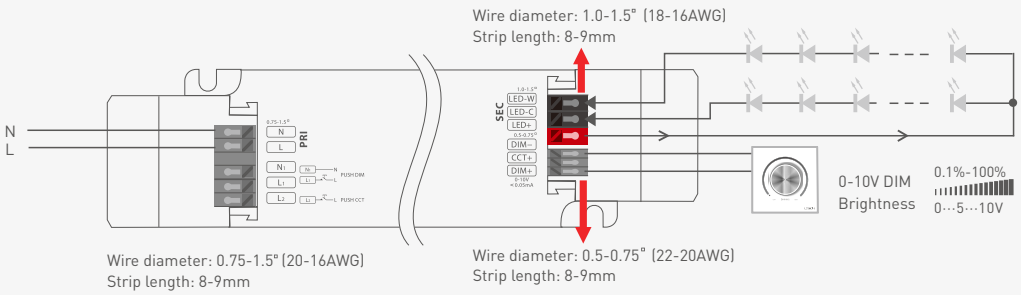




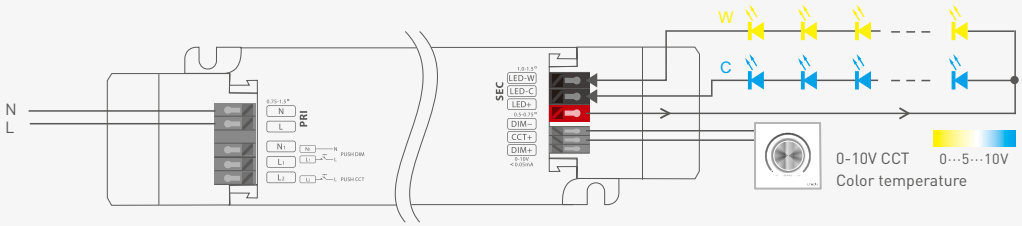
Wiring Diagram

0-10V Connection

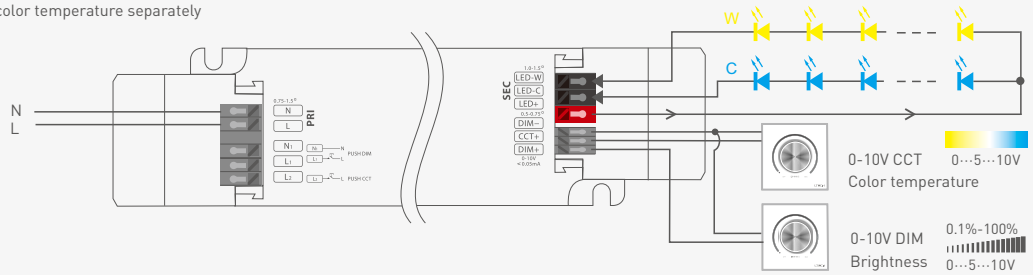
1. Brightness adjustment



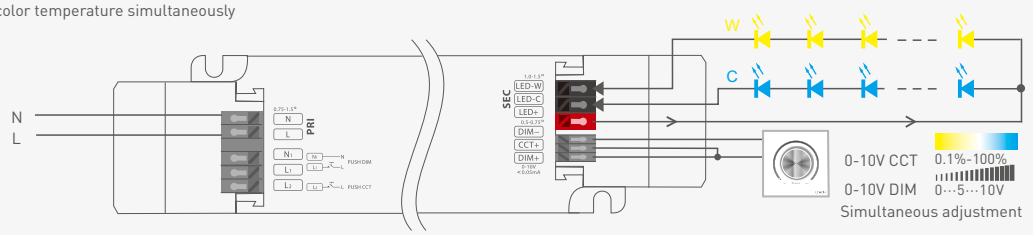
2. Color temperature adjustment



3. Adjust brightness and color temperature separately

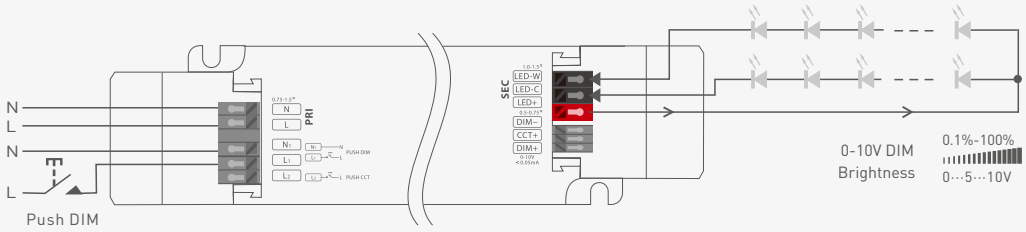


4. Adjust brightness and color temperature simultaneously

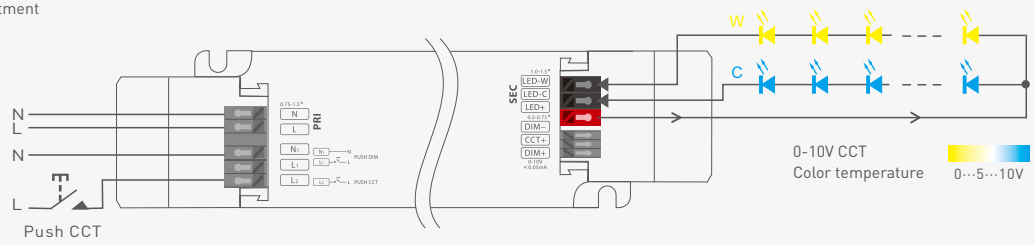


Push DIM/CCT Connection

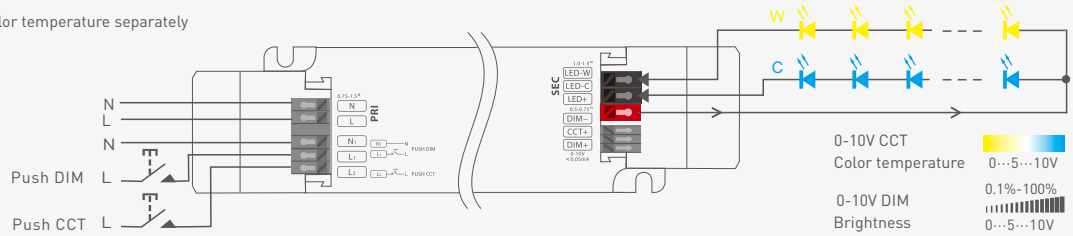
1. Brightness adjustment



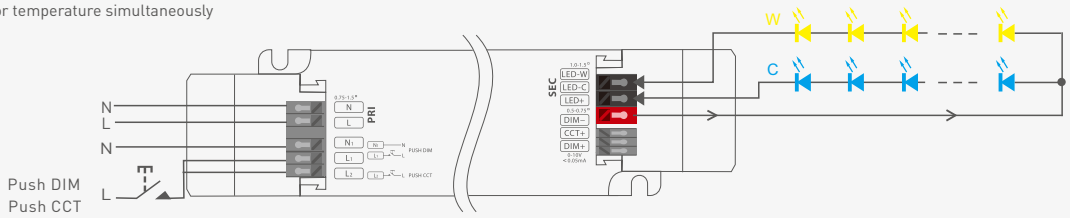
2. Color temperature adjustment

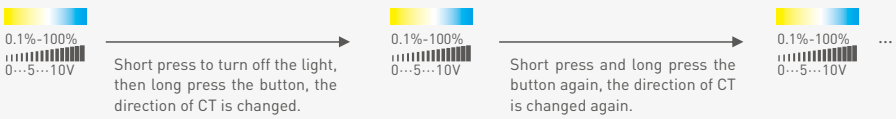


3. Adjust brightness and color temperature separately

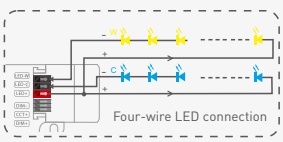


4. Adjust brightness and color temperature simultaneously

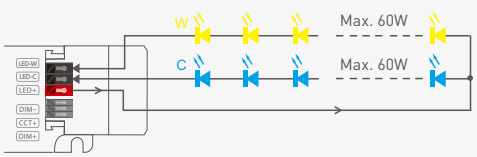




＊ Dimming interface priority: 0-10V first , Push DIM/CCT next.



＊ Adopt constant power program design and it keeps the same brightness in color temperature adjustment. Twice the rated power load can be connected to the driver. A 60W driver can connect to 60W X 2CH load and the total power of the 2 channels will be kept within 60W.



Push DIM/CCT

Reset switch

DIM
- On/off control: Short press.
- Stepless dimming: Long press.
- With every other long press, the brightness level goes to the opposite direction.
- Dimming memory: Go to the brightness level adjusted previously when lights are turned on.

CCT
- Color temperature adjustment: Long press.
- With every other long press, color temperature go to the opposite direction.
- Color temperature memory: Color temperature will be the same as previously adjusted when lights are turned on.

✻ Applicable to brightness adjustment, color temperature adjustment and separate brightness/CT adjustment in Push DIM/CCT connection.

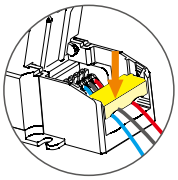
Reset switch

DIM/CCT
- On/off control: Short press.
- Stepless dimming and color adjustment: long press.
- With every other long press, color temperature go to the opposite direction.
- Dimming memory: Go to the brightness level adjusted previously when lights are turned on.

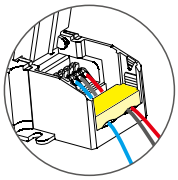
✻ Applicable to simultaneous brightness and CT adjustment in Push DIM/CCT connection.

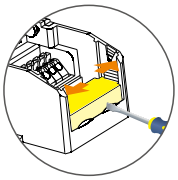
Protective Housing Application Diagram

Tension plate



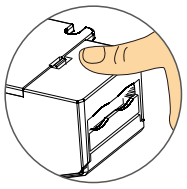
Push the tension plate down to fix the electric wires.

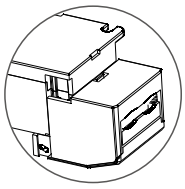


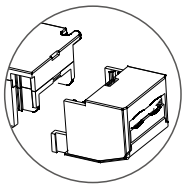


Push the side plate outwards and remove the tension plate by prying it up with a tool at the same time.

Remove the protective housing



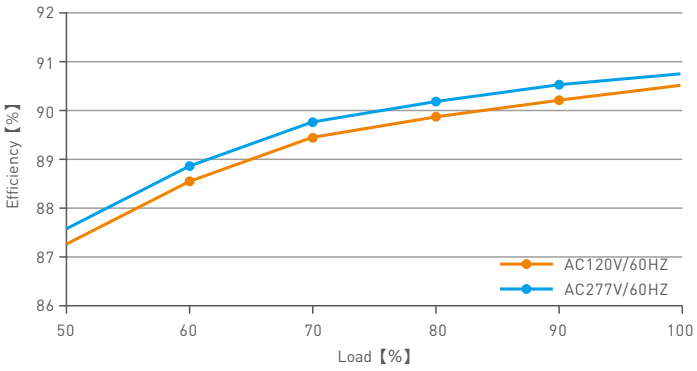




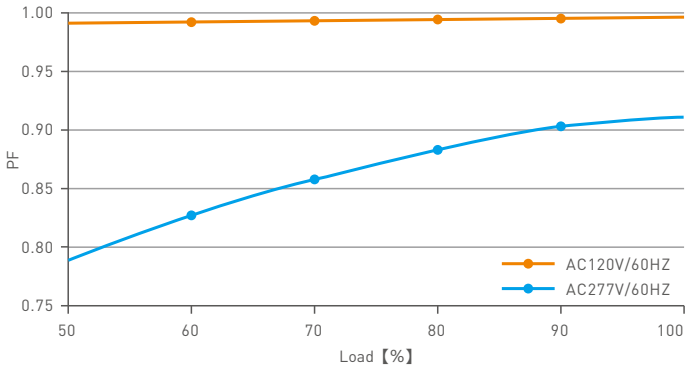
Pull the housing left and right from the bottom to remove it.

Relationship Diagrams

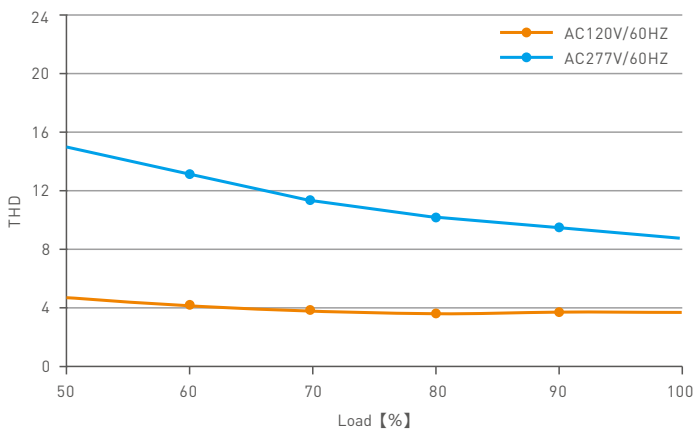
Efficiency vs Load



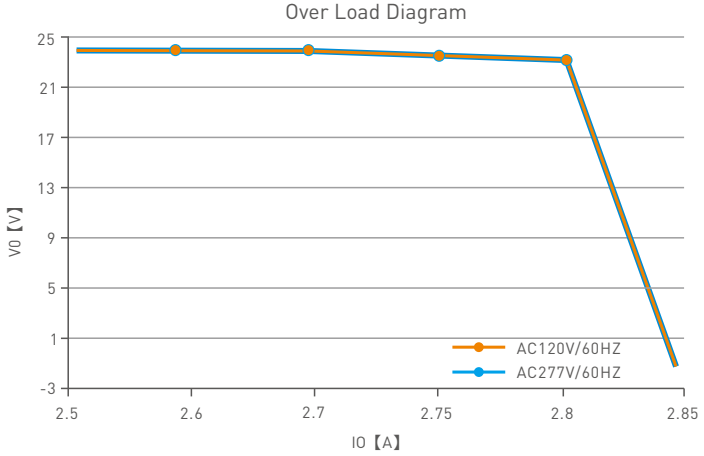
Power Factor Characteristic



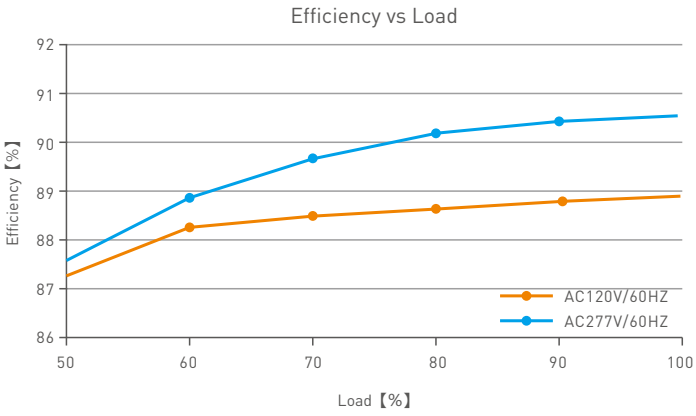
THD VS Load

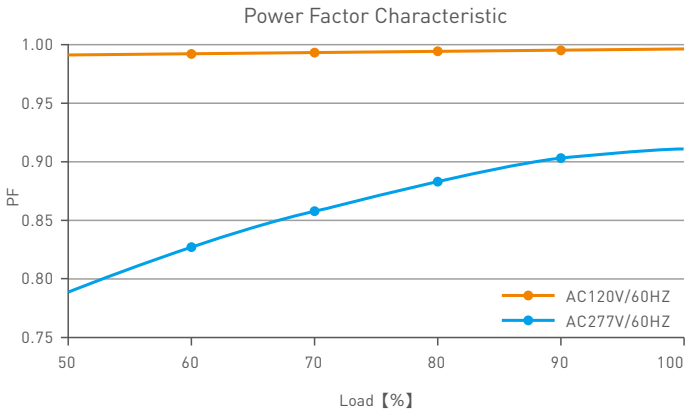


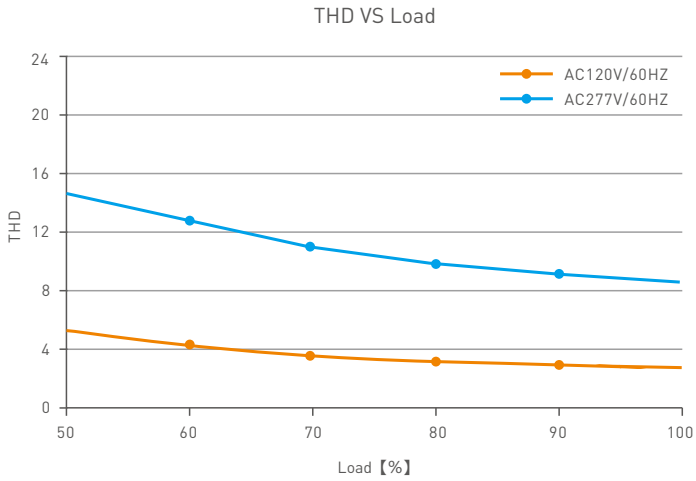
Over Load Diagram

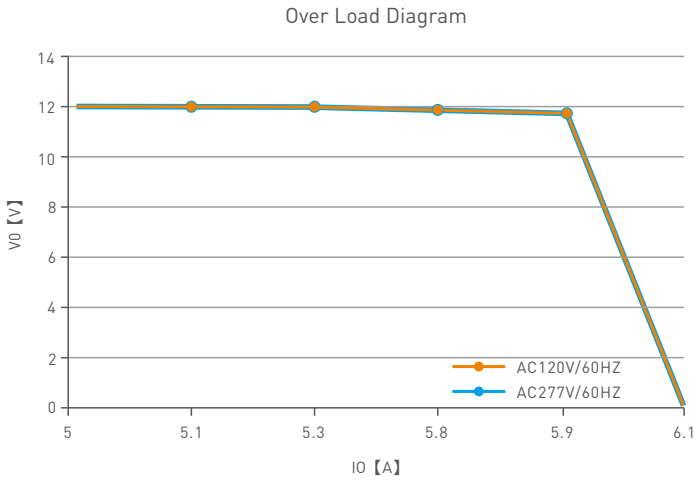


LM-60-24-U2A2









LM-60-12-U2A2

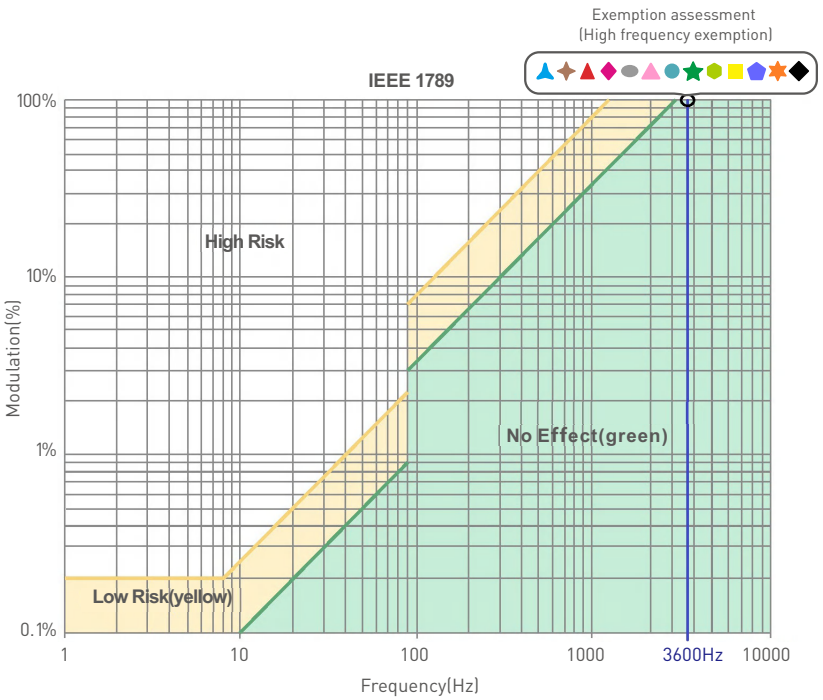
Flicker Test Table

IEEE 1789

Limit Value of Modulation in Low Risk Areas	
Waveform frequency of Optical output (f)	Limit value (%)
f ⩽ 8Hz	0.2
8Hz < f ⩽ 90Hz	0.025 × f
90Hz < f ⩽ 1250Hz	0.08 × f
f > 1250Hz	Exemption assessment
Limit Value of Modulation in No Effect Areas	
Waveform frequency of Optical output (f)	Limit value (%)
f ⩽ 10Hz	0.1
10Hz < f ⩽ 90Hz	0.01 × f
90Hz < f ⩽ 3125Hz	(0.08/2.5) × f
f > 3125Hz	Exemption assessment (High frequency exemption)

Brightness

- 0.1%
- 1%
- 5%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%



Marks in the right chart are tested results of different current levels. The output frequency is 0Hz in 100% brightness and its corresponding modulation is 0%, which could not be shown in the right chart.

Attentions

- Products shall be installed by qualified professionals.
- LTECH products are non-waterproof (special models excepted). Please avoid the sun and rain. When installed outdoors, please ensure it is mounted in a water proof enclosure.
- Good heat dissipation will extend the working life of products. Please ensure good ventilation.
- Please check if the working voltage used complies with the parameter requirements of products.
- The diameter of wire used must be able to load the light fixtures you connect and ensure the firm wiring.
- Before you power on products, please make sure all the wiring is correct in case of incorrect connection that causes damage to light fixtures.
- If a fault occurs, please do not attempt to fix products by yourself. If you have any question, please contact your suppliers.

* This manual is subject to changes without further notice. Product functions depend on the goods. Please feel free to contact our official distributors if you have any question.

Warranty Agreement

- Warranty periods from the date of delivery： 5 years.
- Free repair or replacement services for quality problems are provided within warranty periods.

Warranty exclusions below:

- Beyond warranty periods.
- Any artificial damage caused by high voltage, overload, or improper operations.
- Products with severe physical damage.
- Damage caused by natural disasters and force majeure.
- Warranty labels and barcodes have been damaged.
- No any contract signed by LTECH.

1. Repair or replacement provided is the only remedy for customers. LTECH is not liable for any incidental or consequential damage unless it is within the law.
2. LTECH has the right to amend or adjust the terms of this warranty, and release in written form shall prevail.

Update Log

Version	Updated Time	Update Content	Updated by
A0	2021.03.25	Original version	Liu Weili