Specification

Customer's Name: _____

Product Material No. : _____

Model: LF-GSD040YA (DALI 2.0)

Version: V1.2

Customer Approval

Examined by	Reviewed by	Approved by

LIFUD Approval

Drafted by	Reviewed by	Approved by

Models Chosen by the Customer

Full model name		Full model name	
Full model name		Full model name	

E.C. List

Version	Description of Change	R&D	Date
1.0	Formal release	Yang Ru	7 MAY 2019
1.1	Revised the model name	Yang Ru	24 JUL 2019
1.2	Added the description of the push dimming	Yang Ru	19 DEC 2019

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Product Description

LF-GSD040YA (DALI 2.0) is a 40W constant current LED driver. It meets the standards of DALI 2.0 which are IEC 62386-101, 102 & 207. The input voltage limit is 180-264VAC. The output current is from 350mA to 1050mA and can be adjusted via the DIP switch. 50mA per step, 15 gears in total. The unique circuit structure helps the efficiency to reach 87%. The dimming functions, including DALI, push and 1-10Vdimming, meet the needs of diverse designs of the LED lighting systems.

Product Features

1. Constant current output. The output current can be adjusted via the DIP switch. 50mA every step, 15 gears in total.

2. Plastic casing. Compatible with the Class I and Class II light fixtures

3. Built-in active power factor correction function

4. Standby power consumption is less than 0.7W when the DALI instruction is off.

5. DALI dimming & push dimming. The output curve of DALI dimming can be the logarithmic dimming curve or the linear dimming curve.

6. Synchronous dimming function: maximum one master and seven slaves

7. Warranty: 5 years (Please refer to the warranty condition.)

Applications

- warm house lighting
- indoor office lighting
- decorative lighting
- commercial lighting
- residential lighting

Electrical Characteristics (1)

Model		LF-GSD040YA (DALI 2.0)							
Output	Output Voltage	46-57V							
	Output Current	The output current can be adjusted via the DIP switch. Please refer to the DIP switch table.							
		350mA	400mA	450mA	500mA	550mA	600mA	650mA	700mA
	Ripple Voltage	<1V							
	Percent Flicker	<0.5%							
	Current Accuracy	±5%							
	Temperature Drift	±10%							
	Line Regulation	±5%							
	Start-up Time	<0.5s @ 230VAC							
Input	Line Regulation	±5%							
	Input Voltage	220-240VAC (voltage limit: 180-264VAC)							
	Input Frequency	47Hz-63Hz							
	Input Current	0.30A Max.							
	Power Factor	≥0.95 @ 230VAC							
	THD	≤15%							
	Efficiency	≥85% @ 230VAC							
	Inrush Current	≤30A @ 350uS @ 230VAC							
	Leakage Current	≤0.7mA							
	Standby Power Consumption	≤0.7W (when the DALI instruction is off)							
Protective Features	Open-Circuit Protection	<80V							
	Short-Circuit Protection	Hiccup mode (auto-recovery)							
Environment Conditions	Working Temperature	-30℃ ~ +50℃							
	Working Humidity	20-90%RH (no condensation)							
	Storage Temperature/ Humidity	-40℃ ~ 80℃ (six months under class I environment); 10-90%RH (no condensation)							
	Atmospheric Pressure	86-106KPa							
Safety & Norms	Certificates	DALI 2.0, ENEC, CE, CB, RCM							
	Withstand Voltage	I/P-O/P: 3.75KV, 5mA, 60s							
	Insulation Resistance	I/P-O/P: 500VDC, >100MΩ							
	Surge Rating	IEC61000-4-5 (L-N: 1KV)							

	Safety Standard	EN61347, GB19510
	EMI	EN55015, EN61000-3-2
	EMS	EN61000-4-2, 3, 4, 5, 6, 8, 11; EN61547
Others	IP Rating	IP20
	Warranty Condition	5 years (Tc ≤ 80 ℃)
	DALI Executive Standard	IEC 62386-101, 102, 207: DALI2.0
Testing 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, spectrum analyzer: KH3935, hi-pot tester: TH9201B, stroboscope (percent flicker tester) 60N-01, etc.	
Testing Conditions	Unless otherwise stated, the parameters of the power factor, THD and efficiency are the test results under the ambient temperature of 25℃, humidity of 50%, AC input of 230V and 90% load.	
Remarks	1. It is recommended that customers should install overvoltage and undervoltage protection devices and surge protection devices in the power supply circuits of the light fixtures to ensure safety before connecting to electricity. 2. The PC cover, housing, end caps and other parts of the LED driver inside the LED light fixture must conform to UL94-V0 flammability standard or above. 3. As an accessory, the LED driver is not the only factor determining the EMC performance of the LED light fixture. The structure and the wiring of the light fixture are also relevant. Thus it's strongly recommended the LED light fixture manufacturer should re-confirm the EMC of the whole LED light fixture.	

Electrical Characteristic (2)

Model		LF-GSD040YA (DALI 2.0)						
Output	Output Voltage	36-53V	36-50V	36-47V	35-45V	30-42V	30-40V	30-38V
	Output Current	The output current can be adjusted via the DIP switch. Please refer to the DIP switch table.						
		750mA	800mA	850mA	900mA	950mA	1000mA	1050mA
	Ripple Voltage	<1V						
	Percent Flicker	<0.5%						
	Current Accuracy	±5%						
	Temperature Drift	±10%						
	Line Regulation	±5%						
	Start-up Time	<0.5s @ 230VAC						
Input	Line Regulation	±5%						
	Input Voltage	220-240VAC (voltage limit: 180-264VAC)						
	Input Frequency	47Hz-63Hz						

	Input Current	0.30A Max.
	Power Factor	≥0.95 @ 230VAC
	THD	≤15%
	Efficiency	≥87% @ 230VAC
	Inrush Current	≤30A @ 350uS @ 230VAC
	Leakage Current	≤0.7mA
	Standby Power Consumption	≤0.7W (when the DALI instruction is off)
Protective Features	Open-Circuit Protection	<80V
	Short-Circuit Protection	Hiccup mode (auto-recovery)
Environment Conditions	Working Temperature	-30℃ ~ +50℃
	Working Humidity	20-90%RH (no condensation)
	Storage Temperature/ Humidity	-40℃ ~ 80℃ (six months under class I environment); 10-90%RH (no condensation)
	Atmospheric Pressure	86-106KPa
Safety & Norms	Certificates	DALI 2.0, ENEC, CE, CB, RCM
	Withstand Voltage	I/P-O/P: 3.75KV, 5mA, 60s
	Insulation Resistance	I/P-O/P: 500VDC, >100MΩ
	Surge Rating	IEC61000-4-5 (L-N: 1KV)
	Safety Standard	EN61347
	EMI	EN55015, EN61000-3-2
	EMS	EN61000-4-2, 3, 4, 5, 6, 8, 11; EN61547
Others	IP Rating	IP20
	Warranty Condition	5 years (Tc ≤ 80 ℃)
	DALI Executive Standard	IEC 62386-101, 102, 207: DALI2.0
Testing 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, spectrum analyzer: KH3935, hi-pot tester: TH9201B, stroboscope (percent flicker tester) 60N-01, etc.	
Testing Conditions	Unless otherwise stated, the parameters of the power factor, THD and efficiency are the test results under the ambient temperature of 25℃, humidity of 50%, AC input of 230V and 90% load.	

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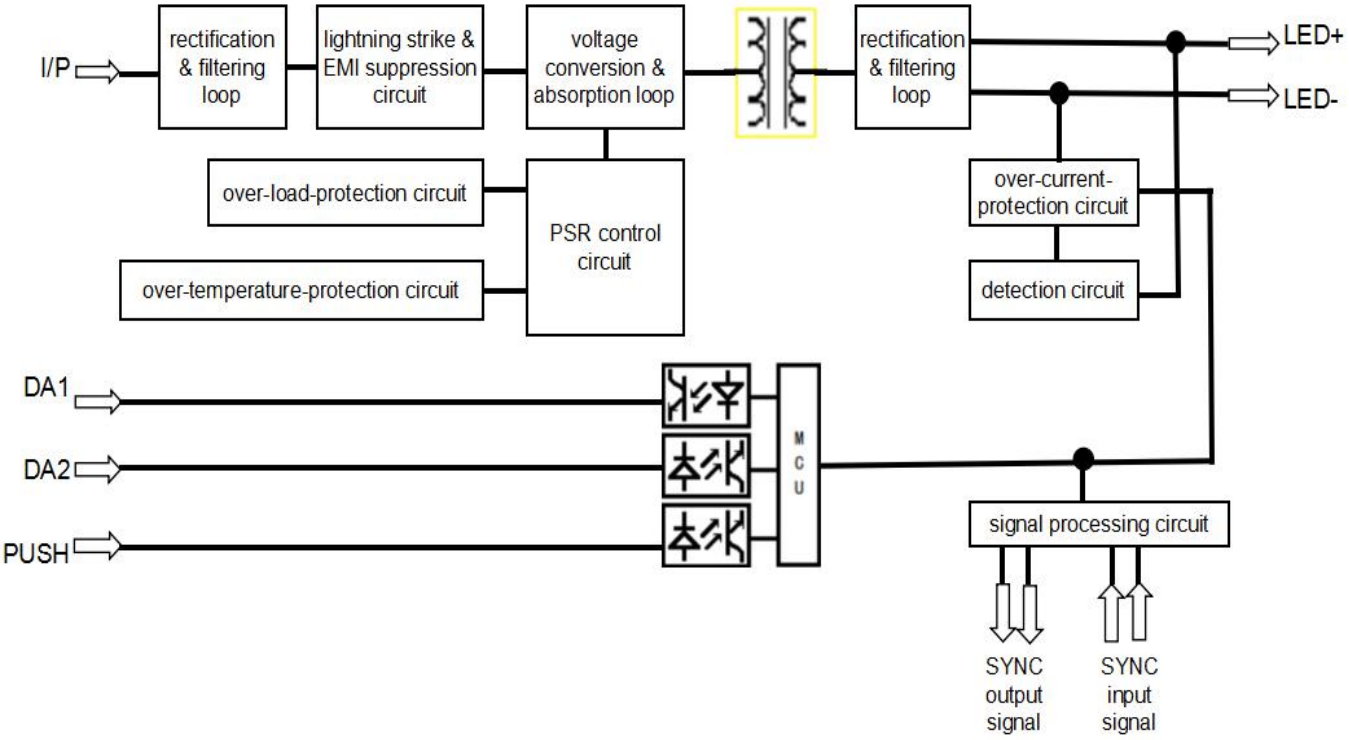
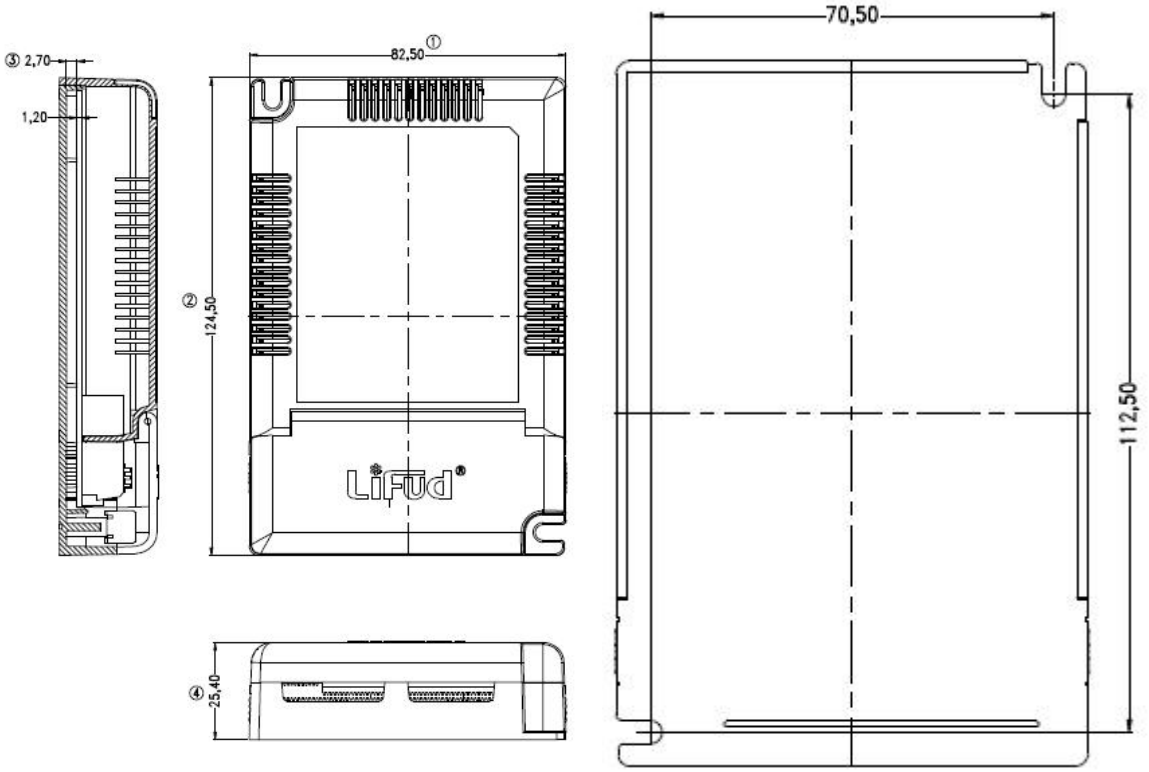
Function Diagram



DIP Switch Table

DIP Switch Table								
TA	VO DC	Current	1	2	3	4	5	6
50℃	57V	350mA	-	-	-	-	-	ON
	57V	400mA	-	-	-	ON	-	ON
	57V	450mA	-	-	ON	-	-	ON
	57V	500mA	-	-	ON	ON	-	ON
	57V	550mA	-	ON	-	-	-	ON
	57V	600mA	-	ON	-	ON	-	ON
	57V	650mA	-	ON	ON	-	-	ON
	57V	700mA	-	ON	ON	ON	-	ON
	53V	750mA	ON	-	-	-	-	ON
	50V	800mA	ON	-	-	ON	-	ON
	47V	850mA	ON	-	ON	-	-	ON
	45V	900mA	ON	ON	-	-	-	ON
	42V	950mA	ON	ON	-	ON	-	-
	40V	1000mA	ON	ON	ON	-	-	-
	38V	1050mA	ON	ON	ON	ON	-	-

Dimensions (unit: mm, tolerance: +0.5mm) & TC Spot

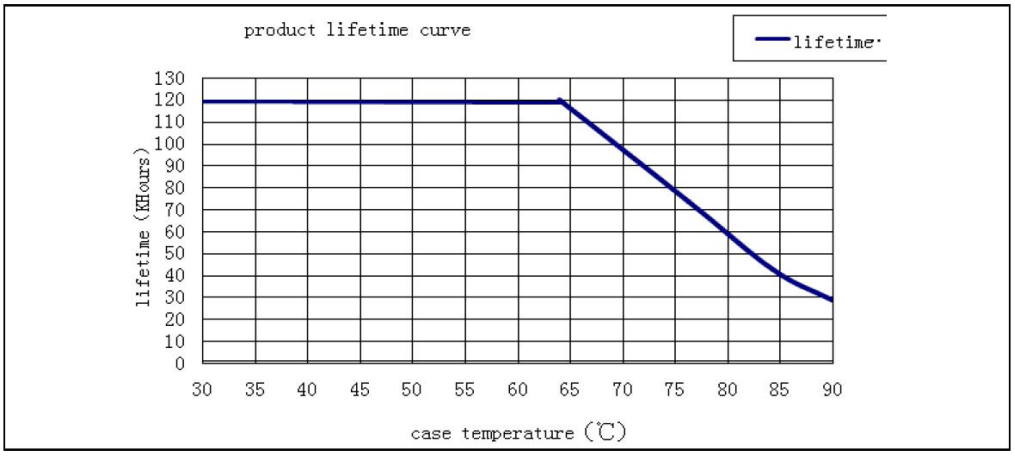


Packaging Specifications

Model	LF-GSD040YA (DALI 2.0)
Packaging dimensions	385*285*210 mm (L*W*H)
Quantities	8 pcs/layer; 7 layers/ctn; 56 pcs/ctn
Weights	0.19 kg/pc; 11.20 kg/ctn

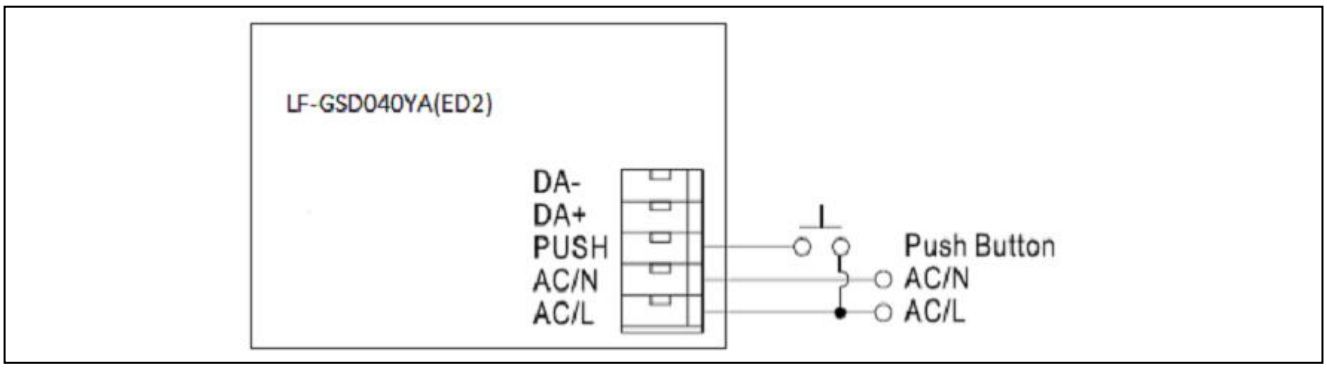
Lifetime Curve

The curve below illustrates the driver's lifetime data when its case temperature in an airtight space reaches 40℃, 50℃, 60℃, 70℃, 80℃ and 90℃.



Instructions of Dimming Operation

1. Wiring diagram of the push dimming



(1) Push dimming operation

Operation	Operation Time	Function
Instant Push	0.1 sec - 1 sec	Light on / off
Long Push	1.5 sec - 10 sec	Dim up / down
Reset Push	> 11 sec	Reset to the brightest state

Remark: In the push dimming mode, the maximum push time cannot exceed 2 min.

(2) Factory default setting is of 100% brightness.

(3) The push operation won't cause any variation if it's less than 0.1 sec.

(4) When using the same push switch, the maximum quantity of the LED drivers connected in parallel is 7 pcs.

(5) The maximum wire length between the master and the farthest slave is 105m. Wire diameter: 16-22AWG

(6) The push switch can only be connected to the AC-L and push terminals of LF-GSD040YA (DALI 20.). Connecting to the AC-N terminal will cause the push dimming function failure. ⚠

(7) The push signal must be a standard AC sinusoidal voltage signal within 50Hz - 60Hz.

2. DALI dimming

(1) Connect the DALI signal to the DA+ and DA- terminals.

(2) DALI protocol includes 16 group and 64 IP addresses.

(3) The minimum dimming depth of the DALI dimming is 8%*Iout.

3. 0-10V dimming

(1) Connect the 0-10V signal to the DIM terminal.

(2) In the 0-10V dimming mode, the light will be turned off when the input voltage is no more than 0.3V and will be turned on when the input voltage is over 0.5V.

(3) The minimum dimming depth of the 0-10V dimming is 13%*Iout.

4. Synchronous dimming

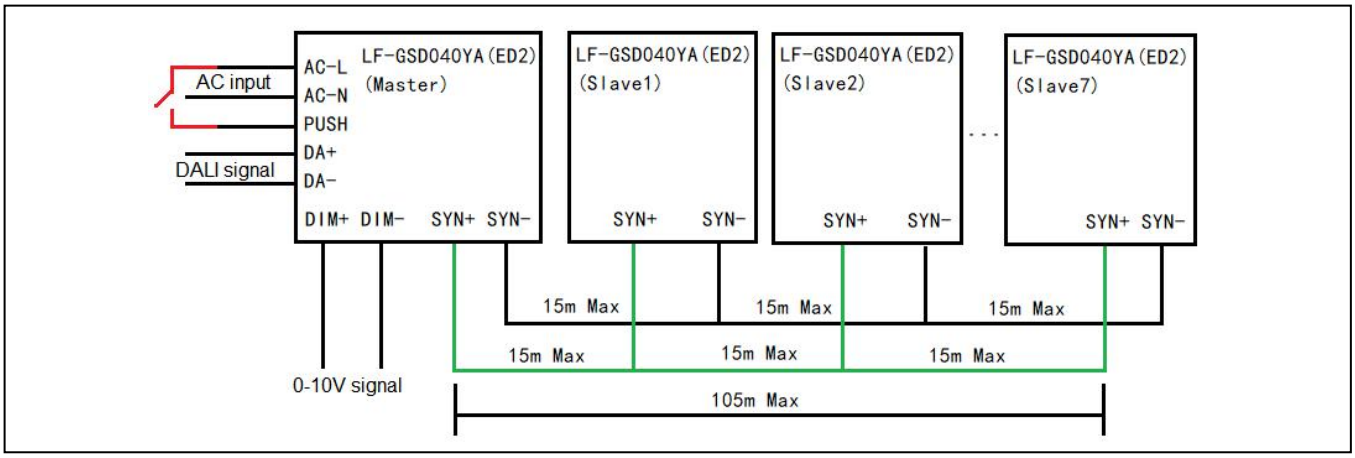
(1) Up to 8 pieces of LF-GSD040YA can be connected and achieve the synchronous dimming. One master, seven slaves.

(2) The maximum wire length between two connected products is 15 meters. Wire diameter: 16-22AWG

(3) The maximum wire length between the master and the farthest slave is 105 meters. Wire diameter: 16-22AWG

(4) The LF-GSD040YA can realize synchronous dimming function via DALI dimming signals and push dimming signals.

(5) Here is the wiring diagram of the synchronous dimming.



(6) Before using the synchronous dimming function, please make sure all settings of the LF-GSD040YA (DALI 2.0) are at 100% output.