

Constant current independent dimmable driver
DKL Series suffix D(DALI-2+pushDIM)



Features

- Support DALI-2+pushDIM dimming mode
- Multi-level current output can be realized by DIP-switch
- Soft dimming and flicker-free at any brightness
- Using HPC patented technology, at any dimming level, the brightness of the lights is the same
- Standby power input<0.5W, meets the requirements of ErP certification
- High PF, high efficiency, low THD
- Screw-free and pressing type strain relief, supports thicker cables and is easier to install
- Independent input and output strain relief, stronger wiring
- Intelligent LED hot-plug protection function
- SELV and Class II design, suitable for use outside of the luminaires
- 5.5-year guarantee

Interfaces

- DALI-2(DALI-2 DT6)
- PUSH(pushDIM)

Functions

- Support central emergency application (dimming normal in DC input)
- Support self-contained emergency application
- Protective features (short-circuit,no-load,over temperature,hot plug-in protection)

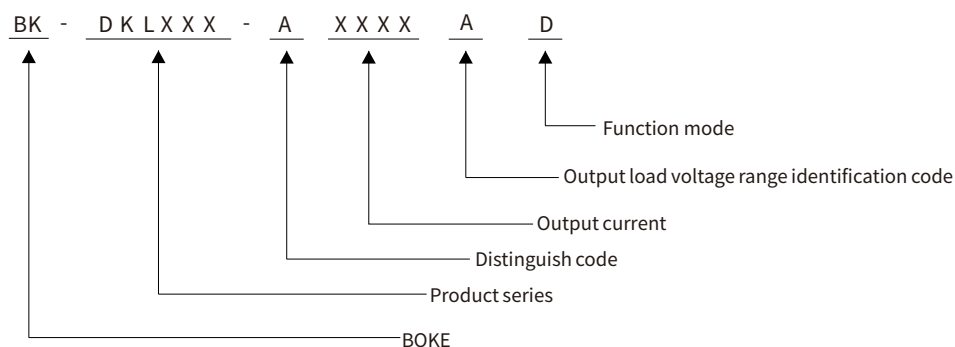
Suitable for lights

- Suitable for lights with independent drivers such as downlights, spotlights, panel lights, etc

Typical applications

- LED indoor lighting
- LED office lighting
- LED commercial lighting

Model coding rules of DKL series



Function list

Model	suffix	DIP-switch	Wired dimming		Advanced functions					Device Configuration	
			DALI-2	pushDIM	AOC	EL	CLO	EnergyData	corridorDIM	DALI interfaces	NFC interfaces
BK-DKL010-A	D	√	√	√							
BK-DKL015-A	DP	√	√	√	√	√	√	√	√	√	
BK-DKL015-A	DN		√	√	√	√	√	√	√	√	√

*The description in this specification is only applicable to the products with the suffix D and the model are DKL010-A,DKL015-A.

Model list

Model	Input voltage	Output power	Output voltage	Output current	Dimension
BK-DKL010-A0250AD BK-DKL010-A0250ADP	200-240VAC/DC	10.5W MAX.	24-42VDC	0.1-0.25A	L129*W29.5*H20mm
BK-DKL015-A0400AD BK-DKL015-A0400ADP	200-240VAC/DC	15.2W MAX.	24-42VDC	0.25-0.4A	L129*W29.5*H20mm
BK-DKL015-A0400ADN	200-240VAC/DC	15.2W MAX.	24-42VDC	0.1-0.4A	L129*W29.5*H20mm

*The description in this specification is only applicable to the products with the suffix D and the model are DKL010-A,DKL015-A.

Technical data

Product model	BK-DKL010-A0250AD
Output parameters	
Regulation method	Constant Current
Rated output current range	0.1-0.25A,see the DIP-switch for details
Rated output voltage range	24-42VDC,see the DIP-switch for details
Rated output power	10.5W Max,see the DIP-switch for details
Output current adjustment	DIP S.W(4 levels)
Output current ripple(typ.)	±5%(110kHz)
Output current accuracy	±5%
Linear regulation	±1%
Load regulation	±3%
No load output voltage	50VDC
Flicker-free(typ.)	Flickering percent(IEEE 1789)=0.337%(100Hz),Flicker index(IEEE 1789)=0.001(100Hz), Pst LM = 0.005, SVM = 0.078, (The above parameters are obtained from testing the panel lights)
Input parameters	
Rated input voltage range	200-240VAC 200-240VDC
Input voltage range	180-264VAC 180-264VDC
Input votage shock	<380 V AC
Input current	<0.08A (Rated input voltage)
Input frequency	0/50/60Hz
Input PF/Input DF(typ.)	PF: 0.93C,DF:0.93 , see the electrical values below for details
Input THD(typ.)	11% , see the electrical values below for details
Efficiency(typ.)	82.5% , see the electrical values below for details
In-rush current(typ.)	7.62A peak ,237us duration(50 % Ipeak), see the description below for details
Start/Switchover/Turn off(typ.)	0.7s(AC start),0.7s(DC start),0.3s(AC/DC switchover),0.5s(Turn off)
Switching cycles	> 100,000 switching cycles
Power consumption(typ.)	Full load(Pin):12.7W, No load(Pno):N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A
Safety	
Withstand voltage	I/P-O/P(LED):3750V AC, I/P-DALI: 1500V AC, O/P-DALI: 1500V AC.
Mains surge capability	L-N:2KV(Performance criterion:A)(90°/270°, 5 times each with an interval of 60s)
Leakage current(typ.)	0.61mA
Isolation resistance	I/P-O/P:100MΩ/500Vdc/25°C/70%RH
Control interface	
DALI dimming port	Voltage range: 9.5-22.5V, typical 16V, interface current consumption: 1.8mA
pushDIM dimming port	Voltage range: 180-264V 47/63Hz
1-10V 3in1 dimming port	N/A
Auxiliary power supply	N/A
Dimming range	1-100%(minimum current:4mA)
Dimming drive mode	AM(amplitude modulation)
Emergency support	
Central emergency system	Supported
Self-contained emergency	Supported
Environment & Life time	
Operating temperature	Ta=-20-60°C
Case temperature	Tc=90°C
Operating humidity	5-85% RH, non-condensing
Storage temp./humidity	-40-80°C, 5-85% RH, non-condensing
IP grade	IP20
MTBF	500,000H,MIL-HDBK-217F(25°C)
Life-time	Nominal life-time up to 100,000 h, see the description below for details
Vibration resistant	10~500Hz,5G 12min./1cycle,period for 72min. each along X,Y,Z axes
Acoustic Noise	<25dB(30cm, Normal operation)
Environmental protection	RoHS
Certifications and standards	
Compliance certification	CCC, CE, ENEC, UKCA, RCM, DALI-2, EL
Safety	GB/T 19510.1,GB/T 19510.213, EN61347-1, EN61347-2-13, EN62384
EMC	GB/T 17743 , GB17625.1, EN55015, EN61000-3-2 , EN61000-3-3, EN61000-4-2,3,4,5,6,8,11, EN61547
DALI-2	IEC 62386-101(DALI-2), IEC 62386-102(DALI-2), IEC 62386-207(DALI-2), DALI part251,252,253
EL	Compatible IEC 61347-2- 13 Annex J, compatible with EN 60598-2-22 and EN 50172
RF	N/A

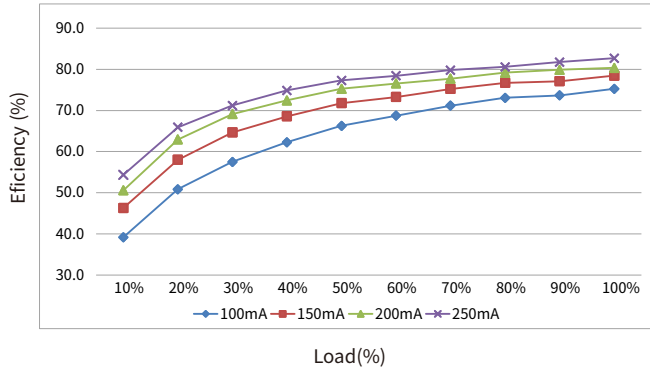
Technical data

Product model	BK-DKL015-A0400AD
Output parameters	
Regulation method	Constant Current
Rated output current range	0.25-0.4A, see the DIP-switch for details
Rated output voltage range	24-42VDC, see the DIP-switch for details
Rated output power	15.2W Max, see the DIP-switch for details
Output current adjustment	DIP S.W(4 levels)
Output current ripple(typ.)	± 7%(75kHz)
Output current accuracy	± 5%
Linear regulation	± 1%
Load regulation	± 3%
No load output voltage	50VDC
Flicker-free(typ.)	Flickering percent(IEEE 1789)=0.265%(100Hz), Flicker index(IEEE 1789)=0.001(100Hz), Pst LM = 0.009, SVM = 0.007, (The above parameters are obtained from testing the panel lights)
Input parameters	
Rated input voltage range	200-240VAC 200-240VDC
Input voltage range	180-264VAC 180-264VDC
Input voltage shock	<380 V AC
Input current	<0.1A (Rated input voltage)
Input frequency	0/50/60Hz
Input PF/Input DF(typ.)	PF: 0.96, DF:0.96 , see the electrical values below for details
Input THD(typ.)	9.5% , see the electrical values below for details
Efficiency(typ.)	85% , see the electrical values below for details
In-rush current(typ.)	7.62A peak ,237us duration(50 % Ipeak), see the description below for details
Start/Switchover/Turn off(typ.)	0.7s(AC start),0.7s(DC start),0.3s(AC/DC switchover),0.5s(Turn off)
Switching cycles	> 100,000 switching cycles
Power consumption(typ.)	Full load(Pin):17.9W, No load(Pno):N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A
Safety	
Withstand voltage	I/P-O/P(LED):3750V AC, I/P-DALI: 1500V AC, O/P-DALI: 1500V AC.
Mains surge capability	L-N:2KV(Performance criterion:A)(90°/270°, 5 times each with an interval of 60s)
Leakage current(typ.)	0.61mA
Isolation resistance	I/P-O/P:100MΩ/500Vdc/25°C/70%RH
Control interface	
DALI dimming port	Voltage range: 9.5-22.5V, typical 16V, interface current consumption: 1.8mA
pushDIM dimming port	Voltage range: 180-264V 47/63Hz
1-10V 3in1 dimming port	N/A
Auxiliary power supply	N/A
Dimming range	1-100%(minimum current:4mA)
Dimming drive mode	AM(amplitude modulation)
Emergency support	
Central emergency system	Supported
Self-contained emergency	Supported
Environment & Life time	
Operating temperature	Ta=-20-50/60°C, see the Operating temperature for details
Case temperature	Tc=90°C
Operating humidity	5-85% RH, non-condensing
Storage temp./humidity	-40-80°C, 5-85% RH, non-condensing
IP grade	IP20
MTBF	500,000H, MIL-HDBK-217F(25°C)
Life-time	Nominal life-time up to 100,000 h, see the description below for details
Vibration resistant	10~500Hz, 5G 12min./1cycle, period for 72min. each along X,Y,Z axes
Acoustic Noise	<25dB(30cm, Normal operation)
Environmental protection	RoHS
Certifications and standards	
Compliance certification	CCC, CE, ENEC, UKCA, RCM, DALI-2, EL
Safety	GB/T 19510.1, GB/T 19510.213, EN61347-1, EN61347-2-13, EN62384
EMC	GB/T 17743 , GB17625.1, EN55015, EN61000-3-2 , EN61000-3-3, EN61000-4-2,3,4,5,6,8,11, EN61547
DALI-2	IEC 62386-101(DALI-2), IEC 62386-102(DALI-2), IEC 62386-207(DALI-2), DALI part251,252,253
EL	Compatible IEC 61347-2-13 Annex J, compatible with EN 60598-2-22 and EN 50172
RF	N/A

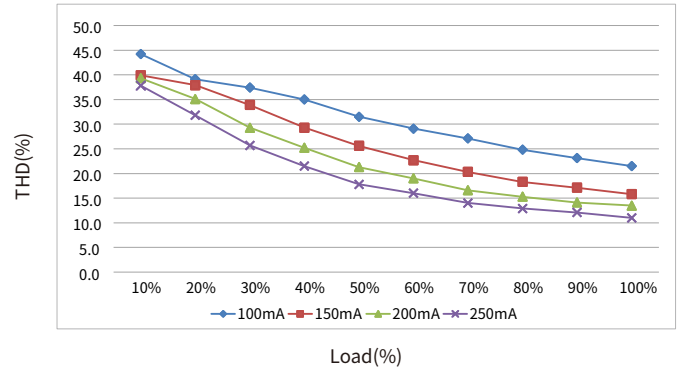
Electrical values

BK-DKL010-A

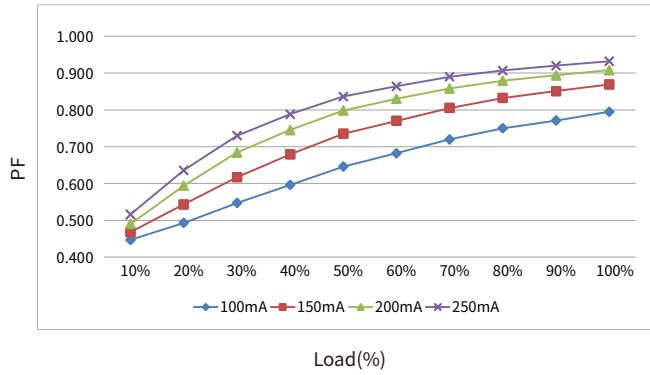
Efficiency vs. load



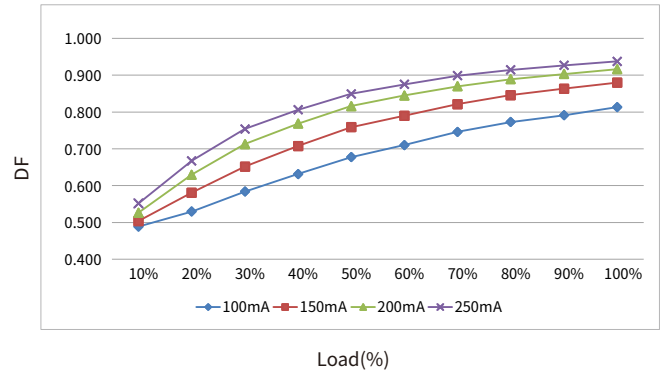
THD vs. Load



Power factor vs. Load

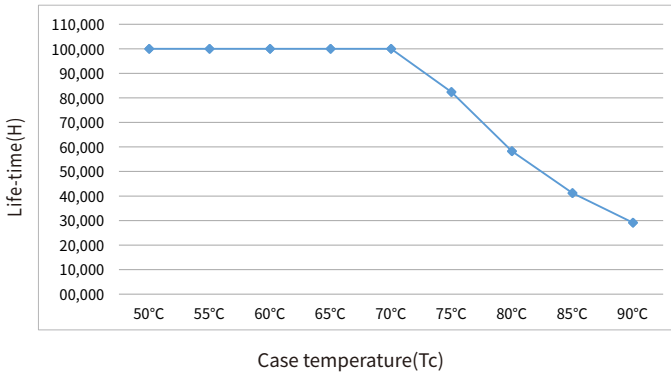


Displacement factor vs. Load



Expected life-time

Life-time vs. case temperature

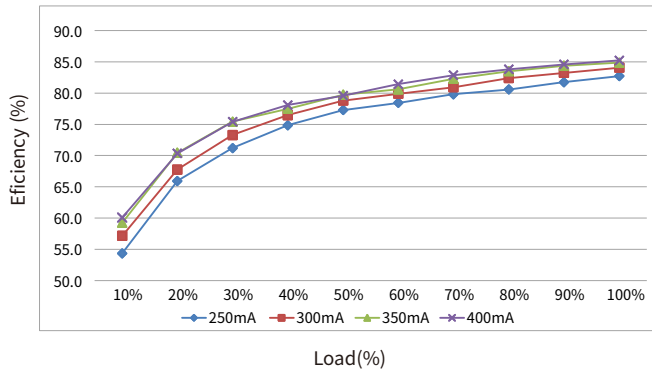


- The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).
- The relation of tc to ta temperature depends also on the luminaire design.

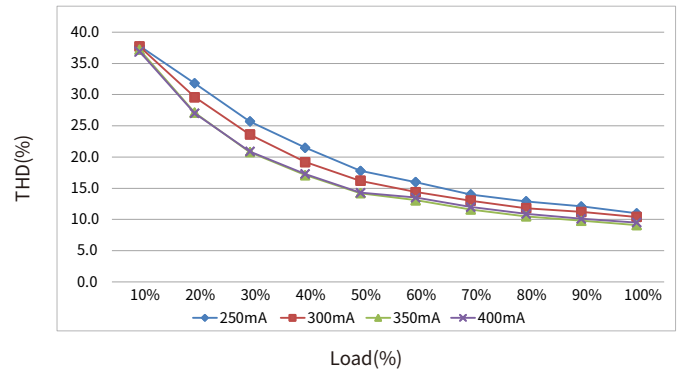
Electrical values

BK-DKL015-A

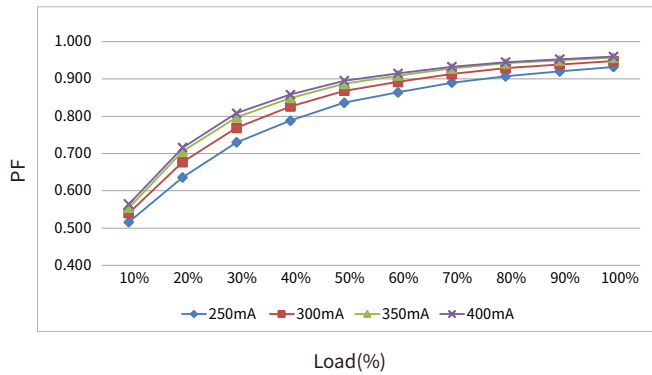
Efficiency vs load



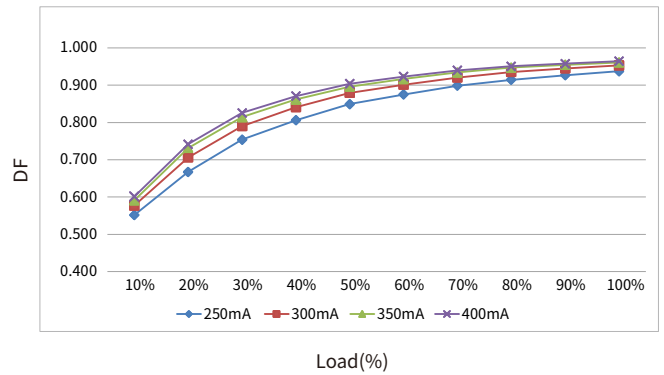
THD vs. Load



Power factor vs. Load

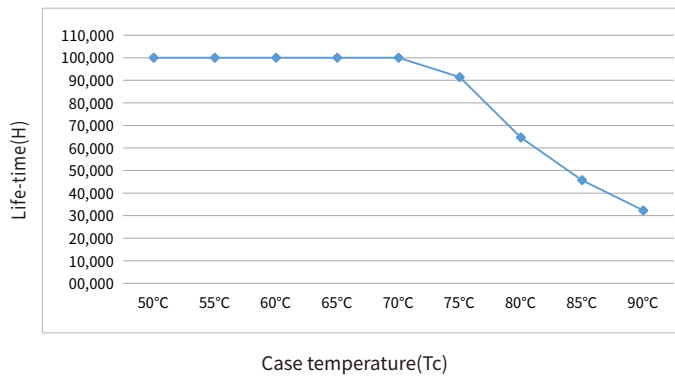


Displacement factor vs. Load



Expected life-time

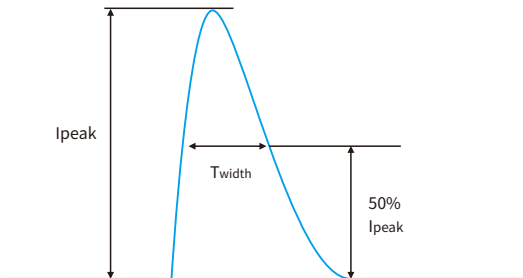
Life-time vs. case temperature



- The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).
- The relation of tc to ta temperature depends also on the luminaire design.

Surge

Model	Ipeak	Twidth	Condition	Relative number of MCB/pcs														
				B10	B13	B16	B20	B25	C10	C13	C16	C20	C25	D10	D13	D16	D20	D25
BK-DKL010-A	7.62A	237us	AC 230V,Full load, Cold start,Ta≤30℃, MCB is not installed side by side	39	51	63	79	98	66	85	105	131	164	131	171	210	262	328
BK-DKL015-A	7.62A	237us		39	51	63	79	98	66	85	105	131	164	100	130	160	199	249



Remarks

- The number of drives mounted under different MCBs in the table is the maximum value. Please do not exceed this number during installation.
- Calculation uses typical values from ABB series S200 as a reference.
- Different brands and models of miniature circuit breakers, the number of drives mounted will be slightly different.
- If the ambient temperature of the MCB installation exceeds 30°C or multiple MCBs are installed side by side, the number of drives mounted will be reduced and the calculation needs to be recalculated.
- Electrician's usually consider Type B for household lighting and Type C for commercial lighting application.

Functions

Output short-circuit behaviour

- Output short-circuit will not damage the driver.
- After removing the short circuit fault, the driver will automatically resume output.

Output no-load operation

- Output no-load will not damage the driver.
- Please turn off the driver first if you need to connect the LED load.

Output over temperature

- When the working temperature exceeds the over temperature protection point inside the power supply IC, the power supply enters a protection state such as output derating, output hiccup or output shutdown. After the external temperature is normal, restart and resume operation.

Driver restart method

There are two ways to restart the driver:

- Through the AC input: disconnect the AC of the driver and power it again.
- Through dimming interface.
DALI: send "OFF" command first, then send "MAX" command.
pushDIM: short press pushbutton two times, then long press pushbutton.

Output hot plug-in protection

- This function is used to prevent LED light that are far below the driver's no-load voltage burnout when hot plugged into a powered driver output.
- This product comes with a default hot plug protection function at the factory and cannot be turned off.

- Note:

Due to the hot plug-in protection function of the driver, the following applications may not achieve the expected effect:

1. When the output of the driver is connected to the color temperature switch:
When the switch is used to change the color temperature, the hot plug-in protection of the driver will be triggered, and the LED will not be lit.
2. When the LED driver is used in conjunction with a self-contained (independent) emergency control device:
Use the self-check test switch of the emergency control device to test the emergency function and when exiting the emergency mode, the driver's hot plug-in protection will be triggered and the LED will not be lit.

The above two applications should use drivers without hot plug-in protection function to achieve the expected working effect. It is recommended to choose our company's drivers without hot plug-in protection function or those that support configurable closing of hot plug-in function.

Insulation between circuits

Isolation	Input	Output	Case	DALI	PUSH
Input	-	Double	Double	Basic	-
Output	Double	-	Basic	Double	Double
Case	Double	Basic	-	Double	Double

Label

BK-DKL010-A0250AD

■ AC/L/DC+

■ ACN/DC-

■ DA

■ DA

BOKE

Dimmable Constant Current LED Driver

(LED控制装置)

MODEL: BK-DKL010-A0250AD

Input: 200-240V ≈0/50/60Hz 0.08A Max. λ:0.6C-0.9C

Output:24-42V= 250mA 10.5W 50VDC Max.

Other ratings see selection sheet

SELV

www.bokedriver.com

MADE IN CHINA(中国制造)

BOKE Drivers Co.,Ltd.

ta:60°C

tc:90°C

wire prep. 0.5-1.0mm²

LED+

LED-

Switching selection sheet

Output	1	2
Po(W)	Io(mA)	Vo(Vdc)
4.20	100	24-42 ON ON
6.30	150	24-42 -- ON
8.40	200	24-42 ON --
10.50	250	24-42 -- --

UK

CA

EL

CCC



Laser engraving technique

BK-DKL015-A0400AD

■ AC/L/DC+

■ ACN/DC-

■ DA

■ DA

BOKE

Dimmable Constant Current LED Driver

(LED控制装置)

MODEL: BK-DKL015-A0400AD

Input: 200-240V ≈0/50/60Hz 0.1A Max. λ:0.6C-0.95

Output:24-38V= 400mA 15.2W 50VDC Max.

Other ratings see selection sheet

SELV

www.bokedriver.com

MADE IN CHINA(中国制造)

BOKE Drivers Co.,Ltd.

Ta

Po(W)

Io(mA)

50°C ≤15.2 ≤400

60°C ≤10 ≤300

wire prep. 0.5-1.0mm²

LED+

LED-

Switching selection sheet

Output	1	2
Po(W)	Io(mA)	Vo(Vdc)
10.50	250	24-42 ON ON
12.60	300	24-42 -- ON
14.70	350	24-42 ON --
15.20	400	24-38 -- --

UK

CA

EL

CCC



Laser engraving technique

DIP-switch & output current

BK-DKL010-A0250AD

Output			1	2
Prated(W)	Irated(mA)	Voltage(Vdc)		
4.20	100	24-42	ON	ON
6.30	150	24-42	--	ON
8.40	200	24-42	ON	--
10.50	250 ★	24-42	--	--

BK-DKL015-A0400AD

Output			1	2
Prated(W)	Irated(mA)	Voltage(Vdc)		
10.50	250	24-42	ON	ON
12.60	300	24-42	--	ON
14.70	350	24-42	ON	--
15.20	400 ★	24-38	--	--

Remarks:

- ★ It means that this item is the factory default current.
- It means that this channel is OFF.

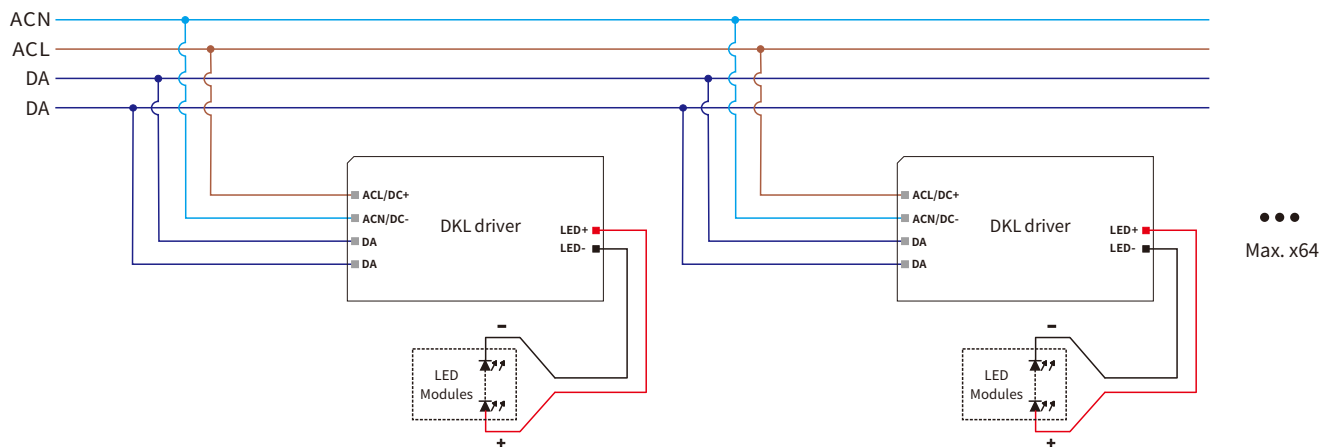
Operating temperature & output current

BK-DKL015-A0400AD

TC	Ta	Output	
		Prated(W)	Irated(mA)
90°C	50°C	≤15.2	≤400
	60°C	≤10	≤300

DALI dimming application

Wiring diagram



Switch to the DALI dimming mode

- After installation according to the wiring diagram of DALI dimming application, the driver will automatically switch to the DALI control mode after receiving any DALI command.

Remarks:

- Standard DALI control line voltage range: 9.5V to 22.5V, type 16V.
- The two DALI control lines polarity-reversible.
- Max. 64 DALI drivers per DALI control line.
- The maximum distance length of the DALI control line is 300m at $2 \times 1.5\text{mm}^2$.
- DALI bus can be wired together with any mains voltage cables, but separate wiring is recommended.
- The configuration parameters of the driver can be set through the DALI configuration tool or DALI application controller during installation, such as setting device address, group address, power-on level, bus-failure level, scene level, fade time, dimming curve, etc.

Please refer to the table below

Cable size	Distance
$2 \times 0.50\text{mm}^2$	max.100m
$2 \times 0.75\text{mm}^2$	max.150m
$2 \times 1.00\text{mm}^2$	max.200m
$\geq 2 \times 1.50\text{mm}^2$	max.300m

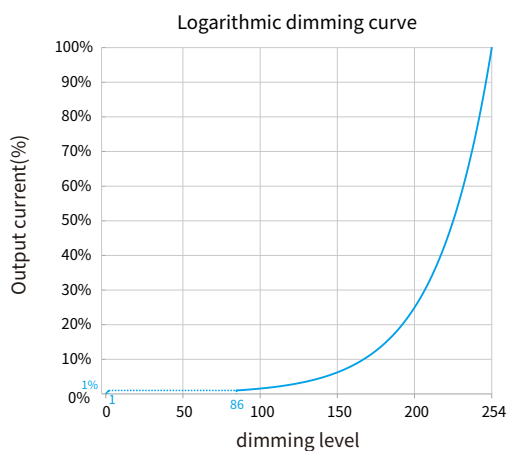
Power-on level :

When the driver is in DALI-2 dimming mode, the factory default level after each power-on is the brightest.

The power-on level can be set through the DALI configuration tool or DALI application controller during installation, and can be set to memory or fixed any brightness (such as off, darkest, 50%, etc.).

Note: The recommended setting for the default factory power-on level of the DALI-2 driver is the brightest in the DALI-2 standard.

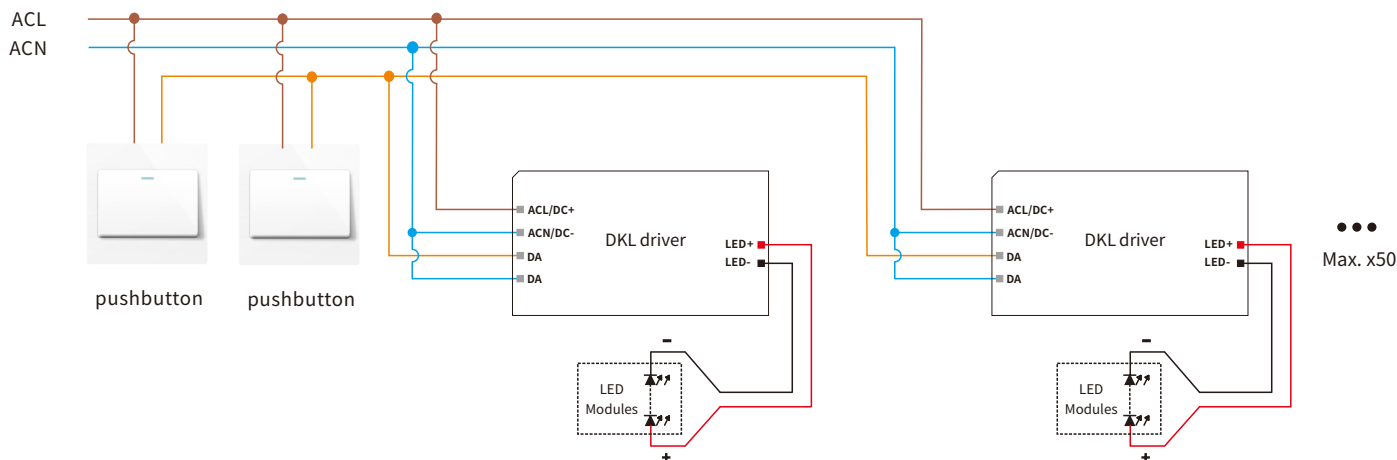
Dimming curve



Remarks: The dimming curve can be selected by DALI configuration. The default is logarithmic dimming curve.

pushDIM dimming application

Wiring diagram



Switch to the pushDIM dimming mode

- After installation according to the wiring diagram of pushDIM dimming application, short press the pushbutton 5 times quickly within 3s , the driver will automatically switch to the pushDIM dimming mode.

Remarks:

Max. 50 drivers per pushDIM control line.

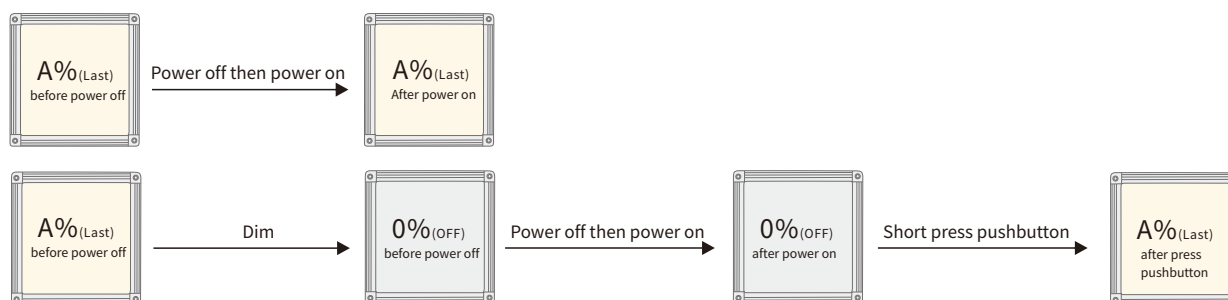
Turn on or turn off: short press pushbutton for 0.2-1s.

Dimming: long press pushbutton for 1-5s.

Power on status: after power on, the light state will be the same as the lighting on state.

If the light is on before power on, the light will be on after power on again, brightness will be the same as the last lighting on brightness.

If the light is off before power off, the light will be off after power on again, short press the pushbutton, then the light will be on, the brightness will be the same as the last brightness.



Multiple lights synchronize control operation

method 1:

Step 1: long press the pushbutton, confirm each light is on.

Step 2: short press the pushbutton, confirm each light is off.

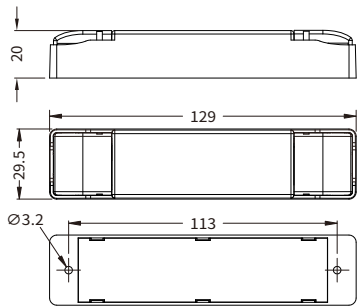
Step 3: long press the pushbutton, confirm each light is from darkest to brightest and all the lights are synchronous.

method 2:

- Long press the pushbutton 15s, all lights output to the brightest state.

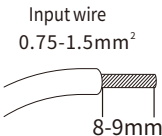
Mechanical Specification

Size
Unit:mm
DKL010-A/DKL015-A



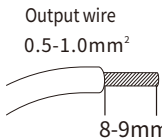
INPUT

Numbering	function	colour
1	ACL/DC+	grey
2	ACN/DC-	grey
3	DA	grey
4	DA	grey



OUTPUT

Numbering	function	colour
1	LED+	red
2	LED-	black



Installation note

- Hot plug-in**
- When the function is not enabled, hot plug-in is not supported due to residual output voltage of > 0 V.
 - If a LED load is connected the device has to be restarted.
 - Restart can be achieved by re-powering the driver or executing a on/off command (action) through the control interface.
- Installation requirements**
- The driver should be installed in a dry, acid-free, oil-free, fat-free environment.
 - The installation ambient temperature of the driver shall not exceed the value of Ta at any time.
 - The temperature of the mounting surface of the driver should be lower than the temperature of Ta.
 - The driver should keep a certain distance from the heating stuff (such as the lamp radiator).
 - If the driver is used externally (it needs to be used with the power end cover), the installation of the driver should also meet the following conditions:
 - 1.The driver should be a certain distance between the drives, as shown in Figure 1.
 - 2.The driver keeps a certain distance from surrounding objects, as shown in Figure 2.

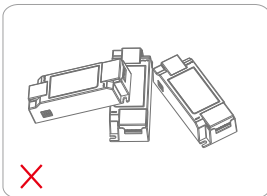


Figure 1

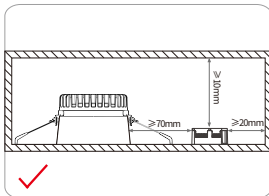
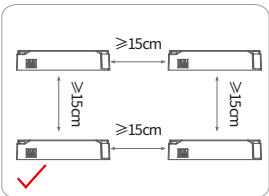


Figure 2

Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Mains leads should be kept apart from LED Driver and other leads (ideally 5-10 cm distance).
- Max. lenght of output wires is 2m.
- Incorrect wiring can damage LED modules.

Replace LED module

1. Mains off
2. Wait more than 5 seconds
3. Remove LED module
4. Connect LED module again

Packaging



Product



Packaging



20pcs×6boxes=120pcs/CTN

Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
DKL010-A	L129*W29.5*H20mm	61g	L217*W133*H67mm	L285*W235*H220mm	120pcs	7.32KG	8.75KG
DKL015-A	L129*W29.5*H20mm	61g	L217*W133*H67mm	L285*W235*H220mm	120pcs	7.32KG	8.75KG

Additional information

- **When the driver is used as an internal power supply for luminaires, re-evaluation of performance including temperature rise, conducted interference, radiated interference, surge immunity and electrostatic discharge (ESD) are required due to differences in luminaire structure and wiring. Ensure compliance with practical application requirements and stable & reliable operation of the driver.**
- Unless otherwise specified, all specifications and parameters are measured under conditions of 230VAC input, 50Hz, full load and ambient temperature of 25°C.
- Product service life and MTBF values are for reference only and do not constitute a warranty statement.
- BOKE reserves the final right to interpret the above parameters. For further information, please send an email to info@bokedriver.com.
- The above information is subject to change without prior notice. Please ensure you use the latest version of the datasheet.