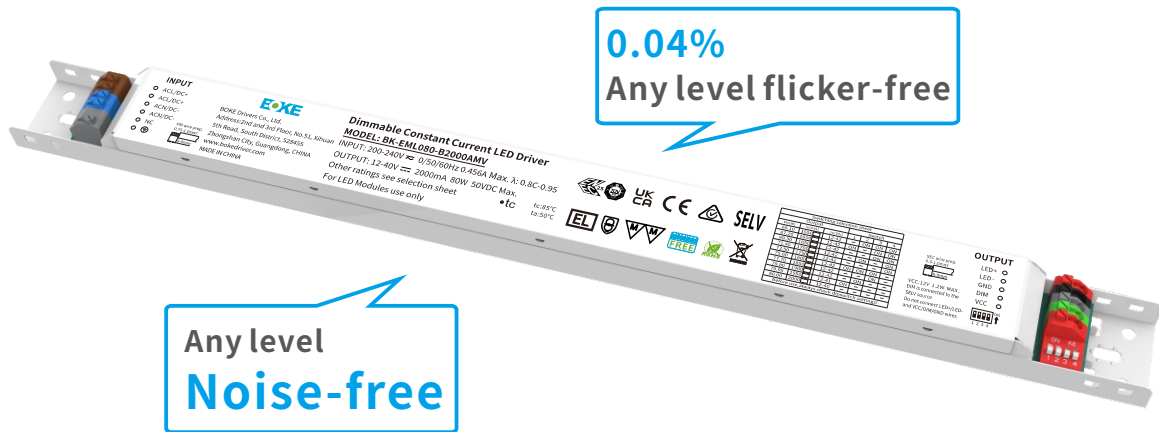


Constant current linear dimmable driver
EML Series suffix MV(1-10V/10V PWM/Rx dimming+12V auxiliary power)

First choice for floor light



Features

- Support 1-10V/10V PWM/Rx dimming+12V auxiliary power
- Provide 12V 100mA auxiliary power supply to power control module or sensor
- Auxiliary 12V supports fast power-down feature
- Noise-free at any dimming level
- Soft dimming and flicker-free at any brightness
- 10-level current output can be realized by DIP-switch
- Dimming range 1~100%, output current accuracy 3%
- Low power-on surge
- Turn off the light quickly
- Support loop-in and loop-out wiring
- 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
- SELV and Class I design, suitable for use inside of the light
- Compliance with CE, ENEC, UKCA, RCM, EL and other certifications
- IP20 protection grade, indoor use
- Nominal life-time up to 100,000 h
- 5-year guarantee

Interfaces

- 1-10V 3in1 (1-10V / 10V PWM / Rx)
- VCC Auxiliary power(12V,100mA)

Functions

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

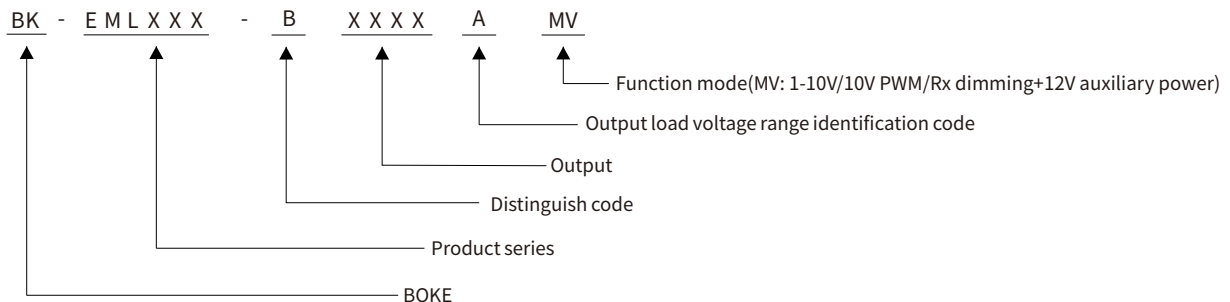
Suitable for lights

- Suitable for linear lights, tri-proof lights, floor lights, bracket lights and other linear or ultra-thin lights etc.

Typical applications

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

Model coding rules of EML series



Function list

Model	Suffix	Wired dimming	Aux power
		1-10V 3in1	12V/0.1A
BK-EML080-B	MV	√	√

Model list

Model	Input voltage	Output power	Output voltage	Output current	Dimension	Certifications
BK-EML080-B2000AMV	200-240VAC/DC	80W MAX.	12-40/41/42VDC	1.55-2.0A	L375*W30*H21mm	CE, ENEC, UKCA, RCM, CCC, EL

Technical data

Product model	BK-EML080-B2000AMV	
Output parameters		
Regulation method	Constant Current	
Rated output current range	1.55-2.0A	
Rated output voltage range	12-40/41/42VDC	
Rated output power	80W Max	
Output current adjustment	DIP S.W(10 levels)	
Output current ripple LF	±2%	
Output current accuracy	±3%	
Linear regulation	±5%	
Load regulation	±5%	
No load output voltage	50VDC	
Flicker-free(typical)	Flickering percent(IEEE 1789)=0.04%, Flicker index(IEEE 1789)=0.001, Pst LM = 0.013, SVM = 0.001, (The above parameters are obtained from testing the panel lights), see the parameter below for details	
Input parameters		
Rated input voltage range	200-240VAC 200-240VDC	
Input voltage range	180-264VAC 200-264VDC	
Input votage shock	<380 V AC	
Input current	<0.456A (Rated input voltage)	
Input frequency	0/50/60Hz	
Input PF/Input DF	PF:0.98 ,DF:0.98,see the electrical values below for details	
Input THD	6% ,see the electrical values below for details	
Efficiency(typical)	90% ,see the electrical values below for details	
In-rush current	14.35A peak ,204us duration(50 % Ipeak), see the description below for details	
Start/Switchover/Turn off	<0.5s(AC start),<0.5s(DC start),<0.3s(AC/DC switchover),<0.5s(Turn off)	
Switching cycles	> 50,000 switching cycles	
Power consumption	Full load(Pin):89.9W, 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(LED,DIM port must be short-circuited),I/P-FG:1750V AC,O/P-FG:500V AC	
Mains surge capability	L-N:2KV,L-FG/N-FG:2KV(Performance criterion:A)	
Leakage current	0.44mA (230V AC & Full load)	
Isolation resistance	I/P-O/P:100MΩ/500Vdc/25°C/70% RH	
Control interface		
DALI dimming port	N/A	
pushDIM dimming port	N/A	
1-10V 3in1 dimming port	Voltage range: 0-15V, interface current consumption: <0.6mA	
Auxiliary power supply	12V ±5% 100mA	
Dimming range	1%-100% (The minimum current of each dip gear is 15mA)	
Dimming drive mode	AM(amplitude modulation)	
Emergency support		
Central emergency system	Supported(dimming normal in DC input)	
Self-contained emergency	Supported	
Environment & Life time		
Operating temperature	Ta=-20-50°C	
Case temperature	Tc=85°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	<20dB(20cm, Normal operation)	
Environmental protection	RoHS	
Certifications and standards		
Certification	CE, ENEC, UKCA, RCM, EL	
Safety	EN61347-1, EN61347-2-13, EN62384	
EMC	EN55015, EN61000-3-2 , EN61000-3-3, EN61000-4-2,3,4,5,6,8,11, EN61547	
DALI-2	N/A	
EL	Compatible IEC 61347-2- 13 Annex J, compatible with EN 60598-2-22 and EN 50172	
RF	N/A	

Remarks

1.By default, all parameter are measured at 230VAC input, full load and 25°C of ambient temperature.

Flicker-free

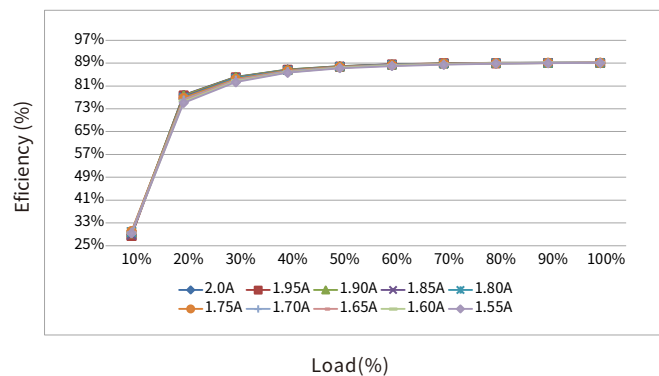
BK-EML080-B2000AMV

lights	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Flickering percent(IEEE 1789)	0.14%	0.28%	0.30%	0.28%	0.25%	0.22%	0.17%	0.11%	0.06%	0.03%

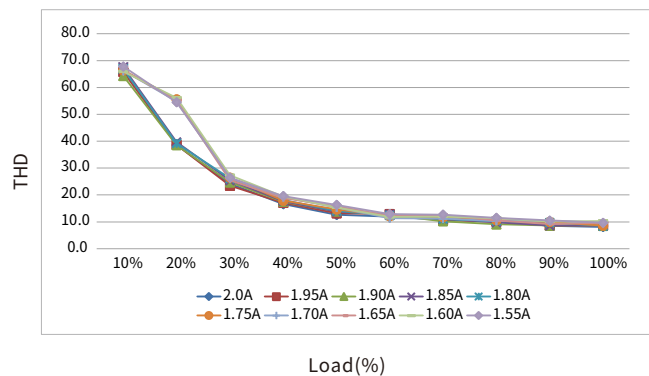
Electrical values

BK-EML080-B2000AMV

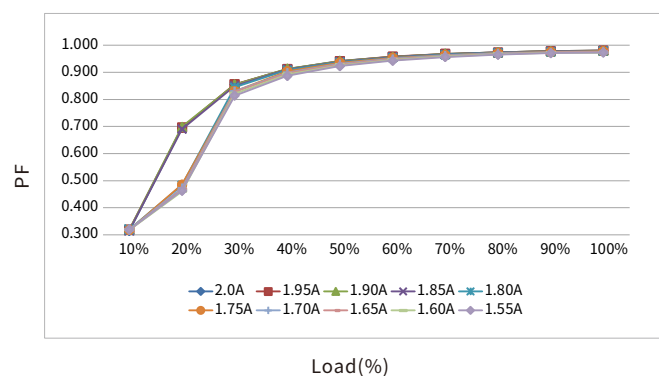
Efficiency vs Load



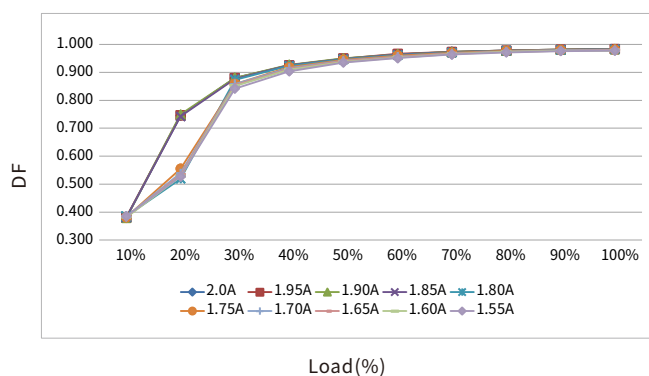
THD vs. Load



Power factor vs. Load

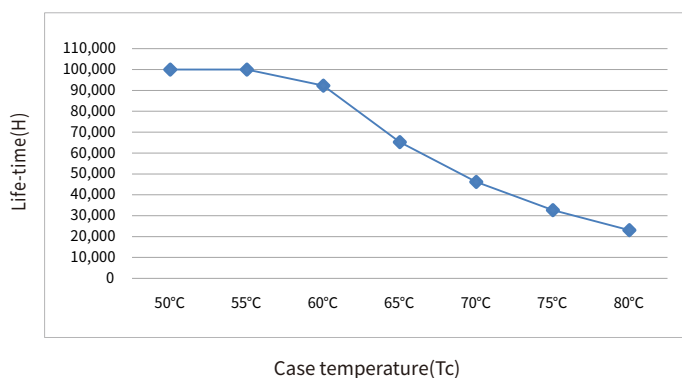


Displacement factor vs. Load



Expected life-time

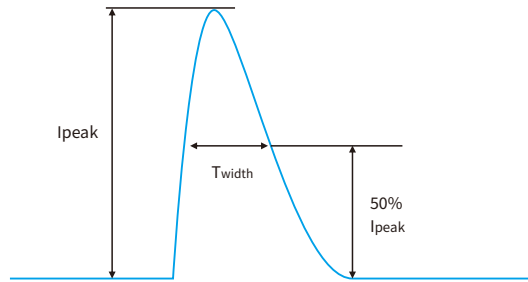
Life-time vs. case temperature



- 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														
				B10	B13	B16	B20	B25	C10	C13	C16	C20	C25	D10	D13	D16	D20	D25
BK-EML080-B2000AMV	14.35A	204us	AC 230V,Full load, Cold start,Ta≤30°C, MCB is not installed side by side	20	26	32	40	50	20	26	32	40	50	20	26	32	40	50



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.

Insulation between circuits

Isolation	Input	Output	Case	DIM	PWM	12VCC
Input	-	Double	Basic	Double	Double	Double
Output	Double	-	Basic	-	-	-
Case	Basic	Basic	-	Basic	Basic	Basic

DIP-switch & output current

BK-EML080-B2000AMV

Output			1	2	3	4	Dimming depth
Prated(W)	Irated(mA)	Voltage(Vdc)					
65.10	1550	12-42	--	ON	ON	ON	1.0%(15mA)
67.20	1600	12-42	ON	--	ON	ON	0.9%(15mA)
69.30	1650	12-42	--	--	ON	ON	0.9%(15mA)
71.40	1700	12-42	--	ON	--	ON	0.9%(15mA)
73.50	1750	12-42	--	--	--	ON	0.9%(15mA)
75.60	1800	12-42	ON	ON	ON	--	0.8%(15mA)
77.70	1850	12-42	--	--	ON	--	0.8%(15mA)
79.80	1900	12-42	--	ON	--	--	0.8%(15mA)
79.95	1950	12-41	ON	--	--	--	0.8%(15mA)
80.00	2000 ★	12-40	--	--	--	--	0.8%(15mA)

Remarks:

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

Label

BK-EML080-B2000AMV

INPUT

- ACL/DC+
- ACL/DC-
- ACN/DC-
- ACN/DC-
- NC
- ⊕

BOKE Drivers Co., Ltd.
Address: 2nd and 3rd Floor, No.51, Xihuan
5th Road, South District, 528455
Zhongshan City, Guangdong, CHINA
www.bokedriver.com
MADE IN CHINA

Pin wire gauge: 6-19-1.0mm²

Dimmable Constant Current LED Driver
MODEL: BK-EML080-B2000AMV

INPUT: 200-240V ~ 0/50/60Hz 0.456A Max. λ: 0.8C-0.95
OUTPUT: 12-40V = 2000mA 80W 50VDC Max.
Other ratings see selection sheet
For LED Modules use only

•tc tc:85°C
ta:50°C

Switching selection sheet

Output	Switch	1	2	3	4
65.10	1550	12-42	ON	ON	ON
67.20	1600	12-42	ON	ON	ON
69.30	1650	12-42	ON	ON	ON
71.40	1700	12-42	ON	ON	ON
73.50	1750	12-42	ON	ON	ON
75.60	1800	12-42	ON	ON	ON
77.70	1850	12-42	ON	ON	ON
79.80	1900	12-42	ON	ON	ON
79.95	1950	12-41	ON	ON	ON
80.00	2000	12-40	ON	ON	ON

Before use, always check dipswitch settings!

OUTPUT

- LED+
- LED-
- GND
- DIM
- VCC

VCC: 12V 1.2W MAX.
DIM is connected to the
SELV source
Do not connect LED+LED-
and VCC, DIM, GND wires

SEC wire gauge: 0.5-1.0mm²

SELV

EL

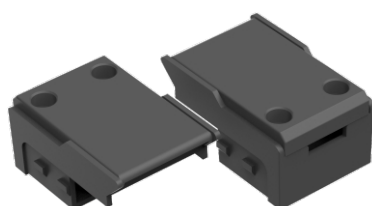
WV

FREE

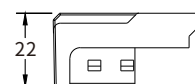
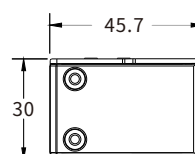
RoHS

Unit:mm

Optional accessories



(Model: BK-BAS012A)

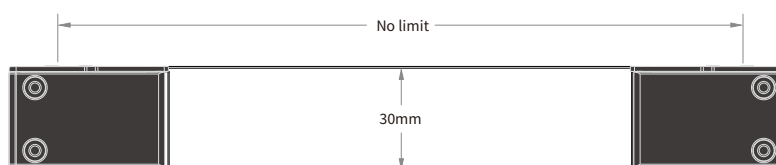


Remark: BK-BAS012A apply to EML080-B

Unit:mm

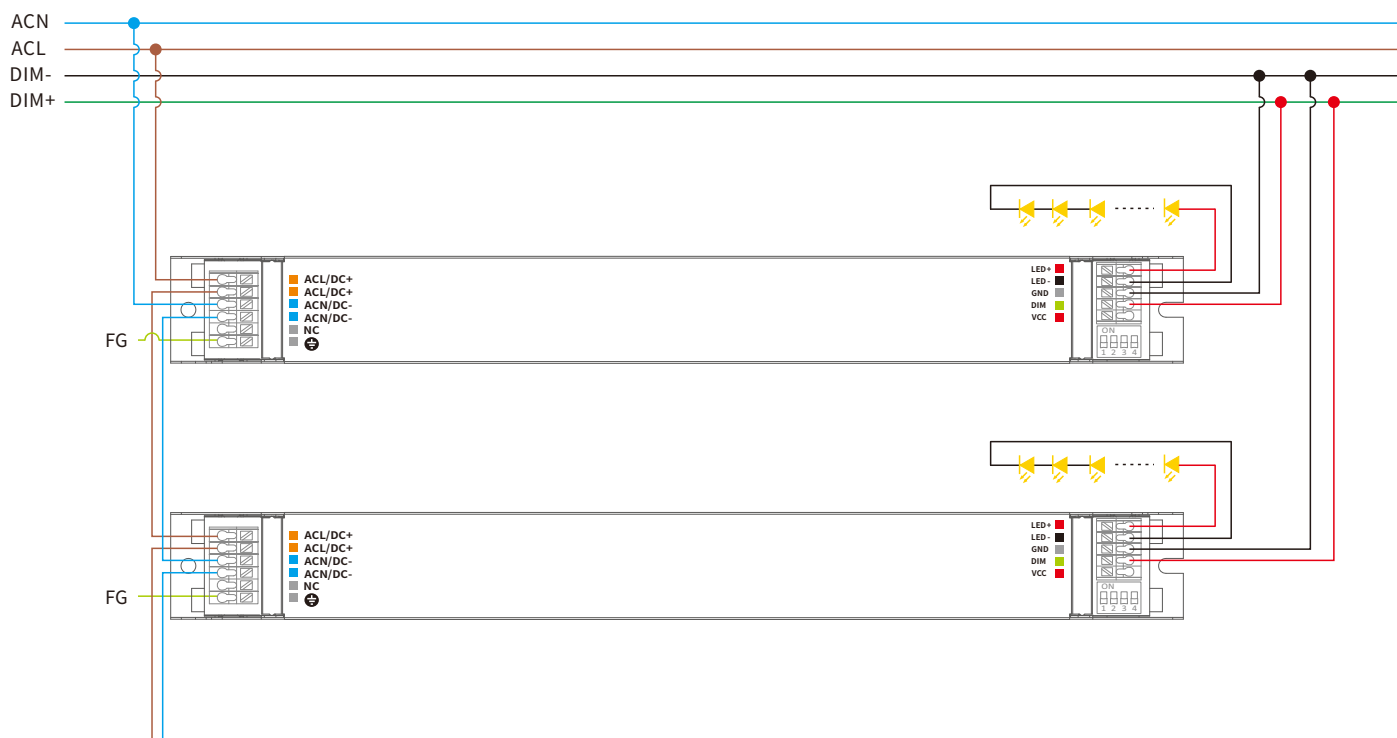
Installation diagram of accessories

(Model: BK-BAS012A)



1-10V/10V PWM dimming application

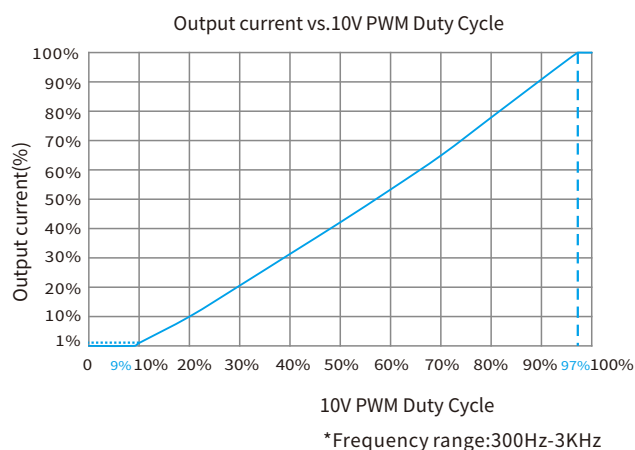
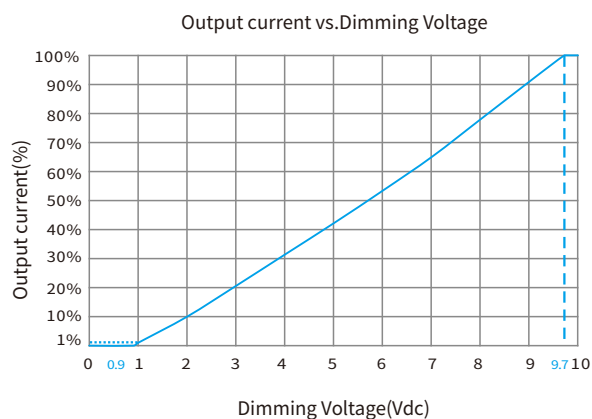
Wiring diagram



Remarks

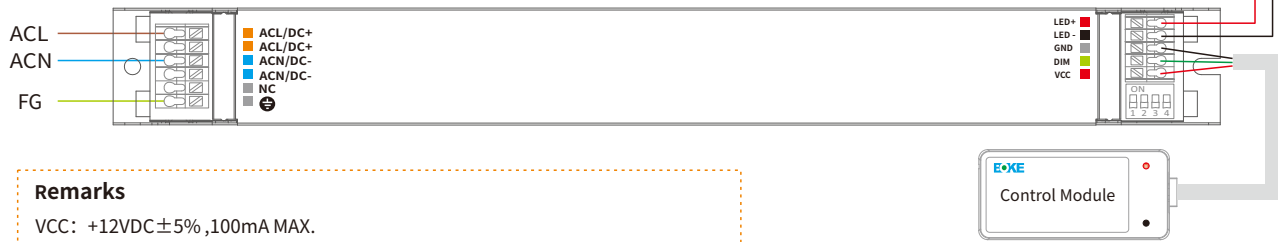
- Dimming interface characteristics: 0.9V and below are closed, 1V is the darkest, 10V is the brightest, 1-10V is the dimming range.
- The dimming interface distinguishes between positive and negative, DIM is positive, GND is negative, please do not reverse.
- Dimming interface does not support voltage access higher than 15V, otherwise it will cause damage to the internal components.
- When the dimming interface is open, the driver outputs the maximum current. When the interface is short-circuited, the current output is closed.
- When multiple synchronous dimming is required, the positive poles of the dimming interface of each driver are connected together, and the negative poles are connected together.
- Support passive dimmer or isolated active dimmer dimming, does not support non-isolated active dimmer dimming.
- In general, it is recommended that the number of mounted drives does not exceed 30pcs, and the wiring length does not exceed 100m.
- It is recommended that the dimming wires should not be lower than the 22AWG wire.
- Do not put the dimming wires with high voltage or interference sources. If it is unavoidable, please use the shielded wires.
- If you need a drive with 0-10V dimming characteristics, please contact BOKE.

Dimming curve



1-10V/10V PWM+12V application

Wiring diagram



Remarks

VCC: +12VDC $\pm 5\%$, 100mA MAX.

DIM/GND:

1-10V signal: 0.9V and below are closed, 1V is the darkest, 10V is the brightest,

1-10V is the dimming range.

10V PWM signal: 9% duty cycle and below are closed, 10% is the darkest, 100% is the brightest.

Typical applications

Aux supply 12V

Diming PWM

GND

Bluetooth module

Zigbee module

WiFi module

LoRa module

4G/5G module

NB-IoT module

Daylight Sensor

PIR Sensor

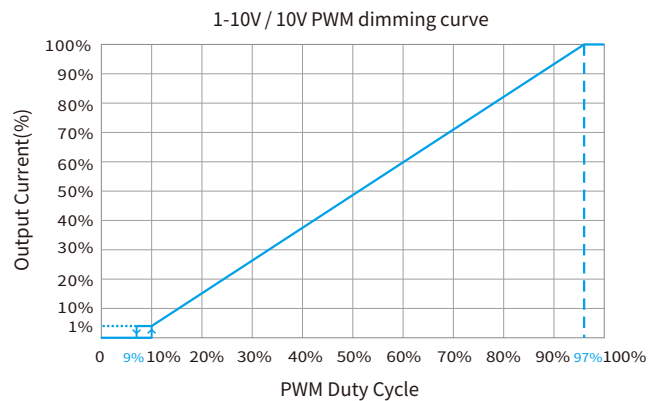
Microwave Sensor

IR Sensor

RF module

.....

Dimming curve



100K potentiometer dimming application

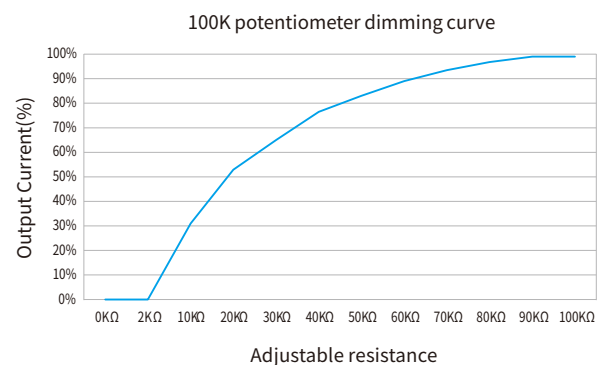
Wiring diagram



Remarks

- In the 100K potentiometer dimming mode, the potentiometer can only be connected to one driver.

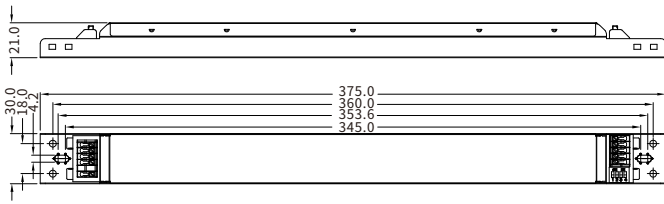
Dimming curve



Mechanical Specification

Size(Excluding accessories)

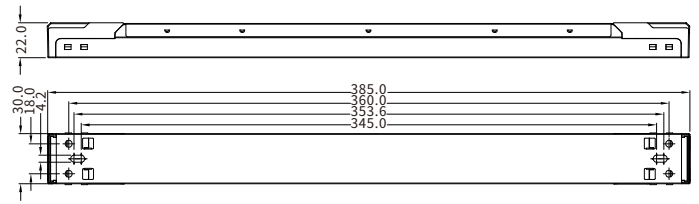
Unit:mm
EML080-B



Mechanical Specification

Size(Include accessories)

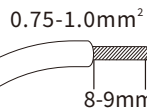
Unit:mm
EML080-B



INPUT

Numbering	function	colour
1	ACL/DC+	brown
2	ACL/DC+	brown
3	ACN/DC-	blue
4	ACN/DC-	blue
5	NC	gray
6	FG	gray

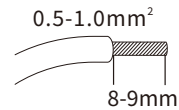
Input wire



OUTPUT

Numbering	function	colour
1	LED+	red
2	LED-	black
3	GND	grey
4	DIM	green
5	VCC	red

Output wire



Installation note

Hot plug-in

- Hot plug-in is not supported due to residual output voltage of > 0 V.

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. length of output wires is 2 m.
- Incorrect wiring can damage LED modules.

Installation requirements

- The driver should be installed in a dry, acid-free, oil-free, fat-free environment.
- The installation ambient temperature of the drive shall not exceed the value of Ta at any time.
- The temperature of the mounting surface of the driver should be lower than 40°C
- The driver should keep a certain distance from the heating stuff (such as the luminaire radiator).
- If the driver is used externally (it needs to be used with the accessories), the installation of the driver should also meet the following conditions:
 1. The driver should be a certain distance between the drivers, as shown in Figure 1.
 2. The driver keeps a certain distance from surrounding objects, as shown in Figure 2.

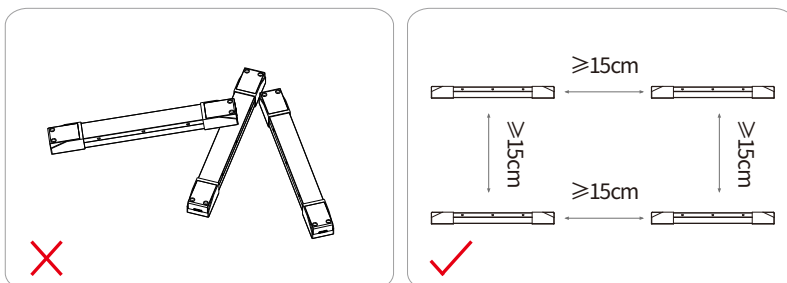


Figure 1

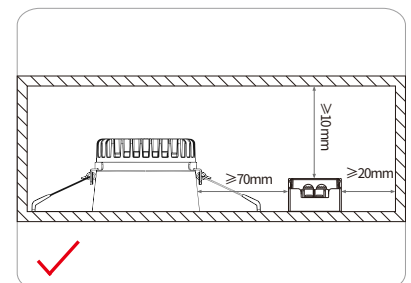
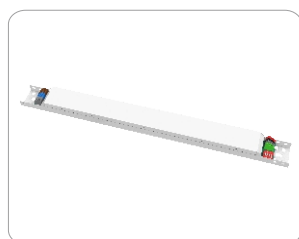
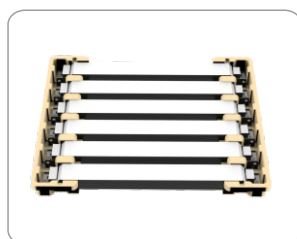


Figure 2

Packaging(Excluding accessories)



Product



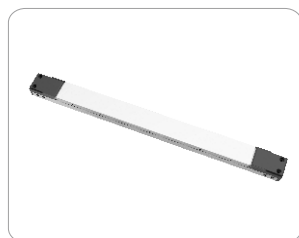
Paper tray



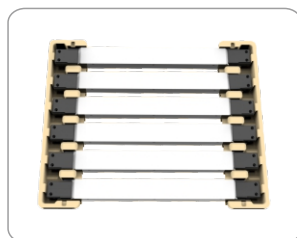
7pcs*4layer=28pcs/CIN

Model	Product size	Weight	Paper tray	Carton size	Qty/carton	N.W	G.W
EML080-B	L375*W30*H21mm	297g	L345*W75*H29mm	L425*W355*H140mm	28pcs	8.18KG	9.38KG

Packaging(Include accessories)



Product



Paper tray



7pcs*4layer=28pcs/CIN

Model	Product size	Weight	Paper tray	Carton size	Qty/carton	N.W	G.W
EML080-B	L385*W30*H21mm	311g	L345*W75*H29mm	L425*W355*H140mm	28pcs	8.71KG	9.91KG

Additional information

1. The life and MTBF of the product are for reference only, and do not represent a warranty statement.
2. For more information, please send an email to info@bokedriver.com.