LF-GSD040YJ

AC220-240V DALI Dimmable Constant Current LED Driver

Product family features

— DALI&PUSH dimmable

— Dim to off without afterglow

— Built-in active PFC function

— Suitable for Class I light fixtures

— 5 years guarantee (Refer to the warranty instructions)

Product family benefits

— Advanced functions: EL, CorridorDIM, CLO

— DALI-2 part ext. 251, 252 and 253

— Output current adjustable and parameters set via Lifud programmer, NFC app and NFC programmer

— Isolated; flicker free

— Usable as DT6 (2-channel) or DT8 (Tunable White) driver

— According to Zhaga Book 13, 24

— Surge level: PUSH: 1kV, L-N: 2kV, L/N-PG: 2kV

Typical applications

— For linear light and tri-proof light

— For commercial, office and decorative lighting

Product parameters

— Output current 200-2000mA

— Output power 11.2-40W

— Input voltage 198-264Vac

— Output voltage 10-56Vdc

— Efficiency 89%

Electrical data

Input data

Rated supply voltage	220 ... 240V
AC voltage range	198 ... 264V
Mains frequency	0/50/60Hz
DC voltage	180 ... 264V
Power factor	＞0.95
Efficiency in max. power	89% @ Output 56V power
THD	＜10%
Input current	0.25A Max@AC Input 0.05-0.18A@DC Input
Inrush current	≤20A[1)]
Loading number on circuit breaker 10 A (B)	16
Loading number on circuit breaker 10 A (C)	30
Loading number on circuit breaker 16 A (B)	26
Loading number on circuit breaker 16 A (C)	42
Protective conductor current	≤3.5mA
Stand-by power consumption	<0.3W (when DALI OFF)

Output data

Nominal output voltage	10...56V
Nominal output current	200...1050mA
Default output current	200mA
Current set	NFC programmer/NFC app/Lifud programmer
Maximum output power	40W
Nominal output power	11.2 ... 40W
Output ripple current (100 Hz)	±3.3 %
Flicker	According to IEEE Std 1789-2015
CIE SVM	≤0.4
IEC-Pst	≤1
Output current tolerance	±3%[2)]
Temperature tolerance	±10%
Start-up time	<1.5S

Safety

Withstanding voltage	I/P-O/P: 3.75kV&5mA&60S; I/P-DA1/DA2, O/P-DA1/DA2, I/P-PG: 1.5kV&5mA&60S
Surge capability (L-N)	2kV
PUSH [3)]	1kV
Surge capability (L/N-PG)	2kV
Insulation resistance	I/P-O/P, I/P-PG, I/P-DA1/DA2, DA1/DA2-PG: ＞100MΩ@500VDC
Guarantee	5 years [4)]

1) t =200μs

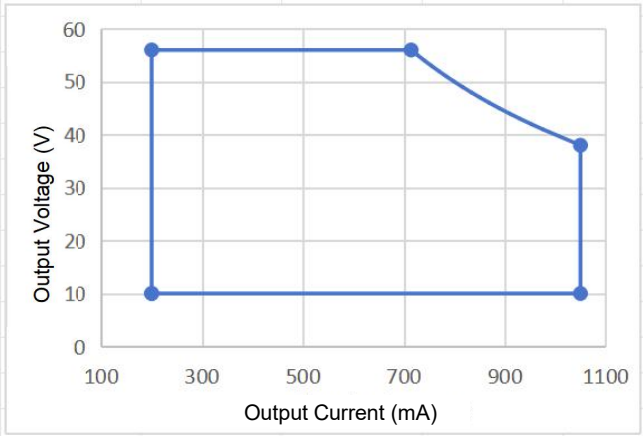
2) Monochromatic output, 5%@200-499mA, 3%@500-1050mA

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

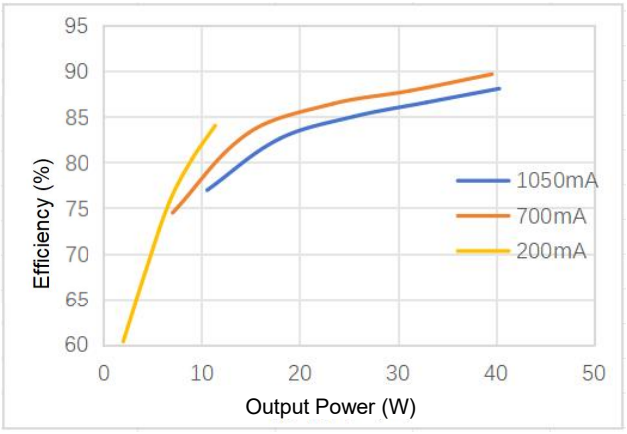
4) 5 years @Tc≤80℃

Characteristic diagram

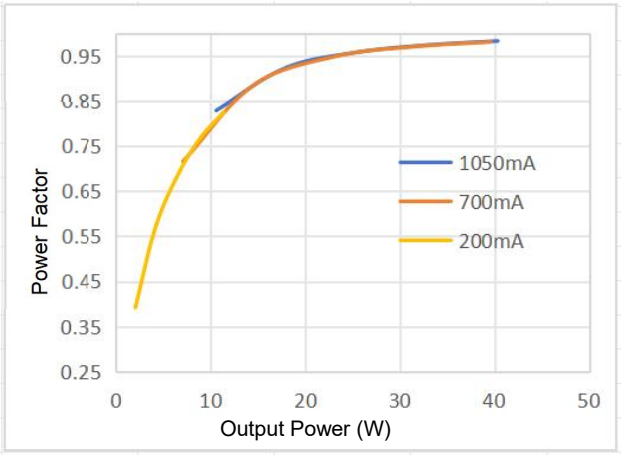
Operating Window



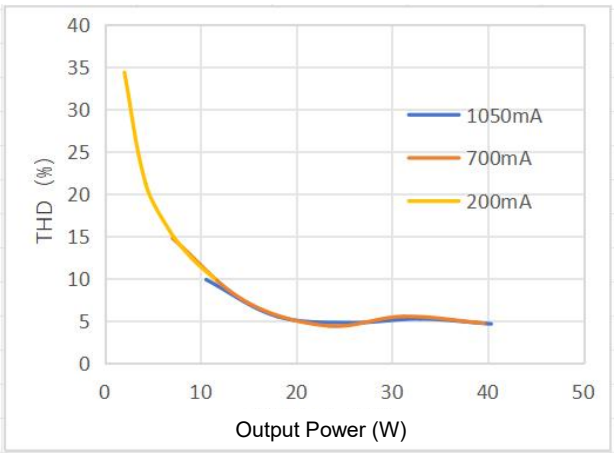
Typical Efficiency vs Load



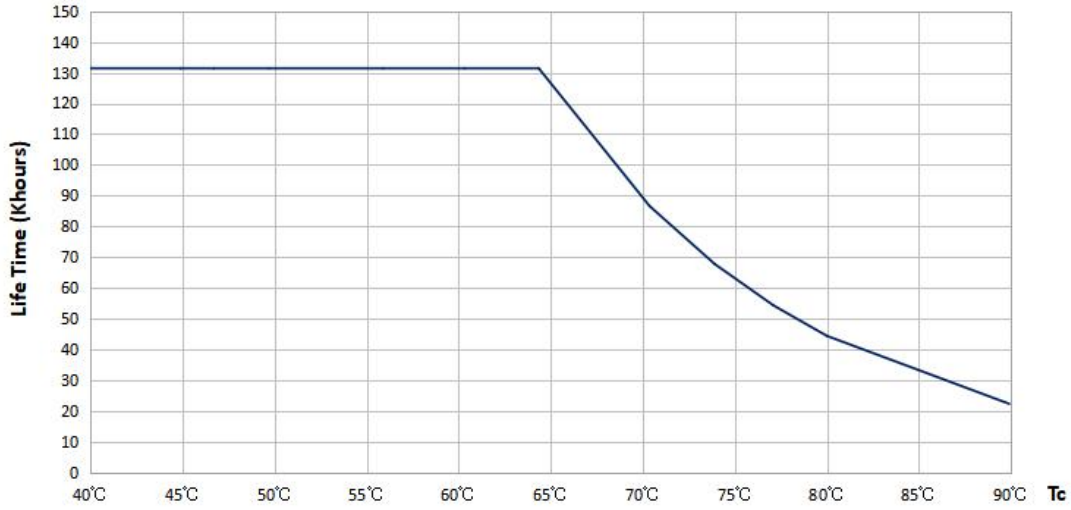
Typical Power Factor vs Load



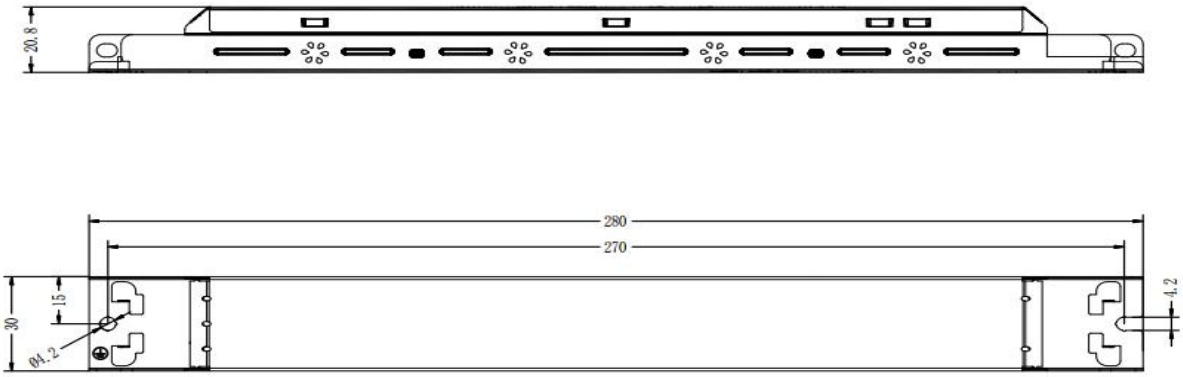
Typical THD vs Load



Lifespan



Dimensions



Mounting hole spacing, length	270mm
Product weight	0.2kg
Cable cross-section, input side	0.5 ... 1.5 mm²
Cable cross-section, output side	0.5 ... 1.5 mm²
Wire preparation length, input side	7 ... 8mm
Wire preparation length, output side	7 ... 8mm
Length	280mm
Width	30mm
Height	20.8mm

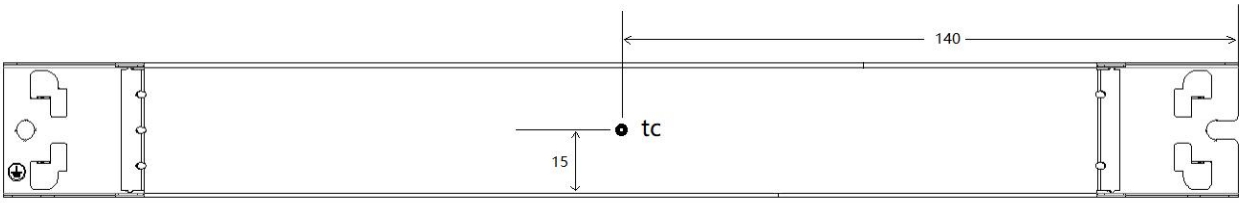
Colors & materials

Casing material	Color coated sheet
Casing color	White

Temperature & operating conditions

Ambient temperature range	-30℃ - +60℃
Maximum temperature at tc test point	90℃
Temperature range at storage	-20℃ - +80℃ (6 months in Class I environment)
Humidity range at storage	10-90%RH (no condensation)
Humidity during operation	20-90%RH (no condensation)
Atmospheric Pressure	86-106KPa
RoHS	RoHS 2.0 (EU) 2015/863

Tc test point

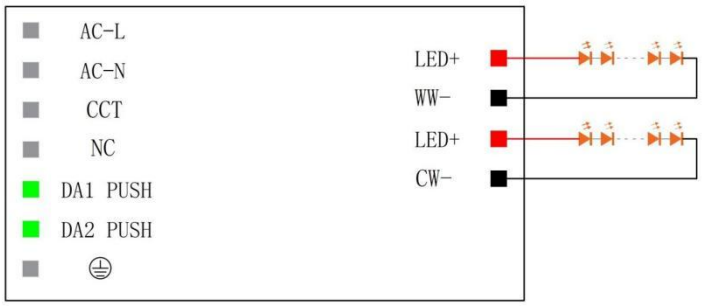


Tc point is at the top of LED driver

Product terminal

Input		Output	
AC-L (Gray)	AC live wire input	**LED+ (Red)**	Positive terminal output
AC-N (Gray)	AC neutral wire input	**WW- (Black)**	Warm light negative terminal output
CCT (Gray)	CCT adjustment input	**LED+ (Red)**	Positive terminal output
/	/	**CW- (Black)**	Cool light negative terminal output
DA1 PUSH (Green)	DALI1/PUSH dimming input	/	/
DA2 PUSH (Green)	DALI2/PUSH dimming input	/	/
⏚ **(Gray)**	Earth wire		

Product output terminal wiring diagram



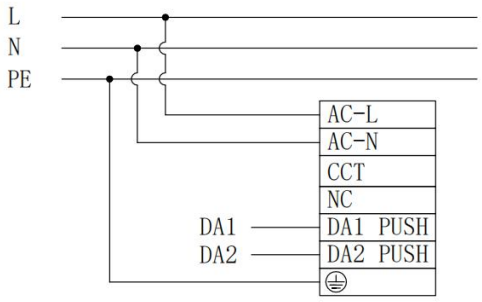
Capabilities

Dimmable	DALI/PUSH dimmable
Dimming range	0.1 ... 100%
CCT adjustable	DALI/CCT adjustable
CCT adjustment range	2700K ...6500K
Short circuit protection	Constant current output (Automatic reversible within 180s; output will be off after 180s and AC needs to be restarted)
No load protection	≤59V
Overheating protection	Gradually reduce the current until the output is off (Automatic reversible)

Suitable for fixtures with prot. class	I
Programming interface	DALI / NFC
Control interface	DALI/ PUSH
Number of channels	2 channels
CorridorDIM	Yes
EL	Yes
CLO	Yes
DALI Part 251 252 253	Yes

Dimming function instructions

- **DALI dimming function**

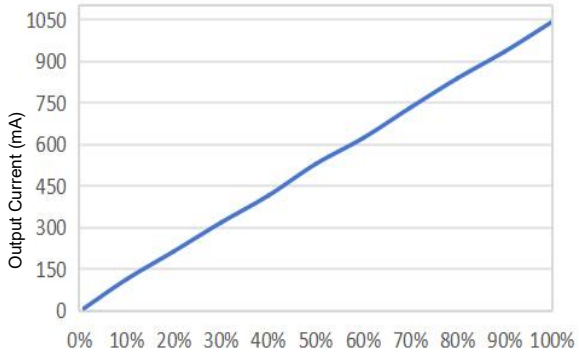


Wiring diagram of DALI dimming

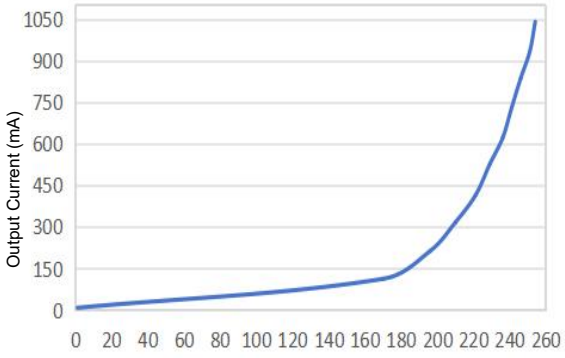
① Default setting brightness is 100%.

② Connect DALI signal to DA1 PUSH and DA2 PUSH.

③ Minimum dimming depth of DALI dimming: 0.1% (@ maximum output current; dimming depth of different masters will be different.).



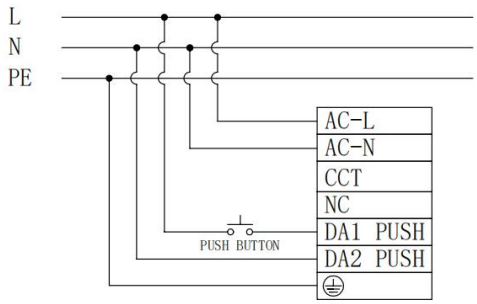
Linear dimming



Logarithmic dimming

⚠ Choose only ONE as opposed to use DALI or PUSH at the same time in case of the damage of DALI dimmer.

• 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 AC-L and AC-N are NOT directly connected to DA1 PUSH and DA2 PUSH terminals.

③ Make sure that PUSH switch is off before the AC is powered on; operate PUSH after the AC is powered on.

④ Make sure the PUSH switch is off before disconnecting the AC.

⑤ If you have any questions about the wiring and operation, please confirm with Lifud FAE.

⑥ 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 dim 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.

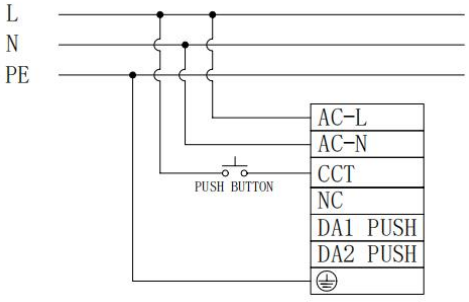
② Minimum dimming depth of PUSH dimming: 1%

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.

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 light CCT adjustment
Reset Push	＞9S	Reset both of the cool and warm CCT outputs to 50%

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 PUSHCCT switch to enter the PUSH CCT adjustment mode.

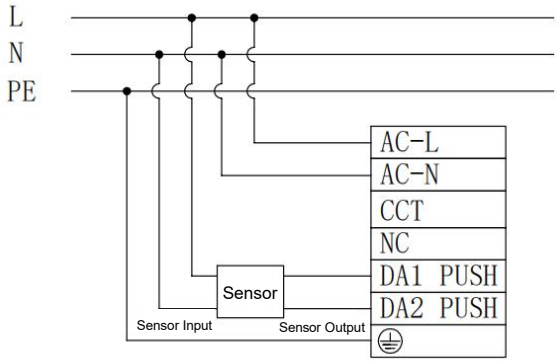
③ PUSH CCT adjustment mode: CCT adjusted to the minimum is warm light and to the maximum is cool light.

④ Entering the PUSH CCT adjustment mode for the first time: the output status is 50% for both cool and warm CCT 2-channel outputs.

⑤ Long press the PUSH switch for the first time to adjust the CCT to the cool color.

⑥ Press PUSH again, and the CCT adjustment direction is opposite to the last time.

• 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 moving in the effective sensing area for 3+ mins (set the sensor's hold time for 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, its brightness will dim up to 50%; long press for 3 mins and then it dims down 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 DC and then returning 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 to DALI master and send DALI command, the driver will return to the DALI dimming mode.

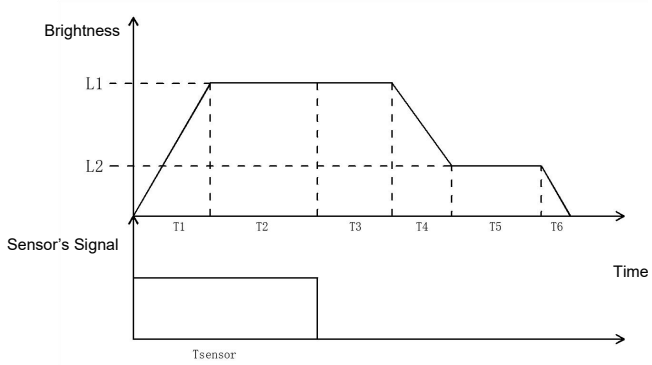
Approach 3: connect to the PUSH switch and continuously press it 10 times within 10 secs, the driver will return to the PUSH dimming mode.

Remarks:

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	0s	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(or FEIG NFC reader).

2. It can be set from 0 to 100% (maximum output power 30W).

3. If the emergency mode is off, input current is DC and the working mode is the same as the AC input.

4. In the case of mains input, the brightness is random when using PUSH dimming. When the driver enters the emergency escape lighting system 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

escape lighting system and then reconnects AC, the light brightness will return to the brightness when DALI is powered on.

Programmer tools and software

Product	Name	Brand	Model	Software
	NFC desktop programmer	FEIG	ID CPR30+	LF-NFCReader
	NFC handheld programmer	FEIG	ID ISC.PRH101-USB	LF-NFCReader
	NFC batch programmer	FEIG	ID ISC.LRM1002-E ID ISC.ANT300/300-A	LF-NFCToMP
	Lifud programmer	LIFUD	LF-SCS080A	LF-PRG
	NFC App	-	-	Lifud NFC

Read/write and parameter configuration

Programming project	Default settings	Parameters settings	Read/Write
Production information	-	No	Read
Output current	200mA (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	DT8	Yes	Read/Write

NFC function instructions

①NFC programmer

PC Software NFC Reader LED Driver

⚠ When using the NFC reader, the driver is not allowed to operate while powered on. The driver must be powered off and completely discharged before it can read and write normally.

②NFC APP

NFC Software Interface

⚠ When using the NFC APP for parameter settings, the driver is not allowed to operate while powered on. The driver must be powered off and completely discharged before it can read and write normally.

③Lifud programmer

PC Software Lifud Programmer LED Driver

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

Certificates & standards

Approval marks – approval	ENEC, CE, CB, RCM, CCC, EL, DALI-2 (applying)
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; DALI-2 certified (Part 101, 102, 207, 209, 251, 252, 253); GB19510.1; GB19510.14
Type of protection	IP20

Logistical Data

Product	Packaging unit (Pieces/Unit)	Dimensions (L*W*H)	Volume	Gross weight
LF-GSD040YJ	40	385mm*285mm*210 mm	23.04 dm^3	8.4kg

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℃, 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. Configure the quantity of circuit breakers based on inrush current and time.

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. When the load power of the product is <40W, it will output at the set constant current. When the load power is >40W, it will output at a constant power of 40W±1.5W.

8. The default current of LED driver is 200mA and it can be set by FEIG NFC reader or Lifud NFC App.

9. When using other DALI masters, please test their compatibilities with Lifud LED driver in advance.

10. If the parasitic capacitance between LEDs and the PCBA is too large, and the light fixture is grounding, there will be a slight flicker or afterglow at the moment of powering on, in standby mode, or when dimming to the lowest setting.

11. Lifud Technology Co., Ltd. reserves the right to interpret any contents 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 of 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 omission excepted. Always make sure to use the most recent release.