



Features

- Flicker-free output, which meets the requirement of ErP standard
- Screw-free design, easy wiring
- Withstand 380VAC high voltage short-time shock
- Pushable strain relief design, easy to crimp and install
- Compact housing design
- Dual-stage circuit design, work stable
- High PF, low THD
- SELV and Class II design, suitable for use outside of the luminaires
- Compliance with CE, ENEC, UKCA, RCM, CCC and other certifications
- IP20 protection grade, indoor use
- Nominal life-time up to 100,000 h
- 5.5-year guarantee

Functions

- Protective features
(short-circuit, no-load protection)

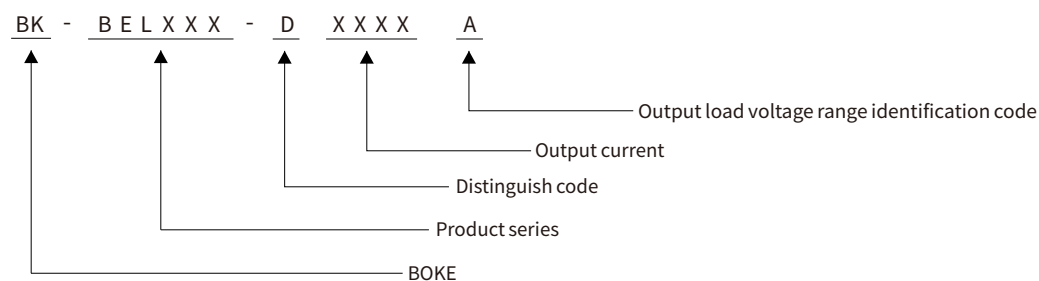
Suitable for lights

- 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 BEL series



Model list

Model	Input voltage	Output power	Output voltage	Output current	Dimension
BK-BEL022-D0600A	200-240VAC	22.8W MAX.	28-42VDC	0.1-0.6A	L114.5*W41*H24.5mm
BK-BEL040-D1000A	200-240VAC	40W MAX.	28-42VDC	0.5-1A	L119*W42.5*H28mm

Technical data

Product model	BK-BEL022-D0500A		BK-BEL022-D0550A	BK-BEL022-D0600A
Output parameters				
Regulation method	Constant Current			
Rated output current range	0.1-0.5A	0.55A	0.6A	
Rated output voltage range	28-42VDC	28-40VDC	28-38VDC	
Rated output power	21W Max	22W Max	22.8W Max	
Output current adjustment	Fixed output			
Output current ripple(typ.)	±3%(75kHz)			
Output current accuracy	±5%@300-600mA ±8%@250mA ±10%@150-200mA ±15%@100mA			
Linear regulation	±5%@300-600mA ±8%@250mA ±10%@150-200mA ±15%@100mA			
Load regulation	±5%@300-600mA ±8%@250mA ±10%@150-200mA ±15%@100mA			
No load output voltage	50VDC			
Flicker-free(typ.)	Flickering percent(IEEE 1789)=0.419%(100Hz), Flicker index(IEEE 1789)=0.001(100Hz), Pst LM = 0.000, SVM = 0.003, (The above parameters are obtained from testing the panel lights)			
Input parameters				
Rated input voltage range	200-240VAC			
Input voltage range	180-264VAC			
Input votage shock	<380 V AC			
Input current	<0.14A (Rated input voltage)			
Input frequency(typ.)	50/60Hz			
Input PF/Input DF(typ.)	PF: 0.98,DF:0.98 , see the electrical values below for details			
Input THD(typ.)	5%,see the electrical values below for details			
Efficiency(typ.)	88%,see the electrical values below for details			
In-rush current(typ.)	13.7A peak ,218us duration(50 % Ipeak), see the description below for details			
Start/Turn off	<0.5s(AC start),<0.5s(Turn off)			
Switching cycles	> 100,000次			
Power consumption	Full load(Pin):25.9W, No load(Pno): N/A, On stand-by(Psb) : N/A, Network stand-by(Pnet) : N/A			
Safety				
Withstand voltage	I/P-O/P:3750V AC			
Mains surge capability	L-N:2KV(90°/270°, 5 times each with an interval of 60s)(Performance criterion:A)			
Leakage current(typ.)	0.6mA			
Isolation resistance	I/P-FG:100MQ/500Vdc/25°C/70%RH			
Control interface				
DALI dimming port	N/A			
pushDIM dimming port	N/A			
1-10V 3in1 dimming port	N/A			
Auxiliary power supply	N/A			
Dimming range	N/A			
Dimming drive mode	N/A			
Emergency support				
Central emergency system	N/A			
Self-contained emergency	N/A			
Environment & Life time				
Operating temperature	Ta=-30-45°C			
Case temperature	Tc=80°C			
Operating humidity	5-85% RH, not condensed			
Storage temp./humidity	-40-80°C, 5-85% RH, not condensed			
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	CE, ENEC, UKCA, RCM, CCC			
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	N/A			
EL	N/A			
RF	N/A			

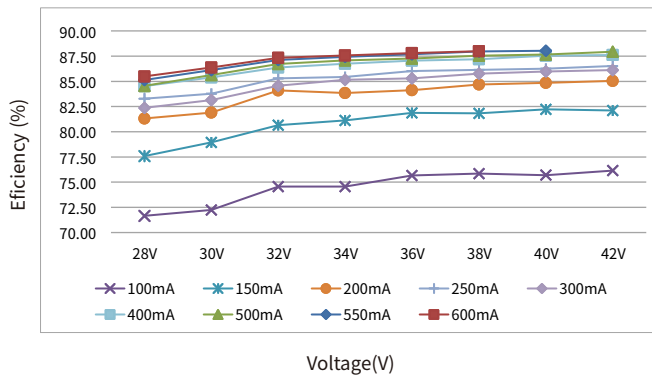
Technical data

Product model	BK-BEL040-D0950A		BK-BEL040-D1000A
Output parameters			
Regulation method	Constant Current		
Rated output current range	0.5-0.95A	1A	
Rated output voltage range	28-42VDC	28-40VDC	
Rated output power	39.9W Max	40W Max	
Output current adjustment	Fixed output		
Output current ripple(typ.)	±3%(75kHz)		
Output current accuracy	±5%		
Linear regulation	±5%		
Load regulation	±5%		
No load output voltage	50VDC		
Flicker-free(typ.)	Flickering percent(IEEE 1789)=0.154%(100Hz), Flicker index(IEEE 1789)=0.001(100Hz), Pst LM = 0.000, SVM = 0.003, (The above parameters are obtained from testing the panel lights)		
Input parameters			
Rated input voltage range	200-240VAC		
Input voltage range	180-264VAC		
Input votage shock	<380 V AC		
Input current	<0.24A (Rated input voltage)		
Input frequency(typ.)	50/60Hz		
Input PF/Input DF(typ.)	PF: 0.98,DF:0.98 , see the electrical values below for details		
Input THD(typ.)	7%,see the electrical values below for details		
Efficiency(typ.)	89.5%,see the electrical values below for details		
In-rush current(typ.)	15.75A peak ,201us duration(50 % Ipeak), see the description below for details		
Start/Turn off	<0.5s(AC start),<0.5s(Turn off)		
Switching cycles	> 100,000次		
Power consumption	Full load(Pin):44.7W, No load(Pno): N/A, On stand-by(Psb) : N/A, Network stand-by(Pnet) : N/A		
Safety			
Withstand voltage	I/P-O/P:3750V AC		
Mains surge capability	L-N:2KV(90°/270° , 5 times each with an interval of 60s)(Performance criterion:A)		
Leakage current(typ.)	0.65mA		
Isolation resistance	I/P-FG:100MQ/500Vdc/25°C/70%RH		
Control interface			
DALI dimming port	N/A		
pushDIM dimming port	N/A		
1-10V 3in1 dimming port	N/A		
Auxiliary power supply	N/A		
Dimming range	N/A		
Dimming drive mode	N/A		
Emergency support			
Central emergency system	N/A		
Self-contained emergency	N/A		
Environment & Life time			
Operating temperature	Ta=-30-45°C		
Case temperature	Tc=80°C		
Operating humidity	5-85% RH, not condensed		
Storage temp./humidity	-40-80°C, 5-85% RH, not condensed		
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	CE, ENEC, UKCA, RCM, CCC		
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	N/A		
EL	N/A		
RF	N/A		

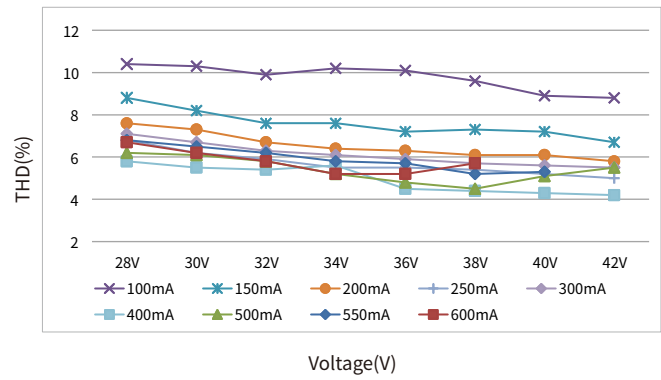
Electrical values

BK-BEL022-D

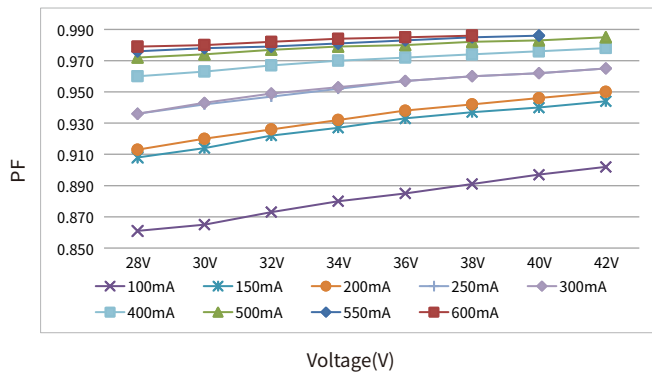
Efficiency vs voltage



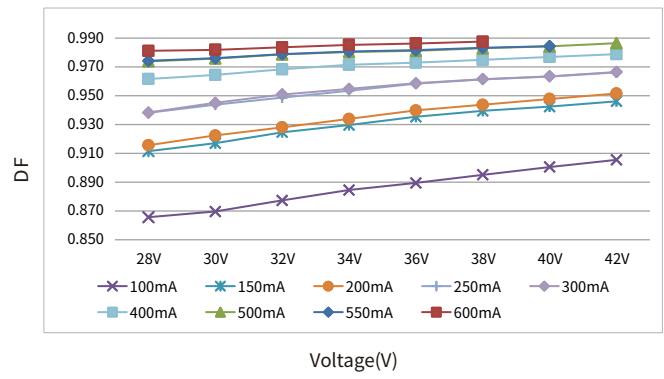
THD vs. voltage



Power factor vs. voltage

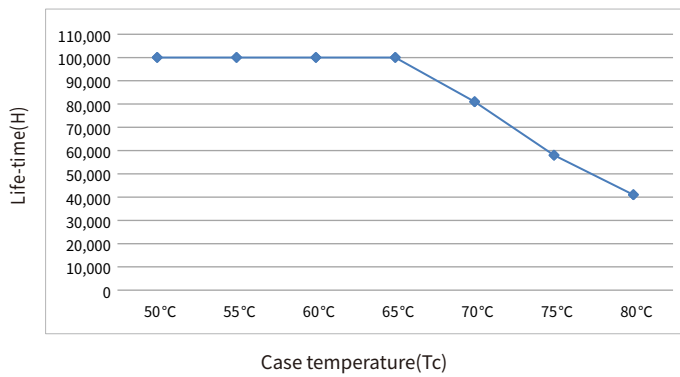


Displacement factor vs. voltage



Expected life-time

Life-time vs. case temperature



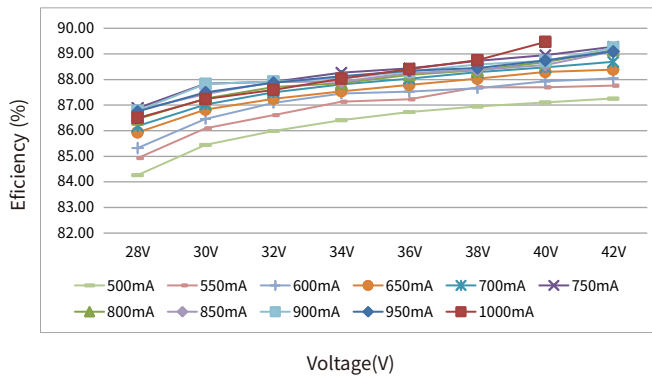
-The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).

- The relation of tc to ta temperature depends also on the luminaire design.

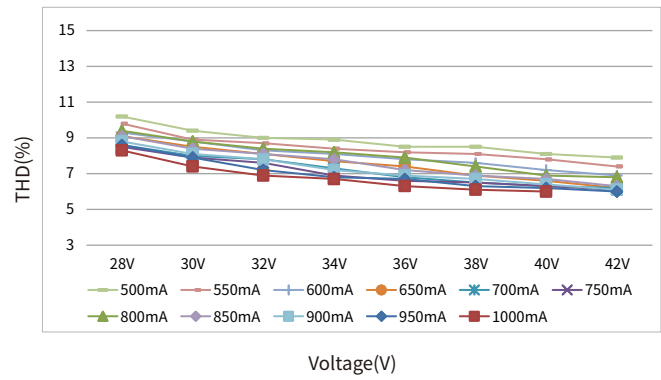
Electrical values

BK-BEL040-D

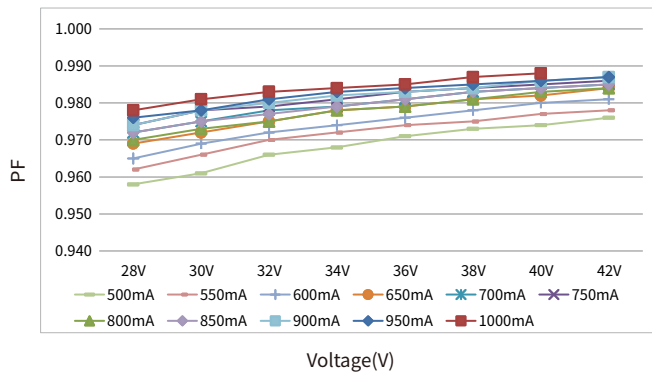
Efficiency vs voltage



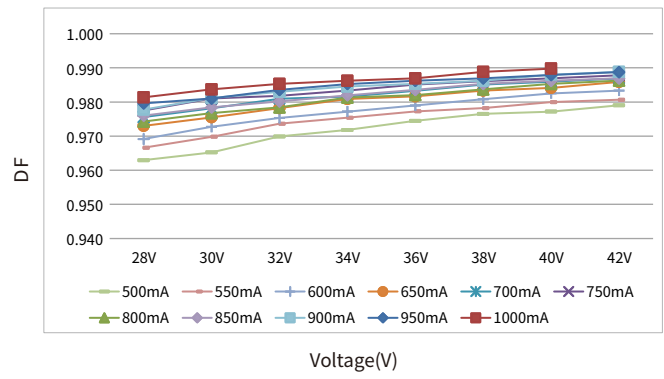
THD vs. voltage



Power factor vs. voltage

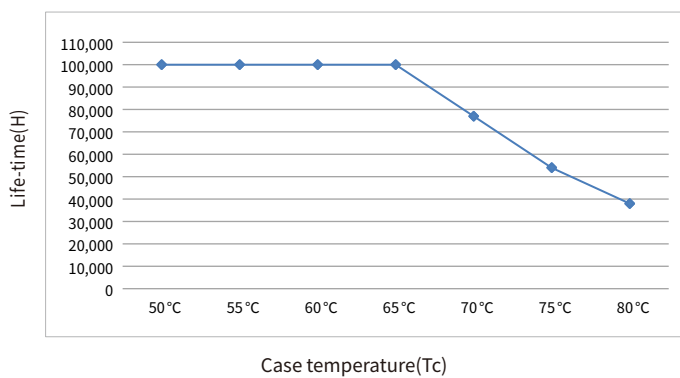


Displacement factor vs. voltage



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.

A diagram of a single positive pulse. The vertical axis represents voltage, with the peak-to-peak voltage labeled as V_{pp} . The horizontal axis represents time, with the pulse width labeled as T_{width} . The pulse starts at a baseline, rises to a peak, and then falls back to the baseline.

- 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.

- Output short-circuit will not damage the driver.

After removing the short circuit fault, the driver will automatically resume output.

- Output no-load will not damage the driver.

Please turn off the driver first if you need to connect the LED load.

Isolation	Input	Output	Case
Input	-	Double	Double
Output	Double	-	Basic
Case	Double	Basic	-

BEL022-D



EKO

Constant Current LED Driver(LED控制装置)

MODEL: BK-BEL022-D0600A

■ **ACL**

■ **ACN**

■ **wire prep.**

0.75mm²

Preparation for input and output



3mm
8-9mm

Input: 200-240V ~ 50/60Hz 0.14A Max. λ :0.95

Output: 28-38V = 600mA 22.8W Max. 50VDC Max.

For LED Modules use only

BOKE Drivers Co., Ltd.

MADE IN CHINA(中国製造)




25 • tc

tc:80℃
ta:45℃







wire prep.
0.5-1.5mm²

LED+ ■

LED- ■

SELV

BEL040-D

ACL
ACN
 wire prep.
 0.75mm
 Preparation for
 input and output

 9mm

BOKE Constant Current LED Driver (LED控制装置)
www.boke-driver.com MODEL: BK-BEL040-D1000A
 Input: 200~240V ~ 50/60Hz 0.24A Max. λ : 0.95
 Output: 28~40V ~ 1000mA 40W Max. 50VDC Max.
 For LED Modules use only
 BOKE Drivers Co., Ltd.
 MADE IN CHINA(中国制造)

ta: 80°C
 tc: 45°C



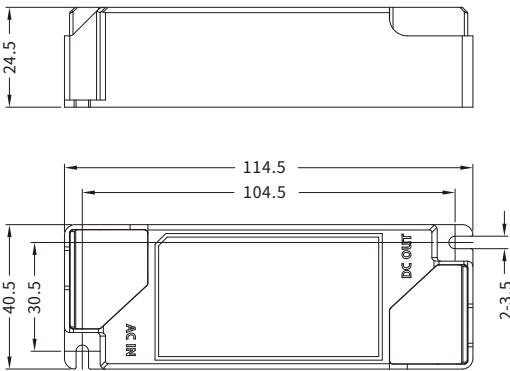


wire prep.
 0.5~1.5mm²
 LED+
 LED-

Installation

Unit:mm

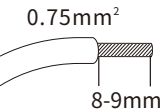
BEL022-D



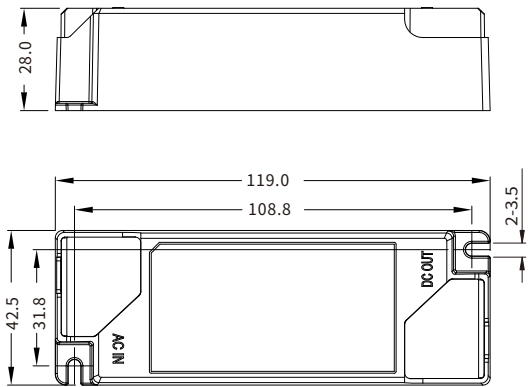
INPUT

Numbering	function	colour
1	ACL	orange
2	ACN	orange

Input wire



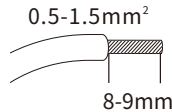
BEL040-D



OUTPUT

Numbering	function	colour
1	LED+	red
2	LED-	black

Output wire



Installation note

Hot plug-in

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

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 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.

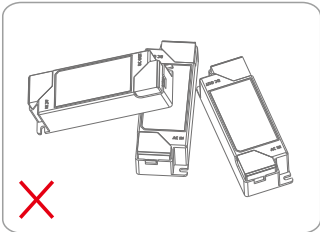


Figure 1

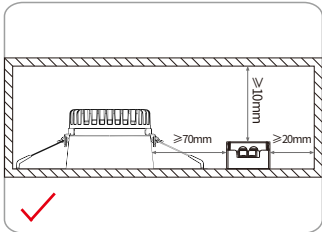
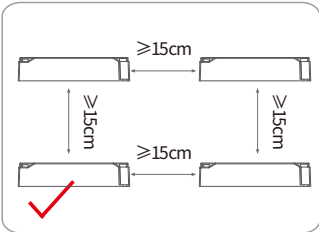


Figure 2

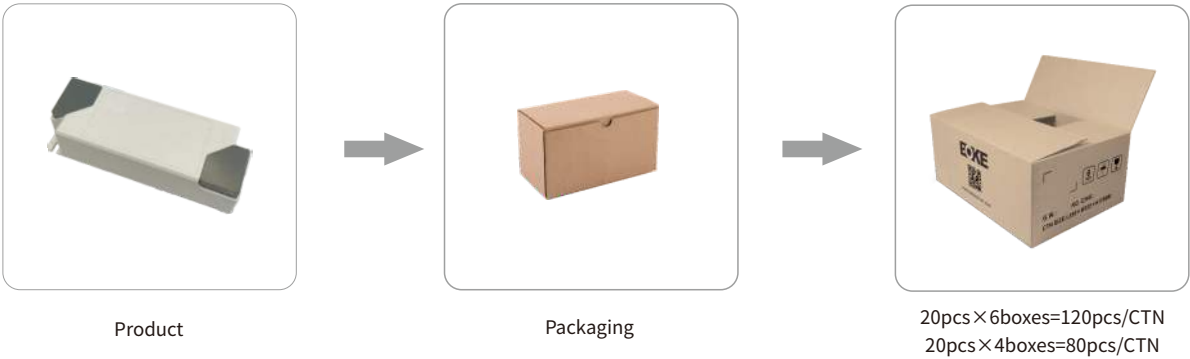
Wiring guidelines

- 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 2 m.
- 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



Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
BEL022-D	L114.5*W40.5*H24.5mm	71g	L250*W120*H92mm	L380*W270*H205mm	120pcs	8.52KG	9.72KG
BEL040-D	L119*W42.5*H28mm	93g	L243*W145*H95mm	L310*W260*H210mm	80pcs	7.44KG	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.