

LF-GHD240D-24

240W DALI DT8 Dimmable Constant Voltage LED Driver



Product family features

- Output voltage: 24V; DT6/DT8 configurable via DIP switch
- Compact size; flip-type and screwless design for wire clamp cover; end cap detachable
- Stand-by power consumption $\leq 0.3W$, complying with the latest ERP standard
- Dimming depth: 0.1%; flicker-free; THD $\leq 5\%$
- 5 years guarantee

Product family benefits

- Advanced functions: EL, CorridorDIM, CLO
- Supports DALI-2 part 251, 252 and 253
- Output frequency and parameters adjustable via DALI programmer; output mode settable via DIP switch
- Multiple modes available: 1 channel DT8, 1 channel DT6 (default)
- Surge level: L-N: 2kV

Typical applications

- For commercial and home lighting
- For office and decorative lighting

Product parameters

- | | |
|----------------------------|------------------------|
| — Output current 0-10A | — Output voltage 24Vdc |
| — Output power 0-240W | — Efficiency 94% |
| — Input voltage 198-264Vac | |

Electrical data

Input data

Rated input voltage	220 ... 240V
AC voltage range	198 ... 264V
Mains frequency	0/50/60Hz
DC voltage	180 ... 264V
Power factor	≥0.95
Efficiency	94% ¹⁾
AC input current	1.5A Max
DC input current	0.4...0.6A
Inrush current	85A ²⁾
Loading number on circuit breaker 16 A (B)	3
Loading number on circuit breaker 16 A (C)	5
Loading number on circuit breaker 25 A (B)	4
Loading number on circuit breaker 25 A (C)	8
Leakage current	≤0.7mA
Stand-by power consumption	≤0.3W
THD	≤5%

Output data

Nominal output voltage	24V
Voltage tolerance	±2%
Nominal output current	0...10A
Maximum output power	240W
Nominal output power	0 ... 240W
Output dimming frequency	300-22000Hz (default 3600Hz dimming)
Flicker	According to IEEE Std 1789-2015
CIE SVM	≤0.4
IEC-Pst	≤1
Temperature tolerance	±5%
Start-up time	<1.5S

Safety

Withstanding voltage	I/P-O/P: 3.75kV&5mA&60S; I/P-DA1/DA2, DA1/DA2-O/P: 1.5kV&5mA&60S
Surge capability (L-N)	2kV
PUSH	1kV ³⁾
Insulation resistance	I/P-O/P, I/P-DA1/DA2, DA1/DA2-O/P: >100MΩ@500VDC
Lifetime	Up to 100,000 hours (for details, please refer to the service life table)
Guarantee	5 years ⁴⁾

1) Typical value

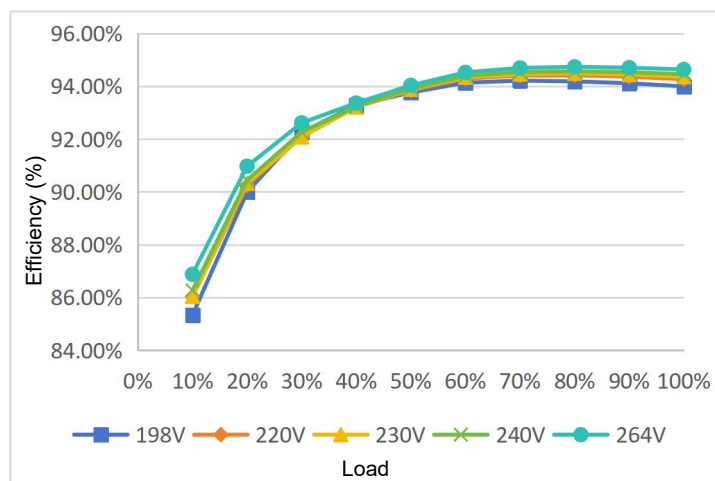
2) $t = 450\mu s$

3) The surge test at the PUSH terminal: DA1-DA2 is connected in parallel with L-N

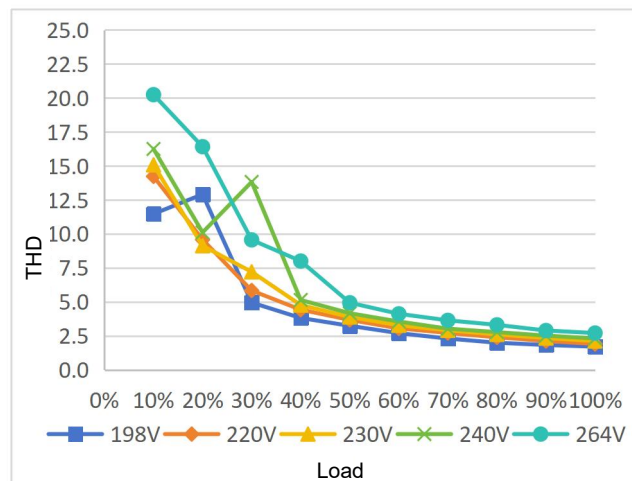
4) 5 years @Tc≤90°C

Characteristic diagrams

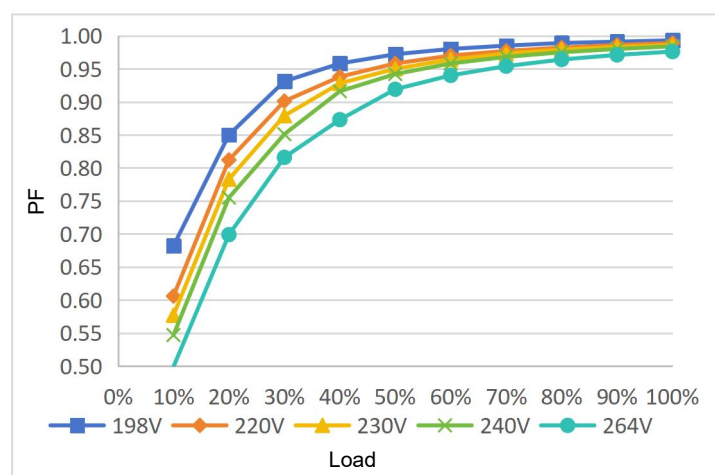
Efficiency vs Load



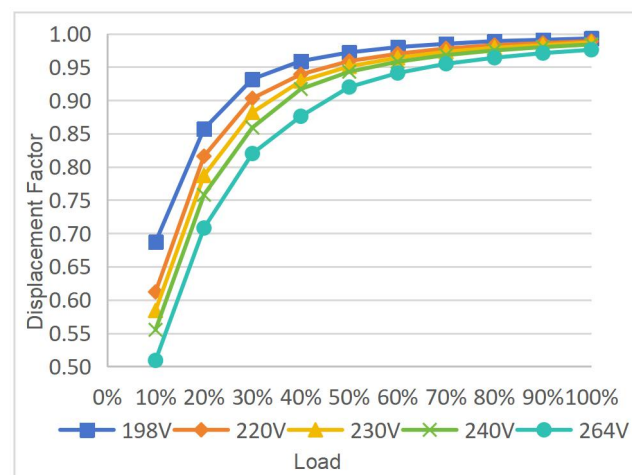
THD vs Load



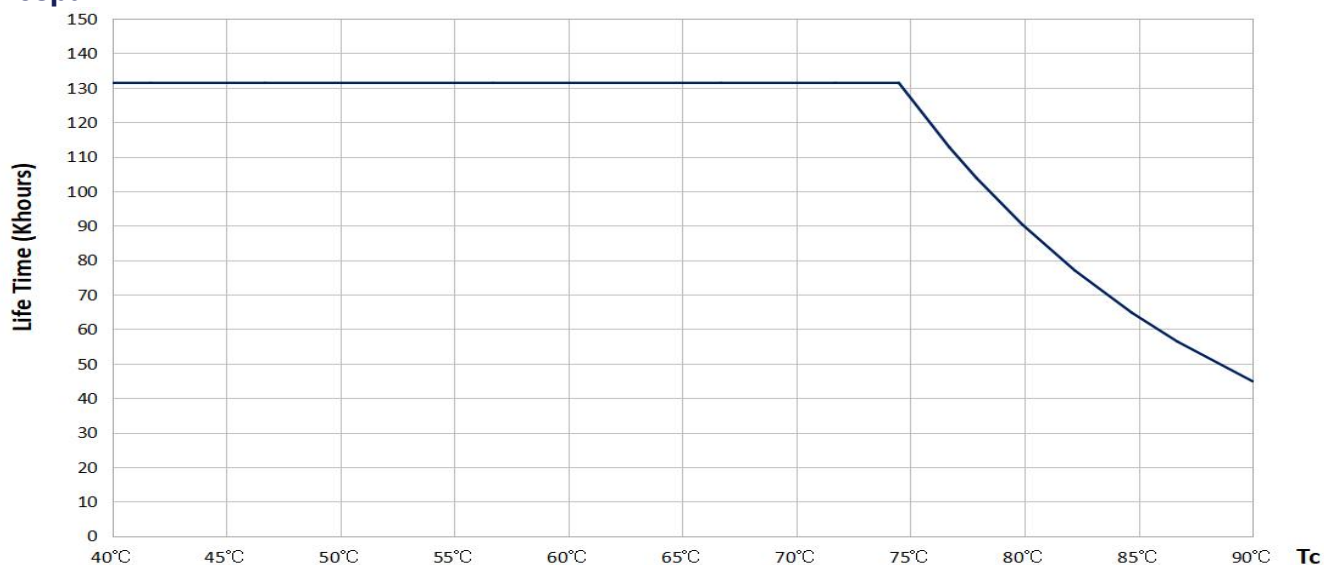
Power Factor vs Load



Displacement Factor vs Load



Lifespan



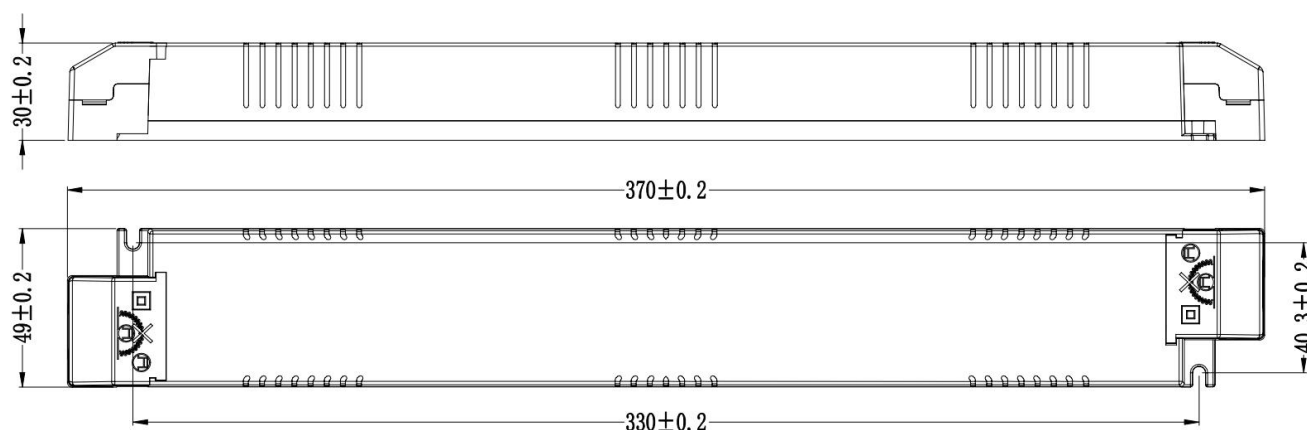
Service life

Model	I _{out}	P _{out}	T _a	35°C	45°C	50°C
LF-GHD240D-24	10A	240W	T _c	75°C	85°C	90°C
			Lifetime	>100,000h	>50,000h	>45,000h

Note: The design life of the LED driver is as described above under reference conditions. The failure probability is less than 10%.

The relationship between T_c and T_a also depends on the design of the luminaire.

Dimensions (Unit: mm)



Mounting hole spacing, length	330±0.2mm
Mounting hole spacing, width	40.3±0.2mm
Product weight	560g
Cable cross-section, input side	0.75 ... 1.5 mm ²
Cable cross-section, output side	0.75 ... 2.5 mm ²
Wire preparation length, input side	5mm
Wire preparation length, output side	5mm
Length	370±0.2mm
Width	49±0.2mm
Height	30±0.2mm

Colors & materials

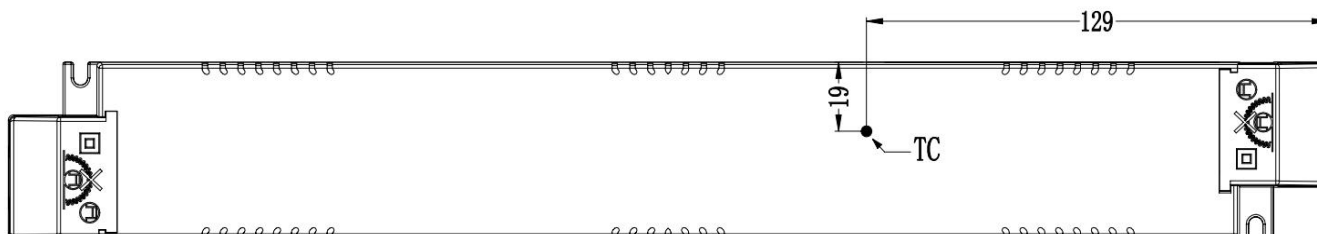
Casing material	PC
Casing color	White

Temperature & operating conditions

Ambient temperature range	-20°C - +50°C
Maximum temperature at tc test point	90°C
Temperature range at storage	-30°C - +80°C (6 months in Class I environment)

Humidity range at storage	20-75%RH (no condensation)
Humidity during operation	20-95%RH (no condensation)
Atmospheric pressure	86-106KPa
RoHS	RoHS 2.0 (EU) 2015/863

Tc test point (Unit: mm)



Tc point is at the top of LED driver

Product terminal

Input		Output	
AC-L	AC live wire input	LED+	Positive terminal output of LED driver
AC-N	AC neutral wire input	WW-	Warm white negative terminal output
NC	NC	LED+	Positive terminal output of LED driver
CCT	CCT adjustment input	CW-	Cool white negative terminal output
DA1/PUSH	DALI1/PUSH dimming input	/	/
DA2/PUSH	DALI2/PUSH dimming input	/	/

DIP switch definition

Mode	Label	Diagram
1 channel DT6	DT6	 DT6 DT8
1 channel DT8	DT8	

The DIP switch is prohibited when the LED driver is powered on.

Capabilities

Dimmable	DALI/PUSH dimmable
Dimming range	0.1 ... 100%
Overload protection	Yes
Short circuit protection	Hiccup mode (Self-recovery within 180s; output will be off after 180s and AC needs to be restarted)
Overvoltage protection	<36V

Over-temperature protection	Yes (Optional)
Suitable for fixtures with prot. class	II
Programming interface	DALI
Control interface	DALI/ PUSH
Number of channels	2 channels
CorridorDIM	Yes
EL	Yes
CLO	Yes
DALI Part 251 252 253	Yes

Output mode description

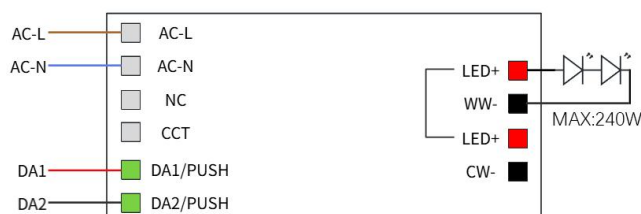
This product has two output modes (1 channel DT6 (default), 1 channel DT8), which can be set via DIP switch.

⚠ The output mode set by the Lifud SmartSet PC software is invalid. The output mode set by the DIP switch shall prevail.

Application instructions and wiring diagram

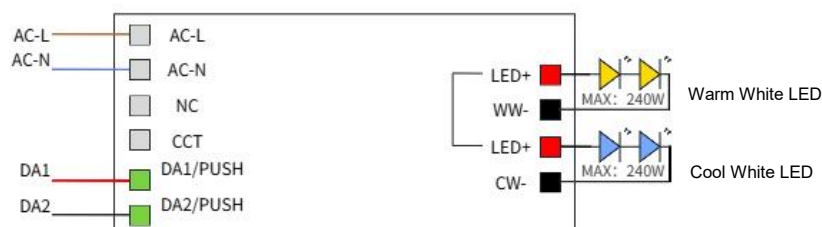
Output mode	Number of DALI address	Luminaire type	Lighting adjustment	Load description
1 channel DT6	1	Single color	Can only be connected to 1 luminaire for single color dimming	Maximum total power of the LED driver ≤ 240W
1 channel DT8	1	DIM & CCT	Dimmable and CCT adjustable	

1 channel DT6 wiring diagram



⚠ When the DIP switch is set to 1 channel DT6 mode, only the WW channel can be accessed, and the CW channel has no output.

1 channel DT8 wiring diagram

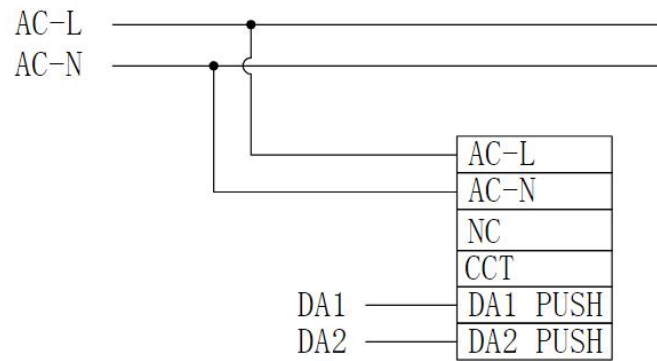


⚠ ① When the LED driver is connected to 2 channels output, the negative terminals of the luminaire are strictly forbidden to connect together, otherwise it will cause damage to the driver.

② The "MAX" power shown in the diagram represents the rated power of the load.

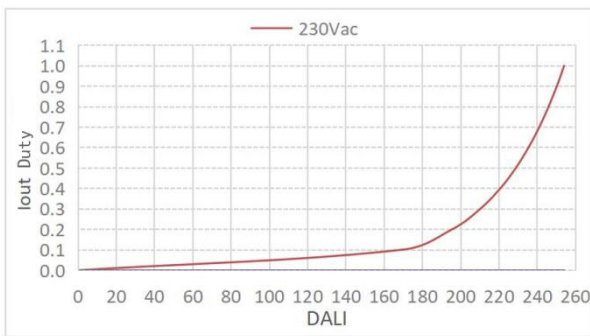
Dimming function instructions

• DALI dimming function

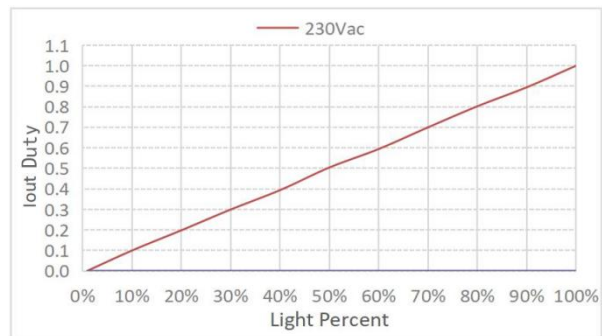


Wiring diagram of DALI dimming

- ① Default setting brightness is 100%.
- ② Connect DALI signal to DA1 PUSH and DA2 PUSH.
- ③ Minimum dimming depth of DALI dimming: 0.1% (output frequency $\leq 2.5\text{Khz}$).



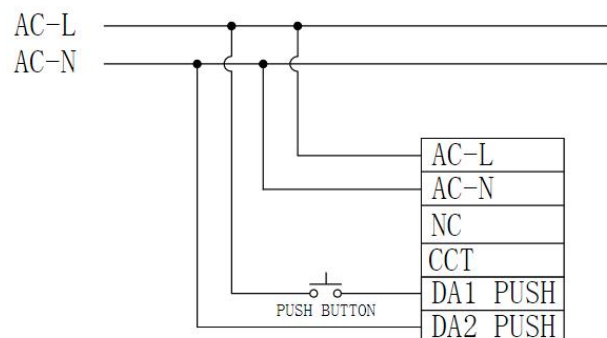
Logarithmic dimming



Linear dimming

⚠ The DALI and PUSH dimming functions cannot be used simultaneously; otherwise, the DALI dimmer will be damaged.

• PUSH dimming function



Wiring diagram of PUSH dimming

Switch from DALI mode to PUSH mode: short press PUSH switch to enable PUSH dimming function.

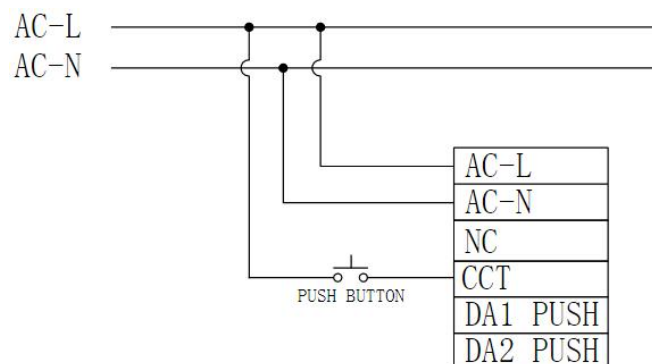
- ① Connect PUSH switch between AC-L and DA1 PUSH in series and connect DA2 PUSH to AC-N.
- ② Make sure that PUSH switch is off before the AC is powered on; operate PUSH after the AC is powered on.

- ③ Make sure the PUSH switch is off before disconnecting the AC.
- ④ If you have any questions about the wiring and operation, please confirm with Lifud FAE.
- ⑤ Wrong wiring or operation may cause damage to the LED driver.

Operation	Duration	Function
Instant Push	0.1-0.5S	LED light on/off
Long Push	0.6-9S	LED light dims up/down
Reset Push	> 9S	Reset the brightness of luminaire to 50%

- ① The PUSH operation won't cause any variations on LED driver if it's less than 0.1S.
- ② Minimum dimming depth of PUSH dimming: 0.1%.
- ③ The PUSH dimming mode has the memory function in case of any power failure. When the LED driver is powered on again, the light will return to the previous state before power failure.
- ④ The present dimming direction of PUSH dimming is opposite to the former one (After AC power failure, the last dimming direction will not be memorized).
- ⑤ In automatic mode, long press for more than 3 minutes to enter the corridor dimming function.

• PUSH CCT adjustment function



Wiring diagram of PUSH CCT adjustment

⚠ When the PUSH function is used, power on the AC-L/AC-N before powering on the CCT terminal. Otherwise, the CCT terminal will burn down.

PUSH CCT adjustment instructions

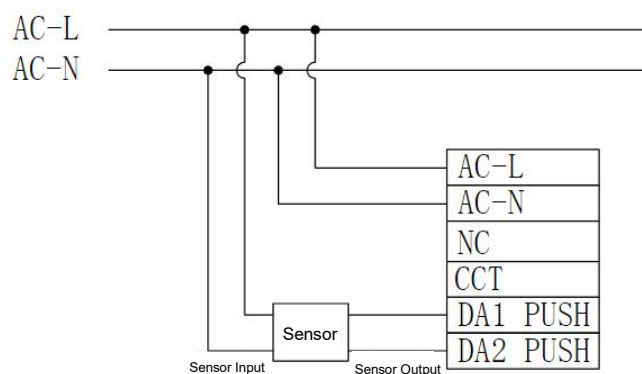
Operation	Duration	Function
Instant Push	0.1-0.5S	LED light on/off
Long Push	0.6-9S	LED CCT becomes cooler/warmer
Reset Push	> 9S	Reset to intermediate CCT

The PUSH operation won't cause any variations on LED driver if it's less than 0.1S.

- ① The brightness is unchanged in PUSH CCT adjustment mode.
- ② Press the PUSH CCT switch to enter the PUSH CCT adjustment mode.
- ③ PUSH CCT adjustment mode: CCT adjusted to the minimum is warm white and to the maximum is cool white.

- ④ Entering the PUSH CCT adjustment mode for the first time: the output status is 2-channel output with 50% each for warm white and cool white.
- ⑤ Long press the PUSH switch for the first time to adjust the CCT to the cool white.
- ⑥ Press PUSH again, and the CCT adjustment direction is opposite to the last time (After AC power failure, the last dimming direction will not be memorized).

• Corridor dimming function



Wiring diagram of corridor dimming

Operations for entering corridor lighting mode

Approach 1: use Lifud programmer to enable the driver's corridor lighting mode and set parameters.

Approach 2: keep pressing PUSH for 3+ mins so as to switch to the corridor lighting mode.

Approach 3: keep the effective sensing signal for 3+ mins (set the sensor's hold time to 3+ mins) to enable the corridor lighting mode.

Remarks:

1. In the automatic detection mode, the driver can be switched from PUSH mode to corridor lighting mode by approach 2 and 3, and the luminaire will dim to 50% brightness; long press for 3 mins and then it dims down first and then dims up, which means the driver has entered the corridor lighting mode.
2. After activating the corridor dimming mode, PUSH DIM is turned off.
3. In the case of AC input and any level of brightness in the corridor lighting mode, switching to DC and then returning to AC will restart the corridor lighting mode.

Operations for exiting corridor lighting mode

Approach 1: use Lifud programmer to choose other modes and exit corridor lighting mode.

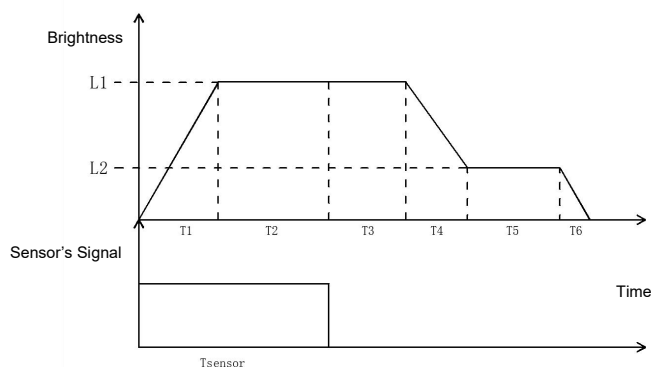
Approach 2: connect the driver to the DALI master to send DALI command, and the driver will return to the DALI dimming mode.

Approach 3: connect the driver to the PUSH switch and continuously press the switch 10 times within 10 secs, and the driver will return to the PUSH dimming mode.

Remark:

1. The 3-sec or above single press or release will cause the press number to be counted as 0.
2. The approach 2 and 3 CANNOT be used if the corridor lighting mode of driver is set via Lifud programmer.

Working process of corridor dimming mode



Symbol	Name	Default value	Available scope setting
T1	Fade-in time of sensing	1s	0-100s
T2	Holding time of sensing	Depends on sensor	Depends on sensor
T3	Waiting time of sensing	180s	0-59999s, 60000s (infinite)
T4	Fade-out time of sensing	5s	0-100s
T5	Unattended time	60000s (infinite)	0-59999s, 60000s (infinite)
T6	Fade-out off time	5s	0-100s
L1	Sensing brightness	100%	0-100%
L2	Unattended brightness	10%	0-100%

Emergency function instructions

The default output current is 15% Io max in the case of DC emergency input.

Emergency input voltage: 180-264Vdc



1. Emergency function can be set by Lifud programmer and programming software.
2. The output power can be set to 120W maximum.
3. If the emergency mode is off, input current is DC and the maximum output power is 120W.
4. In the case of mains input, the brightness is random when using PUSH dimming. When the driver enters the emergency lighting mode and then reconnects AC, the light brightness will remain the one set via PUSH switch when mains is connected.
5. In the case of mains input, the brightness is random when using DALI dimming. When the driver enters the emergency lighting mode and then reconnects AC, the light brightness will return to the brightness when DALI is powered on.

Programmer tool and software

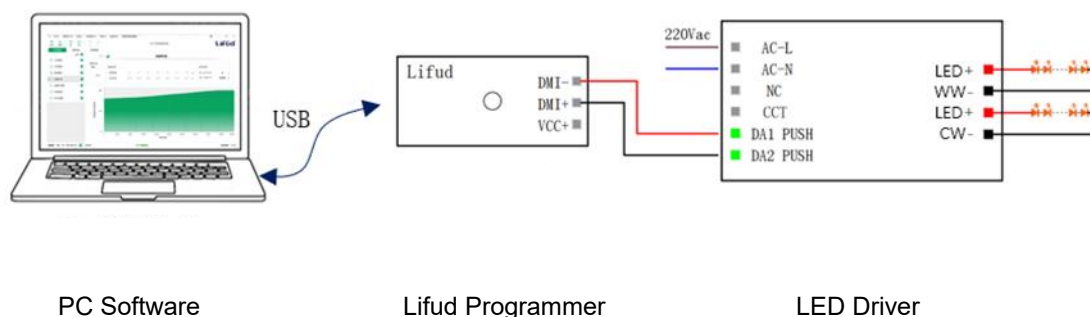
Product	Name	Brand	Model	Software
	Lifud programmer	LIFUD	LF-SCS080C	Lifud SmartSet

Read/write and parameter configuration

Programming project	Default settings	Parameters settings	Read/Write
Production information	-	No	Read
Output frequency	3600Hz (default)	Yes	Read/Write
Operating mode	Automatic detection (DALI/PUSH)	Yes	Read/Write
EL	15% (default)	Yes	Read/Write
CorridorDIM	Inactivated	Yes	Read/Write
CLO	Inactivated	Yes	Read/Write
DALI Part 251	Activated	Yes	Read/Write
DALI Part 252	Activated	Can only be reset	Read/Write
DALI Part 253	Activated	Can only be reset	Read/Write
Output mode	DT6	Yes	Read

Programmer function instructions

① Lifud programmer



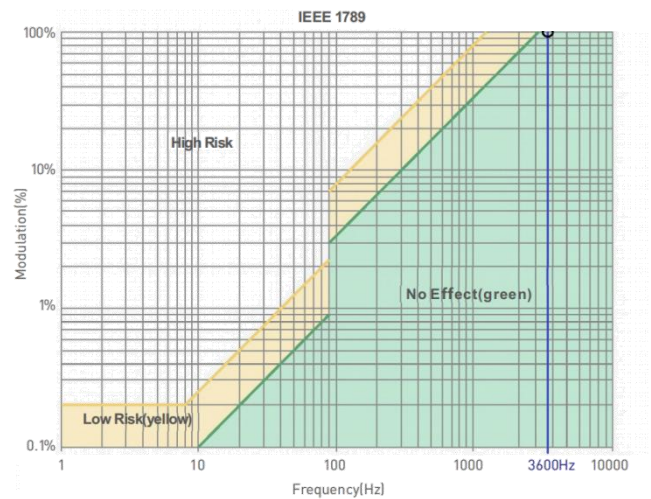
⚠ When using the Lifud programmer, the driver must be powered on with AC for normal reading and writing.

Flicker description

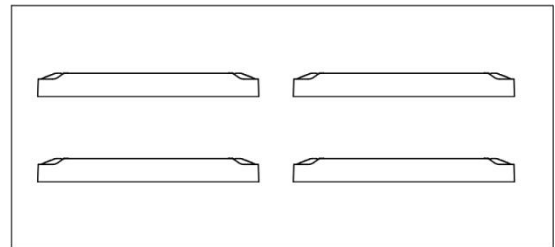
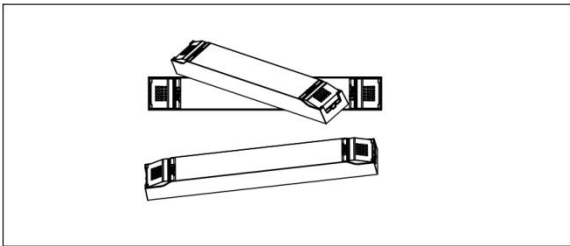
IEEE 1789

Exemption assessment
(High frequency exemption)

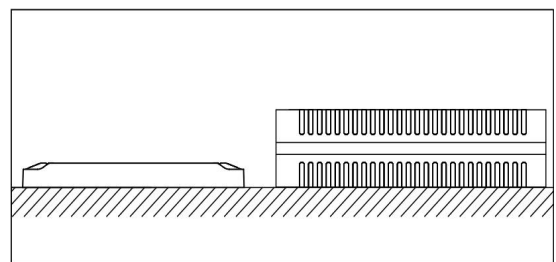
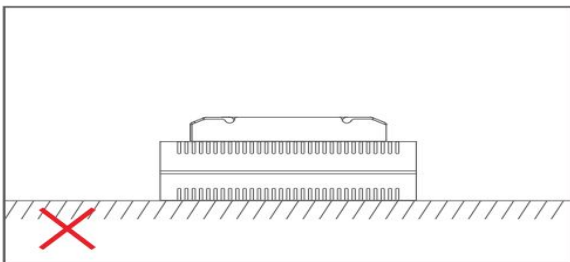
Limit Value of Modulation in Low Risk Areas	
Waveform frequency of Optical output (f)	Limit value (%)
$f \leq 8\text{Hz}$	0.2
$8\text{Hz} < f \leq 90\text{Hz}$	$0.025 \times f$
$90\text{Hz} < f \leq 1250\text{Hz}$	$0.08 \times f$
$f > 1250\text{Hz}$	Exemption assessment
Limit Value of Modulation in No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



Installation precautions



Do not stack the LED drivers when in use. Please maintain a minimum distance of at least 10cm between them to avoid affecting their heat dissipation and lifetime.



Do not directly contact the load with the LED driver when in use, and keep a distance of at least 10cm between the LED driver and the load to avoid affecting the heat dissipation and lifetime of the LED driver. It is recommended to install and use the driver with the front side facing upward.

Certificates & standards

Approval marks	ENEC, CE, CB, EL, RCM, DALI-2, MM
Standards	EN 61347-2-13; EN 61347-1; EN 62384; EN 62493; EN 55015; EN 61547; EN 61000-3-2; EN 61000-3-3; IEC61347-1; IEC61347-2-13; EN IEC 61347-2-13 AnnexJ; AS 61347.2.13 & AS/NZS 61347.1NZS 61347.1; IEC 62386-101 102 207 209 251 252 253: DALI 2.0 VDE 0710-14:1982
Type of protection	IP20

Logistical data

Product	Packaging unit (Pieces/Unit)	Dimensions (L*W*H)	Volume	Gross weight
LF-GHD240D-24	25	389*272*181mm	19.15dm ³	15kg±5%

Test equipment & condition

Test equipment	AC power source: CHROMA6530, digital power meter: CHROMA66202, oscilloscope: Tektronix DPO3014, DC electronic load: M9712B, LED board, constant temperature and humidity chamber, lightning surge generator: Everfine EMS61000-5B, rapid group pulse generator: Everfine EMS61000-4A, spectroanalyzer: KH3935, hi-pot tester: EEC SE7440, flicker tester (flicker-free coefficient test): Everfine LFA-3000, etc.
Compatibility of DALI dimming	Yuanhao Master, Philips Master DDBC120-DALI, OSRAM Master, Helvar Master 905 Router, Tridonic Master, and HDL MC64-DALI431 Master

If there are no special remarks, the above parameters are tested at the ambient temperature of 25°C, humidity of 50%, maximum output load and input voltage of 230Vac/50Hz.

Additional information

1. It is recommended that user install the over voltage protection, under voltage protection and surge protection devices in the power supply circuits of light fixtures to ensure electricity safety.

2. The LED driver used in combination with the end device is one of the accessories of the whole light fixture, and the EMC of the whole light fixture is not only susceptible to the driver itself, but to the LED light fixture and the whole light fixture's wiring. Thus, the manufacturer of LED light fixture should re-confirm the EMC of the whole light fixture before the whole light fixture is finished.

3. The number of LED drivers that can be connected to a circuit breaker and the inrush current are tested under the same conditions.

4. The PC cover, casing and end cap for assembling the LED driver in the light fixture must meet the fire rating of UL94-V0 or above.

5. "Emergency function" is turned on to execute the EL function. When the "Emergency function" is turned off, the output is limited to 50%, and the remaining dimming functions can be used.

6. In no-load condition, it is recommended that user not directly connect the LED driver to the light fixture in case that the light fixture is damaged.

7. Using a different brand of DALI master unit requires compatibility verification.

8. Noise description: noise performance of LED drivers with different dimming frequency is different. Before use, please set the dimming frequency according to actual requirements.

9. The dimming depth of 300Hz-2500Hz is 1/1000, and the dimming depth of the remaining frequencies increases with the dimming frequency.

10. It is recommended that the AC be switched on and off at an interval of more than 6S.

11. This LED driver is suitable for connecting LED light fixtures with limited resistance current (such as LED strips). If the constant current light fixture with built-in IC is connected, it will produce tens of times the instantaneous surge current, causing the LED driver to perform overload protection. When ordering constant current light fixtures with built-in IC, such as wall washing lamps, constant current rigid strips, Mr16 lamp cups, buried lamps, etc., it is necessary to specify this so as to burn special procedures.

12. The product diagram is for reference only, and the specific object shall prevail.

13. Lifud Technology Co., Ltd. reserves the right to interpret any content of this specification.

Transportation & storage

Suitable transportation means: vehicles, boats and aeroplanes.

In transit, it is necessary to prepare awnings for rain or sun protection. Moreover, please keep civilized loading and unloading to prevent the vibration or impact on LED driver as much as possible.

The storage of LED driver shall conform to the standard of Class I environment. When using LED drivers which have been stored for more than 6 months, please re-test them firstly. Do not use them unless they are tested to be qualified.

Cautions

Please use Lifud LED driver according to its parameters in the specification, otherwise the LED driver may malfunction.

Using any incompatible light fixtures or those that have not been certified may cause fire, explosion or other risks.

Man-made damage is beyond the scope of Lifud warranty service.

Disclaimer

Subject to change without notice. Errors and omissions excepted. Always make sure to use the most recent release.